

—INTERNATIONAL SOCIETY FOR —
ISMIRM
MAGNETIC RESONANCE IN MEDICINE

MONDAY

Plenary Lectures: New Contrast Agents

- 1. Imaging Fluorescent Probes in Living Cells, Tissues and Animals.**
S.R. Adams.
University of California, San Diego, La Jolla, California.
- 2. Affinity-Targeted Contrast Agents**
S.A. Wickline and G.M. Lanza.
Washington University School of Medicine, Saint Louis, MO.
- 3. Seeing is Believing: Visualizing In-Vivo Gene Expression and Secondary Messengers by MRI**
T.J Meade.
California Institute of Technology, Beckman Institute Pasadena, CA.

Image Reconstruction Methods

- 4. Advances in Sensitivity Encoding with Arbitrary k-Space Trajectories**
K.P. Pruessman, M. Weiger, P. Börnert, P. Boesiger.
Institute of Biomedical Engineering, ETH and University Zurich, Zurich, Switzerland.
- 5. Unifying Linear Prior-information-driven Methods for Accelerated Image Acquisition — Development of a Broad-use Linear Acquisition Speed-up Technique (BLAST) to Overcome Existing Limitations**
J. Tsao, B. Behnia and A. Webb.
University of Illinois at Urbana-Champaign, Urbana, IL, USA.
- 6. Sum-of-Squares Image Reconstruction with SMASH**
M. A. Ohliger, C.A. McKenzie, E.N. Yeh, M.D. Price and D.K. Sodickson.
Harvard Medical School, Boston, MA, USA.
- 7. New Approaches to Self-Calibrating Parallel Imaging**
C.A. McKenzie, M.D. Price, E.N. Yeh, M.A. Ohliger and D.K. Sodickson.
Harvard Medical School, Boston, MA, USA.
- 8. Push-button PPA Reconstructions: Generalized Autocalibrating Partially Parallel Acquisitions (GRAPPA)**
M. Griswold, P. Jakob, R. Heidemann, M. Nittka, J. Wang, B. Kiefer and A. Haase.
Universitat Wurzburg, Wurzburg, Germany and Siemens Medical, Erlangen, Germany.

9. **FUSION for Incremental Field-of-View Imaging.**
Yudong Zhu.
GE Corporate R&D Center, Niskayuna, NY, USA.
10. **Dynamic Imaging by Temporal Modeling with Principal Component Analysis.**
Ananya Sen Gupta, and Zhi-Pei Liang.
University of Illinois at Urbana-Champaign, Urbana, IL, USA.
11. **Establishing T -Contrast in True FISP Imaging.**
Robin Heidemann, Mark Griswold, Claudia Hillenbrand, Dietbert Hahn, Axel Haase, and Peter Jakob.
Universität Würzburg, Physikalisches Institut, EP5, Würzburg, Germany; Institut für Röntgendiagnostik, Würzburg, Germany.

RF Coil Design and Applications
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12. **A Four Channel Tranceive Phased Array Head Coil for 3T.**
Scott B. King, G. Randy Duensing, Steve Varosi, Dave Peterson and David A. Molyneaux.
MRI Devices Corporation, Gainesville, FL, USA.
13. **A Large Volume Four-Ring Birdcage Transmit/Receive Coil for 3.0 T Head Imaging**
Labros S. Petropoulos and Joseph Murphy-Boesch.
USA Instruments, Inc., Aurora, OH, USA.
14. **Open-Face Quadrature “Birdcage” Head Coil.**
Hiroyuki Fujita, William O. Braum and Gordon D. DeMeester.
Marconi Medical Systems, Inc., Cleveland OH, USA.
15. **The Head Cradle:An Open Faced,High Performance TEM Coil.**
J. Thomas Vaughan, Gregor Adriany, Michael Garwood, Peter Andersen, and Kamil Ugurbil.
The University of Minnesota, Minneapolis, MN, USA.
16. **Design of Planar Strip Array for MRI.**
Ray F. Lee
General Electric Co., Niskayuna, NY, USA.
17. **Ladder Networks for Capacitive Decoupling in Phased-Array Coils.**
Jovan Jevtic.
IGC-Medical Advances Inc., Milwaukee, WI, USA.
18. **Arrays of Birdcage Coils for Imaging Multiple Samples.**
Steven M. Wright, Mary McDougall, David G. Brown and John Hazle.
Texas A&M University, College Station, TX, USA.
19. **Two Methods for Multi-Sample Imaging: Applications to Mouse Phenotyping via MRI.**
H. Douglas Morris and Scott Chesnick.
National Institutes of Health, National Heart Lung and Blood Institute, Bethesda, MD, USA.
20. **Varactor Tuned Flexible Interventional Receiver Coils.**
Greig Scott and Garry E. Gold.
Stanford University, Stanford, CA, USA.

21. Concentric Coil Arrays for Spatial Encoding in Parallel MRI.

Michael A. Ohliger, Robert Greenman, Charles A. McKenzie and Daniel K. Sodickson.
 Laboratory for Biomedical Imaging Research, Beth Israel Deaconess Medical Center, Harvard-MIT
 Division of Health Sciences Technology, Harvard Medical School, St., Boston, MA, USA;

FMRI Data Analysis

22. Physiological Noise Reduction in fMRI Using Vessel Time-Series as Covariates in a General Linear Model.

Torben E. Lund and Lars G. Hanson.
 Hvidovre Hospital, Copenhagen, Denmark.

23. Detection of time windows of brain responses in fMRI using modified temporal clustering analysis.

Seong-Hwan Yee, Trevor Andrews and Jia-Hong Gao.
 University of Texas Health Science Center at San Antonio, San Antonio, TX, USA.

24. Spatial & Temporal Independent Component Analysis of fMRI Data with Two Task-Related Waveforms

James J. Pekar, Vince Calhoun, Tulay Adali and Godfrey D. Pearlson.
 F. M. Kirby Research Center, Kennedy Krieger Institute & Johns Hopkins University, Baltimore, MD and
 University of Maryland Baltimore County, Baltimore, MD, USA.

25. The Use of Spatio-Temporal Properties to Detect Activation in Event-Related fMRI Data.

Shing-Chung Ngan, William F. Auffermann, Shantanu Sarkar and Xiaoping Hu.
 University of Minnesota, Minneapolis, MN, USA.

26. Simulation Studies on the Performance of Independent Component Analysis in Analyzing fMRI Data with Transient, Randomly Occurring Events.

Hong Gu, Hanhua Feng, Wang Zhan, Su Xu, David A. Silbersweig, Emily Stern, Yihong Yang.
 Weill Medical College of Cornell University, New York, NY, USA and Memorial Sloan-Kettering Cancer
 Center, New York, NY, USA.

27. Using the Cortical Surface Information for the Detection of fMRI Activation Signal

Jean-Baptiste Poline, Alexandre Andrade, Ferath Kherif, Stephane Bahrami, Isabelle Klein, Jean-Francois
 Mangin, Keith J. Worsley and Denis Le Bihan.
 McGill University, Montreal, Canada.

28. Suppression of non-capillary BOLD signals through the use of phase fluctuations

Ravi S. Menon.
 The John P. Robarts Research Institute, London, ON, Canada.

29. Ballistocardiogram Removal and Motion Correction for EEG in the Magnet

Patrick L. Purdon, Iiro P. Jaaskelainen, Victor Solo, Emery N. Brown, John W. Belliveau and
 Giorgio Bonmassar.
 Massachusetts General Hospital, Charlestown, MA, USA and University of New South Wales, Sydney,
 NSW, Australia.

30. Resting state neurovascular fluctuation at different states of consciousness.

Vesa Johannes Kiviniemi, Juha-Pekka Kantola, Bharat Biswal, Osmo Tervonen and Jukka Jauhiainen.
 Oulu University Hospital, Oulu, Finland and Biophysics Research Institute, Medical College of
 Wisconsin, Milwaukee, WI, USA.

31. Frequencies Contributing to Functional Connectivity in the Cerebral Cortex in “Resting-State” Data

D. Cordes, V. M. Haughton, K. Arfanakis, J. D. Carew, P. A. Turski, C. H. Moritz, M. A. Quigley and M. E. Meyerand.
University of Wisconsin, Madison, WI, USA.

MR Imaging of Articular Cartilage

32. Comparison of dGEMRIC and T2 Imaging of Articular Cartilage

Nina M. Menezes, Martha L. Gray and Deborah Burstein.
Massachusetts Institute of Technology, Boston, MA, USA.

33. GdDTPA²-enhanced T₁ imaging of proteoglycans predicts cartilage stiffness in bovine humeral head.

Miika T. Nieminen, Juha Töyräs, Mikko S Laasanen, Jarno Rieppo, Johanna Silvennoinen, Heikki J. Helminen and Jukka S. Jurvelin.
University of Kuopio, Kuopio, Finland.

34. Relaxivity of Gadolinium Agents in Cartilage at 2T: Effects on dGEMRIC Imaging.

Amy M. Gillis, Martha Gray and Deborah Burstein.
Beth Israel Deaconess Medical Center, Boston, MA, USA.

35. Magnetic Resonance Imaging of Porcine Articular Cartilage before and after Cryopreservation.

L. Laouar, K. Fishbein, N. Jomha, L. E. McGann and R. G. S. Spence.
University of Alberta, Alberta Canada and NIH/National Institute on Aging, Baltimore, MD, USA.

36. Cartilage Anisotropic Deformation Yields a Dual Role for Proteoglycan.

J. H. Kaufman, U. Duvvuri, R. R. Regatte, R. Reddy, J. S. Leigh.
University of Pennsylvania, PA, USA.

37. *In vivo* assessment of proteoglycan loss in the articular cartilage of the goat knee with gadolinium-enhanced MRI after papain injection.

Didier Laurent, James Wasvary, Jianyun Yin, Hem Nalini Singh, Gary Pastor, Vincent Blancuzzi, Elizabeth O'Byrne and Theodore Pellas.
Novartis Pharmaceuticals Corporation, Summit, NJ, USA.

38. Multinuclear MRI Evaluation of Cartilage Degeneration.

Erik M. Shapiro, Arijitt Borthakur, Jonathan Kaufman, John S. Leigh and Ravinder Reddy.
University of Pennsylvania, Philadelphia, PA, USA.

39. Measurement of Cartilage's Internal Elastic Properties Using MR Elastography.

Anne C. Ridler, Don B. Plewes, and R. Mark Henkelman.
University of Toronto, Sunnybrook and Women's College Health Sciences Center, Toronto, ON, Canada.

40. Vertical Striations in the Radial Layer of MR Images of Hyaline Cartilage are due to T2 Effects

Anne C. Ridler, Don B. Plewes, and R. Mark Henkelman.
University of Toronto, Sunnybrook and Women's College Health Sciences Center, Toronto, ON, Canada.

41. Assessment of collagen integrity in articular cartilage by using magnetization transfer imaging: *In vivo* application to the goat knee.

Didier Laurent, James Wasvary, Jianyun Yin, Hem Nalini Singh, Gary Pastor, Vincent Blancuzzi, Theodore Pellas and Elizabeth O'Byrne.
Novartis Pharmaceuticals Corporation, Summit, NJ, USA.

Peripheral MR Angiography Techniques

- 42. Multicenter Trial of Steady-State MR Angiography of the Peripheral Arteries with NC100150 (CLARISCAN) for the Evaluation of Peripheral Arterial Disease**
Tim Leiner, Kai Yiu J.A.M.Ho, Vincent B. Ho, Georg Bongartz, Willem P. Th.M. Mali and Jos M.A. van Engelshoven.
Maastricht University Hospital, Maastricht, The Netherlands; Uniformed Services University of the Health Sciences, Bethesda, MD USA; University Hospital Basel, Basel, Switzerland and Academic Hospital Utrecht, Utrecht, The Netherlands.
- 43. Contrast enhanced MRA of the lower extremity:arterial-venous transit of contrast bolus and venous contamination.**
Yi Wang, Priscilla A Winchester, Catherine Zheng Chen, Richard Watts, Neil M Khilnani and Martin R. Prince.
Cornell University, New York, NY, USA.
- 44. Contrast-enhanced, single-injection, MRA with automated table movement compared to multi-injection, time-resolved CE 3d-MRA of the run-off vessels.**
Thomas F. Hany, Timothy J. Carroll, Reed A. Omary, Emilio Esparza-Cross, Frank R. Korosec, Charles A. Mistretta and Thomas M. Grist.
University of Wisconsin-Madison, Madison, WI, USA.
- 45. High Resolution Whole Body 3D MR Angiography (AngioSURF): Initial Clinical Experience.**
Mathias Goyen, Harald H Quick, Jörg F Debatin, Mark E Ladd, Hilmar Kühl, Silke Bosk, Jörg Barkhausen and Stefan G Ruehm.
University Hospital Essen, Essen, Germany.
- 46. Automated Real-time Multi-station Projection MR Angiography (“Bolus Prep”).**
Hani Marcos, Peter Choyke, Vincent B.Ho, Maureen N. Hood and Thomas Foo.
National Institutes of Health, Bethesda, MD, USA; Uniformed Services University of the Health Sciences, Bethesda, MD, USA and G.E. Medical Systems, Milwaukee, WI, USA.
- 47. Contrast travel times measured on 2D Projection MRA in patients with Peripheral Vascular Disease.**
Martin R.Prince, Yi Wang, Richard Watts, Catherine Chen, Neil M Khilnani, David W Trost and Priscilla A. Winchester.
Cornell University, New York, NY, USA.
- 48. 3D Gd-Enhanced Moving Table MR Angiography of the Aorta and Outflow Vessels using SENSE to Achieve High Resolution of the Below Knee Vasculature.**
Jeffrey H Maki, Gregory J Wilson and Romhild M. Hoogeveen.
University of Washington, Seattle, WA, USA and Philips Medical Systems, Best, The Netherlands.
- 49. Improving spatial resolution and SNR in time-resolved peripheral MRA using extended dual-resolution PR acquisition.**
J. Du, T.J. Carroll, K.K. Vigen, Y. Mazaheri, C.M. Strother, B. Aargard, T.F. Hany, T.M. Grist and C.A. Mistretta.
University of Wisconsin-Madison, Madison, WI, USA.
- 50. High resolution MRA for the study of arteriogenesis in rodent models of peripheral artery disease.**
Simon-Peter Williams, Joan Greve, Richard Carano, Lisa Bernstein, Adrienne Ross, Jed Ross, and Nicholas Van Bruggen.
Genentech, Inc., San Francisco, CA, USA.

51. MR Angiography of Hemodialysis Access Grafts and Fistulae using Selective Contrast Injection and Flow Interruption.

Clemens Bos, Johannes H.M. Smits, Jan J. Zijlstra, Wil A.M.A. Van Der Mark, Peter J. Blankestijn, Chris J. G. Bakker, Max A. Viergever and Willem P.Th.M. Mali.
Image Sciences Institute, Utrecht, Netherlands.

New MR Contrast Agents and Applications

52. Cellular Imaging using Magnetodendrimers: Application to Human Stem Cells and Neoplastic Cells *In Vivo*.

J.W.M. Bulte, T. Douglas, P. van Gelderen, B.K. Lewis and J.A. Frank.
National Institutes of Health, Bethesda, MD and Temple University, Philadelphia, PA, USA.

53. MR Molecular Imaging of Her-2/Neu Receptor with targeted Nanoparticles.

Dmitri Artemov, Noriko Mori, Rajani Ravi and Zaver Bhujwalla.
Johns Hopkins University, School of Medicine, Baltimore, MD, USA.

54. Relaxivities of Paramagnetic Nanoparticle Contrast Agents for Targeted Molecular Imaging

Patrick M. Winter.
Washington University, School of Medicine, St. Louis, MO, USA.

55. Intracellular trapping of a contrast agent: a tool for MRI-based atraumatic mapping of electrotransfer.

A. Leroy-Willig, E. Parzy, G. Vidal, P.G. Carlier, C. Wary and M. Paturneau-Jouas.
Unité RMN at Institut de Myologie, Paris, France.

56. An MRI Comparative Study on Contrast Enhancement of Necrosis by MP-2269 and Gadophrin-2 in a Rat Model of Liver Infarction.

Yicheng NI, Kofi Adzamli, Yi Miao, Erwin Cresens, Jie Yu, MP Periasamy, Max D. Adams and Guy Marchal.
University Hospitals K. U. Leuven, Leuven, Belgium and Mallinckrodt, Inc., St Louis, MO, USA.

57. Albumin-binding MR Blood Pool Agent Contrast Enhancement in Mouse Glioma.

Kofi Adzamli, Dmitriy A. Yablonskiy, Michael Chicoine, Eun Kyung Won, Karen P. Galen, Michael Zahner, Joseph J.H. Ackerman and Thomas A. Woolsey.
Mallinckrodt, Inc., St. Louis, MO and Washington University School of Medicine, St. Louis, MO, USA.

58. Imaging of Lymphatic Anatomy and Function in Mouse Adults and Pups with GdDTPA-albumin.

Paul A. Schornack, Teresa Myloyde, Zaver Bhujwalla, Marlys H. Witte and Robert J. Gillies.
University of Arizona, Tucson, AZ, USA and Johns Hopkins University, Baltimore, MD, USA.

59. Thrombus Detection and Contrast Enhancement Kinetics Using a Novel Fibrin-Targeted MR Nanoparticle Contrast Agent.

Xin Yu, Shelton D. Caruthers, Scott M. Love, Michael J. Scott, Ralph W. Fuhrhop, Patrick J. Gaffney, Samuel A. Wickline and Gregory M. Lanza.
St. Thomas's Hospital, London, UK.

60. pH responsive Gadolinium Chelates as Novel MRI Contrast Agents.

Yoko Kawata, Heribert Schmitt-Willich, Thomas Frenzel, Hans Bauer and Hanns-Joachim Weinmann.
Basic Research Institute, Nihon Schering Nishimiyahara Yodogawa-ku, Osaka, Japan and Research Laboratories, Schering, Berlin, Germany.

61. WITHDRAWN

Clinical Science Focus Session: Peripheral MR Angiography
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- 62. Three-dimensional Contrast Enhanced MR Angiography and CT Angiography of Iliac Arteries in Patients with Peripheral Arterial Disease**
Yoko Saito, Hiraku Yodono, Hiroshi Noda, Hiroyuki Miura, Keiko Mizuno, Yoko Itabashi, Toshiaki Tsuji and Yoshinao Abe.
Hirosaki University Hospital, Hirosaki, Aomori, Japan.
- 63. MRI versus Multislice Helical CT -Clinical Efficacy in the Assessment of Peripheral Arterial Diseases-**
Yasuyuki Kobayashi, Osamu Tanaka, Katsuhiko Matsuura, Kenji Hamada, Naoya Imai, Tetsuya Yokomizo, Hiroshi, Yamada, Tomoko Miyata and Kenji Yodo.
Omiya Medical Center, Amanuma-cho, Omiya, Japan and Toshiba Medical Systems Co., Ltd., Tokyo, Japan.
- 64. Aortoiliac and lower extremity arteries MRA: stepping table three-dimensional contrast-enhanced subtraction MRA compared to Digital Subtraction Angiography**
Nicola Montanari, Paolo Emilio Orlandi, Salvatore Isceri, Imbriani Michele, Sensi Luigi and Angelo Ziosi.
Ospedale Maggiore, AUSL Città di Bologna, Largo Nigrisoli, Bologna, Italy.
- 65. Technical Reliability of Time-Resolved CE MRA for the Assessment of Peripheral Vascular Occlusive Disease.**
Timothy J Carroll, J Shannon Swan, Frank R. Korosec, Thomas Grist and Charles A. Mistretta.
University of Wisconsin-Madison, Madison, WI, USA and Indiana University, Indianapolis, IN, USA.
- 66. “Shoot and Scoot ”:A method for improving temporal and Spatial resolution of multistation peripheral MR Angiography.**
Peter Choyke, Vincent B.HO, Hani Marcos, Maureen N.Hood, Wayne Olan, Bradley Dick, Sandy Hess and Thomas Foo.
National Institutes of Health, Bethesda, MD, USA.
- 67. Implementing SENSE in isotropic Mobitrak CE MRA.**
Roland Bezooijen, Guillaume Thelissen, Lucien E. M. Duijm, Harrie C.M. vd Bosch, John Wondergem, Xander V. Tielbeek.
Catharina Hospital, Eindhoven, Netherlands and Philips Medical Systems, Best, Netherlands.
- 68. Intraindividual comparison of vascular enhancement in MRA of run-off vessels between a standard and weak protein interaction Gd-chelate agent (Gd-DTPA vs.Gd-BOPTA).**
Michael V. Knopp, Frederik Giesel, Hendrik von Tengge-Kobligk, Jannis Radeleff, Martin Requardt and Hans Hentrich.
National Institutes of Health, Bethesda, MD, USA; German Cancer Research Center, Heidelberg, Germany; Siemens Medical System, Erlangen, Germany and Bracco Byk-Gulden, Konstanz, Germany.
- 69. Use of a new,three-station phased array coil to optimize multistation peripheral MRA.**
Tim Leiner, Robbert Nijenhuis, Romhild Hoogeveen, Bruno Leone and Jos van Engelshoven.
Maastricht University Hospital, Maastricht, The Netherlands and Philips Medical Systems, Best, The Netherlands.
- 70. Improved Multi-Station Peripheral MR Angiography with a Dedicated Vascular Coil.**
Mathias Goyen, Stefan G Ruehm, Jörg Barkhausen, Knut Kröger, Silke Bosk, Martin Requardt, Arne Reykowski and Jörg F Debatin.
University Hospital Essen, Essen, Germany and Siemens Medical Engineering, Erlangen, Germany.

- 71. Improvement of visualisation of the peripheral run-off vessels with an additional sagittal acquisition**
Daniel Wilson, David Kessel, Susan Downing, Kathryn Taylor and Philip Robinson.
St James's Hospital, Leeds Teaching Hospitals, Leeds, UK.
- 72. The pattern of collateral vessels in the lower extremity and implications for gene therapy delivery**
Matthew B. Wecksell, Priscilla A. Winchester, Martin R. Prince and Yi Wang.
Cornell University, New York, NY, USA.
- 73. Changes in blood flow after sympathetic nerve block measured and guided by MR.**
D.Y. Sze, and S.C. Mackey
Stanford University Medical Center, Stanford, CA, USA.

Clinical Science Focus Session: Cartilage and Other Musculoskeletal MR Imaging

- 74. Clinical Application of dGEMRIC for Detecting Early Arthritis in the Hip.**
Young-Jo Kim, Diego Jaramillo, Martha Gray and Deborah Burstein.
Children's Hospital of Boston, Harvard Medical School, Boston, MA, USA; Massachusetts General Hospital, Boston, MA, USA and Beth Israel Deaconess Medical Center, Boston, MA, USA.
- 75. MRI Evaluation of Graft GAG Content: Does Cartilage Transplantation Work?**
Amy M Gillis, Adil Bashir, Brian McKeon, Arnold Scheller, Martha Gray and Deborah Burstein.
Beth Israel Deaconess Medical Center, Boston, MA, USA.
- 76. MRI of Early Cartilage Degeneration following Meniscal Surgery: A three-year longitudinal study.**
Souhil Zaim, John A Lynch, Jing Li, Harry K Genant and Charles G Peterfy.
University of California at San Francisco, San Francisco, CA, USA and Synarc Inc, San Francisco, CA, USA.
- 77. Magnetic Resonance Imaging of Matrix Formation in Cartilage Treated with Ibuprofen and Aspirin size.**
S. J. Ellis, K. Fishbein, E. F. Petersen, L. Laouar, W.E. Horton, R. G.S. Spencer.
Northeastern Ohio Universities College of Medicine, Rootstown, OH U.S.A.
- 78. An international multicenter study of the interreader agreement in the assessment of MR images of rheumatoid arthritis wrist and MCP joints.**
Mikkel Ostergaard, Mette Klarlund, Marissa Lassere, Philip Conaghan, Charles Peterfy, Fiona McQueen, Phil O'Connor, Ron Shnier, Neil Stewart, Dennis McGonagle, Paul Emery, Harry Genant and John Edmonds.
Copenhagen, Denmark; Sydney, Australia; Leeds, UK; San Francisco; USA and Auckland, New Zealand.
- 79. No Change in Cartilage Volume over Three Years in Knee Osteoarthritis.**
Stephen J. Gandy, Alan D. Brett, Paul A. Dieppe, Michael J. Keen, Rose A. Maciewicz, Christopher J. Taylor, John C. Waterton and Iain Watt.
University of Bristol, Bristol, UK; University of Manchester, Manchester, UK and Astra Zeneca, Macclesfield, Cheshire, UK
- 80. Knee Osteoarthritis Progression Evaluated by Magnetic Resonance Imaging and a Novel Quantification Software Tool.**
Gilles Beaudoin, Claude Kauffmann, Benoit Godbout, Jean Pierre Raynauld, Marie-Josée Berthiaume, Jacques de Guise, Johanne Martel-Pelletier, Gary Cline, Joan Meyer and Jean-Pierre Pelletier.
CHUM-Hôpital Notre-Dame, Montréal, QC, Canada.
- 81. A Phantom for Quality Control of MRI Knee Cartilage Volume Measurements in Clinical Trials.**
David L. White, Manish Kothari, Richard Alan Duray Carano, Charles G. Peterfy.
SYNARC, Inc., San Francisco, CA USA.

- 82. Rapid High Resolution Cartilage Imaging with FEMR.**
Shreyas S. Vasanawala, Garry E. Gold, John M. Pauly and Dwight G. Nishimura.
Stanford University, Stanford, CA, USA.
- 83. The Precision of Cine-PC and Fast-PC Sequences in Measuring Skeletal Kinematics.**
Andrea J Rebmann, Tracy Rausch, Nao Shibamura, Frances T. Sheehan.
The National Institutes of Health and The Catholic University of America, Washington, DC, USA.
- 84. Interventional MR Imaging of Joints using Intra-Articular Coils.**
Garry E. Gold, Greig C. Scott, R. Kim Butts, John M. Pauly and Christopher F. Beaulieu.
Stanford University, Stanford, CA USA.
- 85. The Influence of Image Plane Selection on Estimates of Patellofemoral Alignment.**
Nao Shibamura, Andrea J Rebmann, Hany Bedair, Peter E. Lipsky and Frances T. Sheehan.
National Institutes of Health, Bethesda, MD, USA and The National Institutes of Health,
Washington, DC, USA.

Clinical Science Focus Session: Head & Neck and Brain Imaging
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- 86. Measurement of Semicircular Canal Geometry from High-Resolution MRI.**
Petra Schmalbrock, Robert Holtman and Antonio Algaze.
The Ohio State University, Columbus, OH, USA.
- 87. High Resolution Imaging of the Internal Auditory Canal Using Fast 3D Steady State Free Precessing (SSFP) Acquisition.**
Yu LIU, Robert Breger, Anthony Vu, Bernice Hoppel, Tonya Hollrith and Lynda Yanny.
St. Luke's Medical Center, Milwaukee, WI, USA and GE Medical Systems, Milwaukee, WI, USA.
- 88. MRI of Gadolinium (GdDTPA-BMA) uptake in the membranous labyrinth of the cochlea**
Börje Bjelke, Zhengguang Chen, S. Allen Counter, Tomas Klason, Erik Borg and Maoli Duan.
Karolinska Institute, Stockholm, Sweden and Harvard University, Cambridge, MA, USA.
- 89. Functional MRI of the Eustachian Tube in Patients with Clinical Signs of Dysfunction**
Gabriele Anja Krombach, Claus C Nolte-Ernsting, Ercole Di Martino, A Schuetz, Andreas Prescher
Thomas Schmitz-Rode and Rolf W Guenther.
University of Technology, Pauwelsstrasse, Germany.
- 90. High Resolution Low Field Imaging with High Temperature Superconducting (HTS) Coils – A New Approach to Susceptibility & Chemical Shift Problems in Head & Neck Imaging**
Geoffrey Young, Daniel F. Kacher, Erzhen Gao, KC Chan, Kelvin Wong, Simon S. M. Yeung, Qiyuan Ma, Ferenc Jolesz and Edward Yang.
UCSF, Medical Center, San Francisco, CA, USA; Harvard University, Boston, MA, USA and Hong Kong University, HK, China.
- 91. Cerebellar Morphology in Developmental Dyslexia**
Caroline Rae, Jenny A. Harasty, Theresa Dzendrowskyj, Joel B Talcott, Judy M. Simpson, Andrew Blamire, Ruth Dixon, Martin A Lee, Campbell Thompson, Peter Styles, Alexandra J. Richardson and John F. Stein.
University of Sydney, Sydney, NSW Australia; Prince of Wales Medical Research Institute, Sydney, NSW, Australia and The University of Oxford, Oxford, UK.

- 92. Brain Structural Abnormalities in Childhood Autism**
D. W. W. Shaw, B. Sparks, S.D.Friedman, D. Echelard, E.H.Aylward, K. Maravilla, A.A.Artru, G. Dawson and S.R. Dager.
University of Washington, Seattle, USA.
- 93. Evidence for Medial Temporal Lobe Pathology in Children with Autism**
Claire H. Salmond, John Ashburner, Karl J.Friston, Faraneh Vargha-Khadem and David G. Gadian.
University College London, London, UK.
- 94. Effect of ionizing radiation on the human brain: white matter and gray matter T1 in patients treated with conformal radiation.**
R. Grant Steen, Xioping Xiong, Shengjie Wu, John Glass, Lary Kun and Thomas Merchant.
St. Jude Children's Research Hospital, Memphis, TN, USA.
- 95. Gray Matter Involvement in Different Multiple Sclerosis Phenotypes: A Diffusion Tensor and Magnetization Transfer Imaging Study**
Marco Bozzali, Mara Cercignani, Giancarlo Comi and Massimo Filippi.
Scient. Inst. HSR, Neuroimaging Research Unit, Milan, Italy.
- 96. Total cerebral blood flow studies in CADASIL**
Rivka Van Den Boom, Saskia A.S. Lesnik Oberstein, Aart Spilt, Joost Haan and Mark Van Buchem.
Leiden University Medical Center, The Netherlands.
- 97. Neuroimaging Markers of HIV Disease in the Central Nervous System: A Role For Diffusion Tensor Imaging and Diffusion Distribution Maps**
Christopher G. Filippi, Elizabeth Ryan, Steven J.Ferrando, Wilfred G.van Gorp and Aziz M.Ulug.
Weill Medical College of Cornell University, NY, NY, USA.

Perfusion Methodology

- 98. Quantitative Measurement of Cerebral Venous Blood Volume and Cerebral Blood Oxygen Saturation:Effect of Static Magnetic Field Inhomogeneity**
Hongyu An and Weili Lin.
Washington University, St.Louis, MO USA and University of North Carolina at Chapel Hill, Chapel Hill, NC, USA.
- 99. Comparison of Dynamic Susceptibility Contrast and Continuous Arterial Spin Labeled Perfusion MR Techniques in Patients with Cerebrovascular Disease**
Ronald Wolf, David Alsop, Joseph Maldjian and John Detre.
University of Pennsylvania, Philadelphia, PA, USA.
- 100. Modelling of Arterial Spin Labelled Perfusion Date with Varying Delay Time, Including Permeability Effects.**
Laura Parkes and Paul Stephen Tofts
University College London, Institute of Neurology, London, UK.
- 101. Arterial Transit/Trailing Time Changes During Brain Activation: Their Effects on CBF Quantification in Multislice ASL Perfusion Imaging**
Yihong Yang, Engelien Wolfgang, Su Xu, Hong Gu, Wang Zhan, Hanhua Feng, David A. Silbersweig and Emily Stern.
Cornell University and Weill Medical College, New York, NY, USA.

- 102. Perfusion Imaging at 3.0T using Arterial Spin Labeling with a Three-Coil System.**
Emmanuel L. Barbier, Scott Chesnick, Garry Shen, Alfonso Silva, Alan Koretsky, S. Lalith Talagala.
National Institutes of Health, Bethesda, MD, USA
- 103. Imaging Arterial Blood Volume Using Dynamic Arterial Spin Labeling (DASL).**
Emmanuel Barbier, Alfonso Silva and Alan Koretsky.
National Institutes of Health, Bethesda, MD, USA
- 104. Arterial Input Function Measurements with Gradient Echo Sequences.**
Matthias J.P. Van Osch, Chris J.G. Bakker and Max A. Viergever.
Image Sciences Institute, Utrecht, Netherlands and University Medical Center Utrecht, Heidelberglaan,
The Netherlands.
- 105. The influence of vessel misregistration induced by paramagnetic contrast agents on the arterial input function measured with EPI.**
Martin Rausch.
University Hospital/Kantonsspital Basel, Basel, Switzerland.
- 106. Minimizing Inaccuracy and Variability for Quantitative Estimates of CBF in Unilateral Carotid Artery Occlusion Patients: a PET and MR study.**
Weili Lin, Azim Celik, Colin P. Derdeyn, Hongyu An, Yueh Z. Lee, Tom Videen, Leif Østergaard and William J. Powers.
UNC-Chapel Hill, Chapel Hill, NC, USA.
- 107. On the Theoretical Basis of Perfusion Measurements by Dynamic Susceptibility Contrast MRI.**
Valerij G. Kiselev.
Freiburg University Hospital, Freiburg, Germany.

Fast Cardiac Imaging

- 108. Real time and segmented True FISP cardiac cine using radial sampling**
Ajit Shankaranarayanan, Orlando Simonetti, Gerhard Laub, Oliver Heid, Jonathan S. Lewin and Jeffrey L. Duerk.
Case Western Reserve University, Cleveland, OH, USA; Siemens Medical Systems, Chicago, IL, USA
and Siemens Medical Systems, Erlangen, Germany.
- 109. Dual RF Flip Angle TrueFISP Cardiovascular MRI.**
R. D. Merrifield, J. Keegan, D. N. Firmin and G. Z. Yang.
Royal Society/Wolfson Foundation MIC Laboratory, Imperial College of Science, Technology and
Medicine, London, U.K.
- 110. Multi-Echo TrueFISP in the Heart.**
Daniel A. Herzka, Michael A. Guttman, Anthony H. Aletras, Elliot R. McVeigh.
Johns Hopkins University, Baltimore, MD, USA and National Institutes of Health, Bethesda, MD, USA.
- 111. Real-Time Imaging of Cardiac Strain using Ultra-Fast HARP Sequence.**
Smita Sampath, J. Andrew Derbyshire, Nael F. Osman, Ergin Atalar and Jerry L. Prince.
Johns Hopkins University, Baltimore, MD, USA and GE Medical Systems, Waukesha, WI, USA.
- 112. Single Breath-hold Single-Phase and CINE 3D Acquisition using Variable Temporal k-space Sampling.**
Thomas K. F. Foo, Vincent B. Ho and Dara Kraitchman.
University of the Health Sciences, Bethesda, MD USA and Johns Hopkins University,
Baltimore, MD, USA.

- 113. 3D Cardiac Cine Imaging in a single Breathhold using Elliptically reordered 3D True FISP.**
Klaus Scheffler.
Universität Freiburg, Radiologische Klinik, Freiburg, Germany.
- 114. Real-Time Quantitative Flow Using EPI and SENSE.**
Ronhild Hoogeveen, B. Leone, J. v.d. Brink.
Philips Medical Systems, Best, The Netherlands.
- 115. Real-Time MRI Assessment of the Relation Between Breathing Pattern and Cardiac Hemodynamics.**
R.J. van den Hout, H.J. Lamb, J.G. van den Aardweg, P. Steendijk, and A. de Roos.
Leiden University Medical Center, Leiden, The Netherlands.
- 116. Real-Time Interleaved Multiple Cardiac View SSFP-EPI Using SENSE.**
Johan Van Den Brink, Gert van Yperen, Tom Rozijn, Stefan Fischer, Rudolf Springorum, Jouke Smink and Marc Kouwenhoven.
Philips Medical Systems, Best, The Netherlands.
- 117. Detecting the Onset of Ischemia Using Real-time HARP.**
Dara Kraitchman, Smita Sampath, John Derbyshire, Alan W. Heldman, Elias Zerhouni, David A. Bluemke, Jerry Ladd Prince and Nael F. Osman.
Johns Hopkins University, Baltimore, MD, USA.

Image Processing Brain

- 118. 4D Deformation modeling of Cortical Disease Progression in Alzheimers Dementia.**
Andrew Janke, Greig de Zubicaray, Stephen E. Rose, Mark Griffin, Johnathan B. Chalk and Graham J. Gallloway.
The University of Queensland, Brisbane, Queensland, Australia.
- 119. Structure-Driven Image-Warping for Anatomical Labeling of Human Brain MRI.**
Dominik S. Meier and Elizabeth Fisher.
Cleveland Clinic Foundation, Cleveland, OH, USA.
- 120. Fast Distortion Registration of 2D MR Images.**
Peter Zhilkin, Murray Alexander and Lawrence Ryner.
National Research Council, Winnipeg, MB, Canada.
- 121. Study of Cortical Folding Process with Prenatal MR Imaging.**
A. Cachia, J.-F. Mangin, N. Boddaert, J. Régis, F. Kherif, P. Sonigo, M. Zilbovicius, I. Bloch and F. Brunelle.
SHFJ, CEA, place Gal Leclerc, Orsay, France; Service de Radiologie Pédiatrique, Hopital Necker, Paris, France; Service de Neurochirurgie Fonctionnelle, CHU La Timone, Marseille, France; Dep. Signal Image, ENST, Paris, France.
- 122. A virtual expert of cortical folding patterns.**
Jean-Francois Mangin, Denis Rivière, Dimitri Papadopoulos-Orfanos, Jean Régis
SHFJ, CEA, place Gal Leclerc, Orsay, France and Service de Neurochirurgie Fonctionnelle, CHU La Timone, Marseille, France.

- 123. Quantitative analysis of multiple sclerosis by segmentation of multi-spectral volumetric MR images**
Dongqing Chen, Wei Huang, Chris Christodoulou, Lihong Li, Dykei Yoon, Alina Tudorica, Patricia Roche, W Scherl, Robert Peyster, Clemente Roque, Pat Melville, V. Geronimo, Lauren Krupp and Zhengrong Liang.
State University of New York at Stony Brook, Stony Brook, NY, USA.
- 124. Automatic, Accurate Segmentation of the Brain and CSF in T1-weighted Volume Scans and its Application to Serial Volumetry.**
Louis Lemieux
University College London, Chalfont St. Peter, United Kingdom
- 125. Principal Diffusion Direction Field Regularisation for Diffusion tensor Magnetic Resonance Images.**
Olivier Coulon, Daniel Alexander and Simon R. Arridge.
University College London, London, England, UK.
- 126. Noise Removal with Tissue Boundary Preservation Using Fourth-Order Partial Differential Equations.**
Marius Lysaker, Arvid Lundervold, Xue-Cheng TAI, Michael Bock and Lothar Schad
University of Bergen, Bergen, Norway and German Cancer Research Center (DKFZ), Heidelberg, Germany.

Functional MR Imaging of Spine and Muscle
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- 127. MRI of Neuronal Recovery in Spinal Cord Injury.**
Ponnada Aswadha Narayana, Russell Abbe, Ray Grill, Mehmet Bilgen.
University of Texas, TX, USA.
- 128. Displacement imaging of hemi-crush in rat spinal cord using heavily diffusion-weighted MRI.**
Revital Nossin Manor, Revital Duvdevani, Rinat Oz and Yoram Cohen.
Tel-Aviv University, School of chemistry, Tel-Aviv, Israel.
- 129. A pharmacokinetic model for quantitative evaluation of spinal cord injury with Dynamic Contrast-Enhanced MRI.**
Mehmet Bilgen and Ponnada Aswadha Narayana.
University of Texas, Houston, TX, USA.
- 130. 3D MR Tracking of Magnetically Labeled Embryonic Stem Cells Transplanted in the Contusion Injured Rat Spinal Cord.**
J.W.M. Butle, J. Lu, H. Zywicke, P. van Gelderen, Trevor Douglas, J.W. McDonald and J.A. Frank
Washington University, St. Louis, MO; National Institutes of Health, Bethesda, MD and Temple University, Philadelphia, PA, USA.
- 131. Spinal fMRI of the Rat Cervical Spinal Cord.**
Krisztina Malisza and Patrick Stroman.
National Research Council of Canada, Winnipeg, MB, Canada.
- 132. Signal Enhancement by Extravascular Protons (SEEP) in Spinal fMRI.**
Patrick Stroman, Vicky Krause, Krisztina Malisza, Uta Frankenstein and Boguslaw Tomanek.
National Research Council of Canada, Winnipeg, MB, Canada.

- 133. Measurement of Skeletal Muscle Velocities Using Real-Time MR Imaging.**
Deanna Schmidt Asakawa, Garry E. Gold, S. Blemker, Krishna Nayak, John M. Pauly, Dwight G. Nishimura and Scott L. Delp.
Stanford University, Stanford, CA, USA.
- 134. Age and atherosclerosis adversely affect skeletal muscle functional recovery following femoral artery ligation in the mouse: MRI assessment of functional hyperemia.**
Joan Greve, Lisa Bernstein, Simon-Peter Williams, Lyn Powell-Braxton, Frank Peale, Stuart Bunting and Nicholas Van Bruggen.
Genentech, Inc., South San Francisco, CA, USA.
- 135. BOLD MRI and NIRS Detection of Transient Hyperemia After Single Skeletal Muscle Contractions.**
Ronald Meyer, Kevin McCully, Robert W Reid and Barry Prior.
Michigan State University, East Lansing, MI, USA and University of Georgia, Athens, GA, USA.
- 136. The new approach of skeletal muscle contraction imaging.**
Yasuharu Watanabe, Chuzo Tanaka, Toshihiko Ebisu, Masahiro Umeda, Yoshiaki Someya, Yuuki Mori, Masaki Fukunaga, Ichio Aoki and Shoji Naruse .
Meiji University of Oriental Medicine, Hiyoshi-cho, Funai-gun, Kyoto, Kyoto Japan.

Tumor Response Assessment

- 137. Effects of Motexafin Gadolinium on Tumor Metabolism and Radiation Sensitivity.**
S. Xu, K. Zakian, H. Thaler, C. Matei, A. Alfieri, Y. Chen, J. Koutcher.
Memorial Sloan-Kettering Cancer Center and Albert Einstein College of Medicine, New York, NY, USA.
- 138. Prostate Cancer: Effect of Extensive Post-biopsy Hemorrhage on Interpretation of 1H MRSI Data.**
Saying Li, Daniel B. Vigneron, Penelope J. Wood, Mark G. Swanson and John Kurhanewicz.
University of California, San Francisco, San Francisco, CA, USA.
- 139. Serial MRSI Studies Monitoring Brachytherapy of Prostate Cancer.**
Penelope Jayne Wood, Daniel B. Vigneron, Saying Li, Kristin Lee Wright, John Kurhanewicz, Mark Swanson and Joycelyn Speight.
University of California, San Francisco, San Francisco, CA, USA.
- 140. Radiation-Therapy-Induced Brain Injury As Quantified By Whole-Brain 1 H MRS.**
Belinda S.Y.Li, Benjamin Movsas, James S. Babb, Oded Gonen.
Fox Chase Cancer Center, Philadelphia, PA, USA.
- 141. Prediction of Clinical Outcome for Cancer of the Cervix using Dynamic Contrast Enhanced MR Imaging.**
Andrew P. Jones, Johnathan R Sykes, Bernadette M Carrington, Julie A. Loncaster, Susan M Todd, David L. Buckley and Catherine M.L. West
North Western Medical Physics, Christie Hospital, and University of Manchester, Manchester, UK.
- 142. Gd-DTPA Parametric Imaging of Tumor Necrosis After Neoadjuvant Chemotherapy.**
J P Dyke, D P Panicek, P A Meyers, J H Healey, A G Huvos, L H Schwartz, J.A. Koutcher and D. Ballon.
Memorial Sloan-Kettering Cancer Center, New York, NY, USA.

- 143. Early response of Prostate Carcinoma xenograft to Taxotere chemotherapy monitored with diffusion MRI.**
 Dominique Jennings, B. Nicholas Hatton, Jean-Philippe Galons, Theodore Trouard, Natarajan Raghunand and Robert Gillies.
 University of Arizona, Arizona Cancer Center, Tucson, AZ USA and Mercer University, College of Medicine, Macon, GA, USA.
- 144. Tumour ADC as a predictor of response to combined radiation and chemotherapy in locally advanced human rectal cancers.**
 Ask Dzik-Jurasz, C Domenig, M George, J Wolber, G Brown, AR Padhani, I Swift, Je Husband, Mo Leach and S. Doran
 Institute of Cancer Research, Sutton, UK; University of Surrey, Guildford, UK; Mayday University Hospital, Croydon, UK and Royal Marsden NHS Trust, Sutton, UK.
- 145. Monitoring Response to Convection Enhanced Taxol Delivery in Brain Tumor Patients Using Diffusion Weighted MRI.**
 Yael Mardor, Yiftach Roth, Zvi Lidar, Tali Jonas, Ami Glicksman, Raphael Pfeffer, Stephan E Maier, Meir Faibel, David Tanne, Dvora Nass, Moshe Hadani, Arie Orenstein, Jack S Cohen, Zvi Ram.
 Sheba Medical Center, Advanced Technology Center, Tel-Hashomer, Israel and Harvard University, Brigham and Women's Hospital, Boston, MA, USA.
- 146. Pelvic MR scans for radiotherapy planning: correction of system and patient-induced distortions.**
 Simon J Doran, Liz Moore and Martin O Leach.
 University of Surrey, Sutton, Surrey UK.

MR Imaging of Multiple Sclerosis

- 147. Occult Disease in Gray and White Matter Differ between Subtypes of MS by Diffusion MR Histograms.**
 Archana B. RAO, Maj Hedehus, Bradley Betts, Annette Langer-Gould, Michael E. Moseley and Scott W. Atlas.
 Stanford University, Medical Center, Stanford, CA, USA.
- 148. Diffusion Tensor Imaging of Basal Ganglia in Multiple Sclerosis.**
 Olga Ciccarelli, David Werring, Claudia Wheeler-Kingshott, Gareth Barker, Geoffrey Parker, D.H. Miller and A.J. Thompson.
 University College London, London, England, UK.
- 149. Intra-Voxel and Inter-Voxel Coherence in Patients with Multiple Sclerosis Assessed by Diffusion Tensor MRI.**
 Mara Cercignani, Marco Bozzali, Giancarlo Comi and Massimo Filippi.
 Scientific Inst. H. San Raffaele, Neuroimaging Research Unit, Milan, Italy.
- 150. Evaluation of the Physiological State of White Matter by High b Value q-Space Analyzed Diffusion Weighted Imaging: Applications to Multiple Sclerosis.**
 Yaniv Assaf, Dafna Ben-Bashat, Sharon Peled, Joab Chapman, Yoram Segev, Talma Hendler, Amos D. Korczyn, Moshe Graif and Yoram Cohen
 Tel Aviv University, Tel Aviv, Israel

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- 151. Brain Adaptive Changes Following Tissue Damage in PPMS: A Multiparametric Study using fMRI, MTI and DTI.**
Maria A Rocca, Andrea Falini, Elisabetta Pagani, Giancarlo Comi, Giuseppe Scotti and Massimo Filippi.
Neuroimaging Research Unit and Clinical Trials Unit, and Scientific Institute HSR, Milan, Italy
- 152. Diffusion, Magnetization Transfer and Spectroscopic Imaging of Corpus Callosum in Clinically Isolated Syndromes suggestive of Multiple Sclerosis.**
Jean-Philippe Ranjev A, Sylviane Confort-Gouny, Yann Le Fur, Patrick Viout, Sandrine Guis, Virginie Laguitton, Jean Pelletier and Patrick J Cozzone.
CRMBM, UMR CNRS Marseille, France.
- 153. Co-localization of changes in ADC, T1 -relaxation time and 1 H-metabolite concentrations in MS-lesions.**
Gisela E Hagberg, Johnson J Valancherry, Fabrizio Fasano, Ugo Nocentini, Umberto Sabatini, Jerome N Sanes and Alessandro Castriota-Scanderbeg
Laboratory of Functional Neuroimaging, Fondazione Santa Lucia, Rome, Italy.
- 154. Dynamic Changes of Acute Hypointense MS Lesions ("Black-Holes") on Unenhanced T1 Weighted MRI.**
Guo-Jun Zhao, David KB Li, Donald W Paty, UBC MS/MRI Research Group
University of British Columbia, Vancouver, BC, Canada.
- 155. Whole brain T1 relaxometry in Multiple Sclerosis.**
Stuart Clare, Allyson Parry and Peter Jezzard.
University of Oxford, John Radcliffe Hospital, Oxford, UK.
- 156. White and Grey Matter Atrophy in Clinically Early Relapsing Remitting Multiple Sclerosis.**
D.T. Chard, Colette Maria Griffin, Geoffrey Parker, A.J. Thompson and D.H. Miller.
University College London, London, England, UK.

TUESDAY

Plenary Lectures: Challenges to MR

- 157. Computed Tomography - Faster and Ever Faster.**
Willi A. Kalender.
Institute for Medical Physics, University Erlangen-Nuernberg, Germany.
- 158. PET - The Future Will Lie in Improved Sensitivity and Specificity.**
Terry Jones.
Cheshire, England, UK.
- 159. Ultrasound in the New Millennium.**
Thomas Nelson
University of California, San Diego, San Diego, CA, USA.

Diffusion MRI Acquisition Methods

- 160. Diffusion Tensor Imaging using SENSE-single-shot EPI.**
R. Bammer, S.L. Keeling, M. Auer, K.P. Pruessmann, P. Roeschmann, R. Stollberger, H.P. Hartung and F. Fazekas.
University of Graz, Graz, Austria; Institute of Biomedical Engineering, ETH Zurich, Zurich, Switzerland and Philips Research Lab, Hamburg, Germany.
- 161. Improved diffusion-weighted single-shot EPI in stroke using SENSE.**
R. Bammer, S. L. Keeling, M. Augustin, K.P. Pruessmann, C. Leussler, F. Ebner and F. Fazekas.
University of Graz, Graz, Austria; Institute of Biomedical Engineering, ETH Zurich, Zurich, Switzerland and Philips Research Lab, Hamburg, Germany.
- 162. Mixed-CPMG FSE**
James G.Pipe.
Barrow Neurological Institute, Phoenix, AZ, USA.
- 163. Mapping of the Cortical White Matter by Sub-millimeter 3D-DTI**
Xavier Golay, Peter C. Van Zijl, Susumu Mori
F.M. Kirby Research Center, Kennedy Krieger Institute & Johns Hopkins University, Baltimore, MD, USA.
- 164. Online Motion Correction for Diffusion Weighted Imaging Using Navigator Echoes: Application to RARE Imaging Without Sensitivity Loss.**
David Norris and Wolfgang Driesel.
MPI of Cognitive Neuroscience, Leipzig, Germany.
- 165. High resolution MRI from 2D and 3D superresolution applied to single-shot images.**
Sharon Peled, Hayit Greenspan, Gal Oz, Yehezkel Yeshurun and Nahum Kiryati.
Tel Aviv Sourasky Medical Center and Tel Aviv University, Tel Aviv, Israel.
- 166. Multishot Diffusion Weighted FSE with PROPELLER.**
James G. Pipe
Barrow Neurological Institute, Phoenix, AZ, USA.

167. **In Vivo Mapping of the Fast and Slow Diffusion Tensors in Human Brain.**
Christopher Clark, Maj Hedehus and Michael E. Moseley.
Stanford University, Stanford, CA, USA.
168. **In vivo axial DTI of the human spinal cord.**
Claudia Wheeler-Kingshott, Geoffrey Parker, S.J. Hickman, Mark Symms, D.H. Miller and Gareth Barker.
Institute of Neurology, London, England, UK
169. **Minimizing Distortions and Blurring in Diffusion Weighted Single Shot EPI using High Performance Gradients in Combination with Parallel Imaging.**
Robin Heidemann, Mark Griswold, David Porter, Berthold Kiefer, Mathias Nittka, Jianmin Wang, Axel Haase and Peter Jakob.
Universität Würzburg, Physikalisches Institut, EP5, Würzburg, Germany and Siemens Medical Systems, Erlangen, Germany.

Technical Developments in Coronary MR Angiography
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170. **High-Resolution 3D Fast Spin-Echo Black-Blood Coronary MRA.**
Matthias Stuber, René M. Botnar, Elmar Spuentrup and Warren J. Manning.
Philips Medical Systems, Boston, MA USA.
171. **Coronary MRA with synchronised respiratory and cardiac motion using an external respirator reduces scan times and improves navigator efficiency**
Sven Plein, Timothy Norman Bloomer, John P. Ridgway, Tim R. Jones, Zamir Hayek and Mohan U. Sivananthan.
Leeds General Infirmary, Leeds, West Yorkshire, UK. and Medivent Ltd, London, UK.
172. **Coronary Artery Motion with the Respiratory Cycle during Breath-holding and Free-breathing: Implications for slice-followed coronary artery imaging**
Jennifer Keegan, Peter Gatehouse, Guang-Zhong Yang and David N. Firmin.
Royal Brompton Heart & Lung Hospital and Imperial College of Science, London, England, UK.
173. **A Novel Navigator Technique for Fast and Direct Detection of 3D Displacement of the Coronary Arteries**
Thanh D. Nguyen, Yi Wang and Martin R. Prince
Cornell University, New York, NY, USA.
174. **Self-Navigated Coronary Artery MR Angiography**
Christopher J. Hardy, Manojkumar Saranathan, Lei Zhao, Ferenc Jolesz and Kent Yucel
GE Corporate Research & Development, Schenectady, NY USA; GE Medical Systems, Waukesha, WI, USA and Brigham & Women's Hospital, Harvard Medical School, Boston, MA, USA.
175. **Non-ECG-Triggered, High-Resolution, Coronary Artery Imaging using Adaptive Averaging with Real-Time Variable-Density Spirals.**
M.S. Sussman and G.A. Wright
University of Toronto, Toronto, Ontario, Canada
176. **Realtime MR with Physiological Monitoring For Improved Scan Localization.**
Jeffrey A. Stainsby, Tzvi Goldman, Marshall S. Sussman and Graham Wright.
University of Toronto, Toronto, Canada.

- 177. Three-Dimensional Projection Coronary Magnetic Resonance Angiography.**
Matthias Stuber, Peter Börnert, Elmar Spuentrup, René M. Botnar and Warren J. Manning
Philips Medical Systems, Boston, MA USA and Philips Research Laboratories, Hamburg, Germany.
- 178. First Experience with Quantitative 3D Phase Contrast Coronary Angiography.**
Steffen Ringgaard, Jesper Elliot Petersen and Erik Morre Pedersen.
Aarhus University Hospital, Aarhus, Denmark
- 179. Ex vivo MR Contrast-Enhanced Cardiac Imaging In a Stenosis Animal Model: Comparison Between 1.5T and 3T.**
Jie Zheng, Pamela Woodard, Dana R. Abendschein, Friedrich Michael Cavagna, Nikolaos Tsekos and Robert J. Gropler
Washington University School of Medicine, Washington University in St. Louis, St. Louis, MO USA; Imaging Department, Milano, Italy and Mallinckrodt Institute of Radiology, St. Louis, MO, USA

MR Imaging of the Thorax

- 180. Dynamic Spiral MR Imaging of the Lung Using Hyperpolarized 3 He: Initial Experience in Healthy and Diseased Lungs.**
Michael Salerno, Talissa A. Altes, James R. Brookeman, Eduard E. De Lange, John P. Mugler III
University of Virginia, School of Medicine, Department of Radiology, Charlottesville, VA USA.
- 181. Hyperpolarized Helium-3 MR Imaging of Methacholine Challenge Testing in Asthmatics.**
Talissa Altes, Saba Samee, Michael Salerno, Bennett A. Alford, Jaime Mata, Ashok Menon, James R. Brookeman, Thomas A. E. Platts-Mills and Eduard E. De Lange.
University of Virginia, Charlottesville, VA USA and IGC-Medical Advances, Milwaukee, WI, USA.
- 182. MR Ventilation Imaging: A Comparison of Hyperpolarized 3 He and O2.**
Shella D Keilholz-George, Jack Knight-Scott, John Christopher, Talissa Altes, Stuart S. Berr and Eduard E. DeLange.
University of Virginia, Charlottesville, VA, USA.
- 183. Effects of lipopolysaccharide (LPS) challenge in the rat lung assessed non-invasively by MRI.**
Nicolau Beckmann, Bruno Tigani, Rosemary Sugar, Alan Jackson, Rene Borer, Lazzaro Mazzoni and John Fozard.
Novartis Pharma, Ltd., Core Technologies Area, Basel, Switzerland.
- 184. To Elucidate the Physiology of Liquid Ventilation: Measurements of Alveolar pO₂ Using 19 F-MRI.**
Claus Peter Heussel, Alexander Scholz, Marc Schmittner, Simone Laukemper-Ostendorf, Katja Buerger, Wolfgang Schreiber, Iris Morgenstern, Klaus Markstaller, M Quintel, Norbert Weiler, Balthasar Eberle, Manfred Thelen, Hans-Ulrich Kauczor.
Johannes Gutenberg-University, Mainz, Germany and University Hospital Mannheim, Mannheim, Germany.
- 185. Ventilation Abnormalities and Diffusion Coefficients in the Lungs of Asymptomatic Smokers.**
Jason Leawoods, Dmitriy A. Yablonskiy, David Gierada and Mark S. Conradi.
Washington University, St. Louis, MO, USA.
- 186. Absolute quantification of pulmonary perfusion using dynamic T1 contrast enhanced MRI: Estimation of regional pulmonary blood Flow (rPBF) and blood volume (rPBV).**
Magalie Viallon, Wolfgang Schreiber, Claus Peter Heussel, Oliver Mohrs, Melanie Schmitt, Klaus Kurt Gast, Balthasar Eberle, Manfred Thelen and Hans-Ulrich Kauczor.
Johannes Gutenberg Universität, Mainz, Germany.

- 187. MR Perfusion Imaging of Pulmonary Diseases Using Arterial Spin Labeling Technique FAIRER.**
Vu M.Mai, Qun Chen, Alexander Bankier, Michael Blake, Mary Keogan, Robert R.Edelman.
Evanston Hospital, Evanston, IL USA and Beth Israel Deaconess Medical Center, Boston, MA USA.
- 188. Three-Dimensional Tracking of Chest Wall Deformation during Cardiopulmonary Resuscitation using Tagged MRI.**
Hillary Kaye Huszar, Cengizhan Ozturk, Guy Shechter, Henry R.Halperin and Albert C.Lardo.
Johns Hopkins School of Medicine, Baltimore, MD USA.

Gastrointestinal MR Imaging

- 189. Faecal tagging:a new strategy to obviate bowel cleansing before MR colonography.**
Thomas Lauenstein, Dietmar Schönfelder, Silke Bosk and Jörg F. Debatin.
University Hospital Essen, Essen, Germany.
- 190. Small bowel MRI:Comparison of water and polyethylene glycol as oral contrast media.**
Rohit Sood, Ilse Joubert, Hilary Franklin, Terence C.Doyle, David J.Lomas.
University of Cambridge, Addenbrooke's Hospital, Cambridge, England, UK and University of Otago, Dunedin, New Zealand.
- 191. Real-time Assessment of Pharmacologically induced Changes in Gastric Motility with MRI:a Comparison with Barostat.**
Ingrid M.de Zwart, Banafsche Mearadji, Hildo Lamb, Ad A.M. Masclee, Albert De Roos and Patrik Kunz.
Leiden University Medical Center, Leiden, Netherlands.
- 192. Magnetic Resonance Imaging of the Crohn's Disease.**
Vicente Sanjuan, Javier Sempere, Vicente Miranda, JC Martinez, Jose Lopez Mut, Iciar Puchades, Sara Roch, Alicia Tome, Enrique Medina and Julian Celma.
Hospital General Universitario. Unidad de TAC y RM—ERESA and S. Pat.Digestiva. Valencia, Spain;
- 193. Evaluation of gastric emptying and peristalsis by projection imaging with single shot half-Fourier RARE.**
Rohit Sood, Clare Sims, Lesley Hearn, Malek Makki, Martin Graves and David J.Lomas.
University of Cambridge, Addenbrooke's Hospital, Cambridge, England, UK.
- 194. Non-invasive Distension of the Small Bowel for Optimized Magnetic Resonance Imaging.**
Michael A Patak, John M Froehlich, Constantin Von Weyarn, Marc A Ritz, Christoph L Zollikofer and Klaus Wentz.
Kantonsspital Winterthur, Winterthur, Switzerland.
- 195. 3D MR Colonography after exclusive intravenous administration of a hepatobiliary contrast agent.**
Michael V.Knopp, Frederik Giesel, Jannis Radeleff and Hendrik von Tengg-Kobligk.
National Institute of Health, Bethesda, MD, USA. and German Cancer Research Center, Heidelberg, Germany.
- 196. MR-Imaging of gastric emptying induced by Erythromycin.**
Thomas Lauenstein, Jörg Barkhausen, Mathias Goyen, Stefan G Ruehm and Jörg F Debatin.
University Hospital Essen, Essen, Germany.
- 197. Multiplanar Reconstruction of 3D Half-Fourier RARE Images for the Assessment of Extramural Invasion of Rectal Cancer.**
Satoru Nakano, Hirofumi Asakura, Yasutane MORI, Yoshihiro Toyama, Ichiro Hino, Motoomi Ohkawa, Yuichi Yamashita and Satoshi Sugiura.
Kagawa Medical University, Kagawa Japan and Toshiba Medical Inc., Japan.

198. **Anovaginal Fistulas:A Spectrum of Abnormalities at MR imaging.**
Soendersing Dwarkasing and Shahid Hussain.
Erasmus University Medical Center, Rotterdam, Netherlands and None Given, Heeze, Netherlands.

MR Spectroscopy Applications

199. **In vivo detection of gene expression in liver by ³¹P-nuclear magnetic resonance spectroscopy employing creatine kinase as a marker gene.**
Zhou R., A. Auricchio, J.M. Wilson, Jerry Glickson
University of Pennsylvania, Philadelphia, PA, USA
200. **In vivo ³¹P Evaluation of Cold/Solid Thyroid Nodules.**
Rama Jayasundar
All India Institute of Medical Sciences, New Delhi, India.
201. **Identification of Hydroxyl Ion in Bone Mineral Using Solid State Two Dimensional 1 H–³¹ P Heteronuclear Correlation NMR Spectroscopy.**
Gyunggoo Cho and Jerome Ackerman.
Massachusetts General Hospital, Harvard Medical School, Charlestown, MA, USA.
202. **Simultaneous Water and Fat Suppression in Breast MRS Using Spectral/Spatial PRESS.**
Lawrence Ryner and Louis Lauzon.
Institute for Biodiagnostics, Winnipeg, MB Canada and GE Yokogawa Medical Systems, Tokyo, Japan.
203. **Effects of High versus Low Fatty Acid Levels During Hyperinsulinemia by Measuring Relative Intromyocellular and Extramyocellular Triglyceride Levels with Proton Magnetic Resonance Spectroscopy in Normal Subjects.**
Susan K.Lemieux and Guenther H. Boden.
WVU Health Sciences Center, Morgantown,WV, USA and Temple University, School of Medicine, Philadelphia, PA, USA.
204. **The Use of [²⁻¹³ C] Acetate to Determine the Pathway for Neurotransmitter Glutamate Repletion in the Human Brain.**
Vincent Lebon, Kitt F. Petersen, Gary W. Cline, Jun Shen, Graeme F. Mason, Sylvie Dufour, Kevin L. Behar, Gerald I. Shulman and Douglas L. Rothman.
Yale University, School of Medicine, New Haven, CT, USA and Nathan S. Kline Institute, Orangeburg, NY, USA.
205. **In vivo NMR measurement of TCA cycle rate alteration following 3NP intoxication.**
Pierre-Gilles Henry, Vincent Lebon, Francoise Vaufrey, Emmanuel Brouillet, Philippe Hantraye and Gilles Bloch.
Yale University School of Medicine, New Haven, CT, USA and place due General Leclerc, Orsay, France.
206. **Assessment of hepatic carbohydrate metabolism *in vivo* by 3D-localized ¹³C NMR:The role of fructose-2,6-bisphosphate in regulation of glucose fluxes in mice.**
In-Young Choi, Chaodong Wu, David A.Okar, Alex J. Lange and Rolf Gruetter.
University of Minnesota, Minneapolis, MN, USA.
207. **¹³C MRS Correlates with Clinical Severity of Hepatic Encephalopathy.**
B.D. Ross, A Moreno-Torres, J-H Hwang, J Korula, C Lowe and S Bluml.
Clinical MRS Unit, Huntington Medical Research Institutes, Pasadena, CA, USA and University Hospital, University of Southern California, Los Angeles, CA, USA.

208. Correlation between cerebral Proton MRS and Psychometry in Patients with Chronic Hepatitis C Infection.

Daniel M Forton, Joanna M Allsop, Glyn A Coutts, Nicholas Hargarden, Howard C. Thomas and Simon D. Taylor-Robinson.

Imperial College School of Medicine, Hammersmith Hospital, London, UK and CDR Limited, Reading, Berkshire, England, UK.

Spectroscopic Quantitation
209. A unified comparison of filtering approaches to water peak suppression in MRS.

Leentje Vanhamme, Alain Coron, Paul Van Hecke, Jean-Pierre Antoine and Sabine Van Huffel.

Katholieke Universiteit Leuven, Leuven, Belgium and Delft University of Technology, Delft, The Netherlands.

210. *In vivo* ¹³C NMR measurement of total brain glycogen concentrations in the conscious rat.

In-Young Choi and Rolf Gruetter.

University of Minnesota, Minneapolis, MN, USA.

211. Comparison of Two non-Invasive Approaches for Determination of Gluconeogenesis: *In vitro* ²H versus *In vivo* ¹³C NMR Spectroscopy.

Martin Krssak, Harald Stingl, Eva Rosian, Olaf Kunert, Klaus Zanger, Werner Waldhäusl, Ernst Haslinger, and Michael Roden.

University of Vienna, Wien, Austria and University of Graz, Graz, Austria.

212. T2 Relaxation Study of Water, N-acetylaspartate (NAA) and Creatine (Cr) in Human Brains Using Hahn and Carr-Purcell Spin-Echoes at 4T and 7T.

Shalom Michaeli, Michael Garwood, Xiao-Hong Zhu, Lance Delabarre, Gregor Adriany, Peter Andersen, Hellmut Merkle, Kamil Ugurbil and Wei Chen.

University of Minnesota, Minneapolis, MN, USA

213. Phosphocreatine has shorter T2* than Creatine in vivo.

Yong Ke, Bruce M Cohen, Fuyuki Hirashima, Leanne Nassar, Perry Renshaw.

McLean Hospital, Harvard Medical School, Brain Imaging Center, Belmont, MA, USA.

214. Quantification of ¹H NMR spectra of the human brain using LCModel and spin simulations at 7 Tesla.

Ivan Tkac, Joonmo Kim, Kamil Ugurbil and Rolf Gruetter.

University of Minnesota, Center for MR Research, Minneapolis, MN, USA.

215. A New Method of Determining Spin-Lattice Relaxation Times and Rate Coefficients for a Chemically Exchanging System Using the One-Pulse Experiment.

C. Galban and R.G.S. Spencer.

NIH/National Institute on Aging, Baltimore, MD, USA.

216. A Rapid Method For Correction of CSF Partial Volume in Quantitative Proton MR Spectroscopic Imaging.

Alena Horska, Vince Calhoun and Peter B. Barker.

Johns Hopkins University School of Medicine, Baltimore, MD, USA.

217. Quantitative Spin Echo ³¹P Spectroscopic Imaging in Human Brain: Determination of the Free Energy of ATP Hydrolysis.

Hoby Hetherington, J.H. Lee, M.K. Sammi, J.W. Pan

Yeshiva University, Albert Einstein College of Medicine, Bronx, NY and Brookhaven

National Laboratory, Upton, NY, USA.

218. The In Vivo Detection of Myo-Inositol Using Double Quantum Coherence Filtering at 3T.

H. Kim and P.S. Allen.

University of Alberta, Edmonton, Alberta, Canada.

Clinical Science Focus Session: Myocardial Viability**219. Extent of Hyperenhancement After Myocardial Infarction Depends Upon Timing After Contrast.**

C. Joon Choi, Joseph M.DiMaria, Frederick H. Epstein, Jennifer R. Hunter and Christopher M.Kramer.

University of Virginia, Charlottesville, Virginia, USA.

220. Diagnostic Value of Wall Motion,Perfusion,and Delayed Hyperenhancement in Emergency Room Evaluation of Chest Pain.

Raymond Yan Kwong, Anthony Homer Aletras, Suresh Rekhraj and Andrew Ernest Arai.

National Institutes of Health, Bethesda, MD, USA.

221. Delayed myocardial enhancement -correlation to Thallium SPECT and FDG PET.

Kirsi Lauerma, Helena Hänninen, Tuula Janatuinen, Kari Virtanen, Sami Soljanlahti, Pekka Niemi, Juhani Knuuti and Hannu J. Aronen.

Helsinki University Hospital, Helsinki, Finland.

222. Delayed Myocardial Contrast Enhancement in Patients with Acute Myocardial Infarction: Comparison with Thallium-201 SPECT Imaging.

Kakuya Kitagawa, Hajime Sakuma, Tadanori Hirano, Kan Takeda, Ichiro Kadoya, Katsutoshi Makino and Shinya Okamoto.

Matsusaka Central Hospital, Mie Japan.

223. Diffusion Tensor MRI Mapping The Fiber Architecture of Myocardium Post Infarction – Preliminary Experience in Correlation with Viability Map of Tl201-SPECT and Delay-enhanced MRI.

Ming-Ting WU, Wen-Yih Tseng, Chun-Peng Liu, Van Wedeen, Timothy Reese, Huay-Ben Pan, Chien-Fang Yang.

Veterans General Hospital, National Yang Ming University, Kaohsiung, Taiwan; Ctr for Optoelectronic Biomedicine, Taipei, Taiwan; Massachusetts General Hospital, Charlestown, Massachusetts USA and Harvard University, Boston, MA.

224. Differentiation of Viable and Non-Viable Myocardium: Comparison of Gd-Based Extracellular and Bloodpool Contrast Materials versus Manganese-Based Contrast Materials in a Rat Myocardial Infarction Model.

Sebastian Flacke, John Stacy Allen, Jonathan M Chia, Max Adams, MP Periasamy, I Kofi Adzamlı and Christine H Lorenz.

Washington University, St. Louis, MO, USA.

225. Imaging of myocardial infarction:Comparison of Magnevist and Gadophrin III in rabbits.

Jörg Barkhausen, Wolfgang Ebert, Claudia Heyer, Jorg F Debatin and Hanns-Joachim Weinmann

University Hospital Essen, Essen, Germany and Contrast Media Research, Berlin, Germany.

226. Delayed-Enhancement MRI Reveals Myocardial Fibrosis in Patients with Symptomatic Hypertrophic Cardiomyopathy.

Scott D. Flamm, Rollo P.Villareal, Ramesh Hariharan, Raja Muthupillai, Ali G.Massumi and James M.Wilson.

Texas Heart Institute and Baylor College of Medicine, Houston, Texas; Philips Medical Systems, St.Luke's Episcopal Hospital, Houston, Texas USA.

- 227. Delayed Hyperenhancement Detects Myocardial Abnormalities.**
Ralf Wassmuth, Anthony H Aletras, David A Begley, Karen E Bove Bettis, Kwabena O Agyeman, Lameh Fananapazir and Andrew E Arai.
National Institutes of Health, Bethesda, MD, USA.
- 228. Assessment of myocardial fibrosis in hypertrophic cardiomyopathy with first pass and delayed T1 enhancement.**
P. Sipola, K. Lauerma, J T Kuikka, E Vanninen, K Peuhkurinen, P Jääskeläinen, M Laakso, H Manninen, J Kuusisto and H. J. Aronen.
Kuopio University Hospital, Kuopio, Finland.
- 229. Global measurement of the myocardial perfusion index: application to the assessment of the incomplete Gd-DTPA clearance in rest/stress studies of cardiac perfusion.**
A Radjenovic, J P Ridgway, T N Bloomer, S Plein, D M Higgins, J FM Meaney, A Kassner and U M Sivananthan.
University of Leeds, Leeds, UK.
- 230. Phase Sensitive Inversion Recovery for Detecting Myocardial Infarction using Gd-DTPA Delayed Hyper-Enhancement.**
Peter Kellman, Andrew E. Arai, Elliot R. McVeigh and Anthony H. Aletras.
National Institutes of Health, Bethesda, MD, USA.

Clinical Science Focus Session: Body MR Imaging: Techniques and Liver
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- 231. Real-time TrueFISP scanning and continuous table movement allows for a whole-body MR examination in 30 seconds.**
Jörg Barkhausen, Harald H. Quick, Thomas Lauenstein, Mathias Goyen, Stefan G Ruehm, Jorg F Debatin, and Mark E Ladd.
University Hospital Essen, Essen, Germany.
- 232. A Breath-hold Three Dimensional True FISP Sequence for Abdominal MRI.**
Qun Chen, Pippa Storey, Deborah Levine, Wei LI, Robert Edelman
Evanston Northwestern Healthcare, Evanston, IL, USA and Beth Israel Deaconess Medical Center, Boston, MA, USA.
- 233. Continous 2D “Whole Body” Scan with TrueFISP using z-Ramped Phase Encoding (PE)**
Hans-Peter Fautz, Klaus Scheffler and Jürgen Hennig.
Radiologische Univ. Klinik Freiburg, Bildgebende & Funktionelle Med Physik, Freiburg, Germany.
- 234. Morphologic and functional characterization of hepatic lesions: Assessment of fast imaging with steady state precession (TrueFISP) in comparison to half-Fourier single shot fast spin echo (HASTE)**
Christoph U. Herborn, Florian Vogt, Stefan G. Ruehm, Jörg F. Debatin
University Hospital Essen, Essen, Germany.
- 235. Fat-suppressed T2-weighted MR Imaging of the Liver: Comparison of Respiratory Triggered Fast Spin-Echo, Breath-hold Single-Shot Fast Spin-Echo and Breath-hold Fast-recovery Fast Spin-Echo Sequences**
Motoyuki Katayama, Takayuki Masui, Shigeru Kobayashi, Tatsuhiko Ito, Mamoru Takahashi, Harumi Sakahara, Atsushi Nozaki and Hiroyuki Kabasawa.
Seirei Hamamatsu General Hospital, Hamamatsu, Japan and and Yokogawa Medical Systems, Tokyo Japan.

- 236. Prospective Comparative Study in the Detection of Small Hepatocellular Carcinoma with Dynamic MR Imaging and Helical Multidetector-row CT.**
Hiraku Yodono, Yoko Saito, Taisuke Sasaki, Hiroyuki Miura, Yoko Itabashi, Koichi Shibutani, Takashi Ohata and Gerson LM Prado.
Hirosaki University Hospital, Aomori Japan.
- 237. Mangafodipir trisodium (Mn-DPDP)enhanced three-dimensional MR imaging of hepatocellular carcinoma: Correlation with histopathological findings.**
Rheun-Chuan Lee, Hui-Cheng Cheng, Shyh-Haw Tsay, Gar-Yang Chau and Jen-Huey Chiang.
Veterans General Hospital, Taipei, Taiwan.
- 238. The high intensity rim of focal nodular hyperplasia on contrast-enhanced MR imaging in comparison with hepatocellular carcinoma.**
Nagaaki Marugami, Shinji Hirohashi, Satoru Kitano, Kinya Furuichi, Sachiko Imai, Hajime Ohishi, Hideo Uchida, Matthias Taupitz and Bernd Hamm.
Nara Medical University, Nara, Japan and Charite, Humboldt-Universitat, Berlin, Germany.
- 239. MRI of the Liver: a Comparison of High-dose and Low-dose Ferumoxide Infusion in Patients with Liver Cirrhosis.**
Paul Arnold, Janice Ward, Daniel Wilson and Philip Robinson
St. James's Hospital, Leeds, UK.
- 240. Right Posterior Hepatic Notch Sign:A Simple Diagnostic MR Sign of Cirrhosis.**
Katsuyoshi Ito, Donald Mitchell, Myeong-Jin Kim, Shinji Koike, Keiko Kishimoto, Nobuhiko Ogasawara, Kazuyoshi Suga and Naofumi Matsunaga
Yamaguchi University School of Medicine, Yamaguchi, Japan; Thomas Jefferson University, Philadelphia, PA and Yonsei University College of Medicine, Seoul, Korea;
- 241. Total Body Fat Quantification in Newborn Infants by Magnetic Resonance Imaging.**
Tracey A. M. Harrington, E Louise Thomas, Neena Modi, Gary Frost, Glyn A Coutts and Jimmy D Bell.
Imperial College School of Medicine, Hammersmith Hospital, London, UK.
- 242. Fast Magnetic Resonance Imaging in the Evaluation of Pediatric Malignancies.**
Avi Mazumdar, Marilyn J. Siegel, Vamsidhar Narra, Lori Luchtman-Jones, Robert J.Hayashi.
Mallinckrodt Institute of Radiology, MO USA and Washington University School of Medicine, St.Louis, MO USA.

Clinical Science Focus Session: Spine and Other Musculoskeletal MR Imaging

- 243. Whole-Body-MRI with a rolling table platform to detect bone metastases.**
Thomas Lauenstein, Lutz Freudenberg, Silke Bosk, Jörg F. Debatin, Jörg Barkhausen.
University Hospital Essen, Essen, Germany.
- 244. In Vivo Short Echo Time Imaging of Achilles Tendon.**
Garry E.Gold, Tishya A. L.Wren, Krishna Nayak, Dwight G. Nishimura, Gary Beaupre.
Stanford University, Stanford, CA USA.
- 245. A Study of the Morphology of Lumbar Discs in Sitting and Standing Positions Using a 0.5T Open-Configuration MRI.**
J.F. Roy, C.Lindsay, J.M.Mountquin, M.Dufour, G.Bouchard, M.Lamontagne, P. Montminy and C.Moisan
Centre hospitalier universitaire de Québec, Québec City, Québec Canada.

- 246. The Scottish Back Trial -A pragmatic multicentre randomised comparison of two imaging policies in the management of low back pain.**
Fiona J Gilbert, Jane Andrew, Adrian M Grant and Douglas Wardlaw.
University of Aberdeen, Aberdeen, Scotland, UK.
- 247. MR Imaging of Neural Tissue Transplants in the Injured Human Spinal Cord:1-Year Follow Up in 7 Subjects.**
Edward D. Wirth III, Richard G. Fessler, Paul J.Reier and Douglas K. Anderson
University of Florida, Gainesville, FL, USA and Chicago Institute of Neurosurgery and Neuroresearch, Chicago, IL, USA.
- 248. Diffusion Imaging of Cervical Spondylotic Myelopathy.**
Mario Ries, Ayhan Demir, Richard Jones, Chrit Moonen and Vincent Dousset.
Universite Bordeaux, Bordeaux, France.
- 249. Early Detection of Lumbar Discitis by MRI.**
D. James Taylor, Gregory Colin Brown, Robert J Moore, Rebecca Walters, D C Chapple, D L Goss and Robert J. Fraser.
Royal Adelaide Hospital, Adelaide, S.A. Australia.
- 250. Trabecular Bone Volume Fraction Mapping by Low Resolution MR Imaging.**
Maria Fernandez-Seara, Hee Kwon Song and Felix Wehrli.
University of Pennsylvania, Philadelphia, PA, USA.
- 251. Digital Topological Analysis of In Vivo MR Microimages of Trabecular Bone Reveals structural Implications of Bone Loss.**
Felix Wehrli, Byron Gomberg, Punam Saha, Hee Kwon Song and Scott N. Huang.
University of Pennsylvania, Philadelphia, PA, USA.
- 252. Quantification of Regional Human Leg Muscle Perfusion Using First-pass Magnetic Resonance Imaging.**
Shuichiro Kaji, Brian Hargreaves, Phillip Yang, Dwight G.Nishimura and Bob Hu.
Kawasaki Medical School, Okayama Japan and Stanford University, Stanford, CA, USA.
- 253. In Vivo Assessment of Absolute Perfusion in Mouse Hindlimbs with Spin Labeling MRI.**
J.U.G. Streiff, Karl-Heinz Hiller, Christiane Waller, Matthias Nahrendorf, Frank Wiesmann, Wolfgang Bauer, Eberhard Rommel, Axel Haase.
Universitat Wuerzburg, Wuerzburg, Germany.
- 254. Differential fat distribution in UCP3 over-expressing transgenic mice.**
K. Kumar Changani, Amy P. Nicholson, Alan White, Torsten Reese and John C. Clapham.
Smith Kline Beecham, Essex, UK.

Clinical Science Focus Session: MR Imaging of Multiple Sclerosis

- 255. Cortical and Subcortical Reorganization in Patients with Primary Progressive Multiple Sclerosis and Different Motor Impairment:A Functional Magnetic Resonance Imaging Study.**
Maria A Rocca, Lucia Moiola, Andrea Falini, Giuseppe Scotti, Giancarlo Comi and Massimo Filippi.
Scientific Institute H San Raffaele, Milan, Italy.
- 256. fMRI Changes in Patients with Relapsing-Remitting MS and No Clinical Disability.**
Maria A Rocca, Bruno Colombo, Giancarlo Comi, Massimo Filippi.
Scientific Institute H San Raffaele, Milan, Italy.

257. **Combined use of magnetization transfer ratio and T2 histograms in brain paranchyma,brain atrophy index to characterize multiple sclerosis (MS).**
Sharmila Majumdar, D. Grenier, D. Pelletier, D. Portnoy, J. Carballido Gamio, D.E. Goodkin and S.J. Nelson.
University of California, San Francisco, CA, USA.
258. **Improved Correlation of MRT Histograms with Disability in Primary Progressive and Relapsing Onset Multiple Sclerosis using Principle Component Analysis.**
Jamshid Dehmeshki, Paul Stephen Tofts, S.M. Leary, Alan P. Thompson and David H. Miller.
University College London, Institute of Neurology, London, England.
259. **Fast Measurement of Quantitive MT Parameters in Fixed Multiple Sclerosis Brain.**
Anita Ramani, Barker G.J. and Paul Stephen Tofts.
University College London, Institute of Neurology, London, England.
260. **Quantitative Analysis of MRI White Matter Signal Abnormalities with High Reproducibility and Accuracy**
Xingchang Wei, Simon Warfield, Kelly H Zou, William M. Wells III, Ying Wu, Xiaoming Li, Alexandre Guimond, Mark Anderson, Randall R. Benson, Leslie Wolfson, Ferenc A. Jolesz and Charles R.G. Guttmann.
Brigham and Women's Hospital, Harvard Medical School, Boston, MA USA and University of Connecticut, Farmington, CT, USA.
261. **Enhancement of multiple sclerosis lesions with ultra-small particle iron oxide :phase II study.**
Vincent Dousset, Bruno Brochet, Jean-Marie Caille and Klaus G Petry.
Hôspital Pellegrin, Bordeaux, France.
262. **Enhancing MS Lesions on MRI Are More Often Non-Periventricular in Distribution.**
Guo-Jun Zhao, David Kb Li and Donald W. Paty.
University of British Columbia, Vancouver, BC, Canada;
263. **Imaging Inflammation:Visualization of Perivascular Cuffing in EAE by Magnetic Resonance Microscopy.**
Paula Gareau, Allison C. Wymore, Gary P. Cofer, Stephen J. Karlik, G. Allan Johnson.
The John P. Robarts Research Institute, London, ON Canada and Duke University, Durham, NC, USA.
264. **Differentiation of MS from other inflammatory diseases and hypoxic ischaemic disorders: additional value of spinal MRI.**
J.C. J. Bot, F. Barkhof, G. Lycklama A' Nijeholt, E. Bergers, D. Van Schaardenburg, A. Voskuyl, H. Adler, J. Pijnenburg, C. Polman, E. Vermeulen and J. Castelijns.
VU Medical Centre, Amsterdam, Netherlands.
265. **Regional Brain Atrophy in Multiple Sclerosis: increasing sensitivity to differences in relapsing-remitting and secondary-progressive disease.**
J. T. Chen, P. M. Matthews, D. L. Arnold, Y. Zhang, S. M. Smith.
University of Oxford, Oxford, UK and McGill University, Montreal, Quebec Canada.
266. **Comparison of Estimated Cerebral Atrophy in RRMS and Healthy Controls using Three MRI Pulse Sequences and Three Intensity Based Segmentation Techniques.**
Joseph Frank, John Ostuni, R. Leigh, B.K. Lewis, T. Howard, J. Patel, D. Pham and H. McFarland.
National Institutes of Health, Bethesda, MD, USA.

Clinical Science Focus Session: Cancer MR Spectroscopy

- 267. Spermine in Normal Epithelial Cells of Human Prostate—A HRMAS proton MR spectroscopy Study.**
Leo Ling Cheng, C-L.Wu, A. E. Mallory, M. R. Smith, R. G. Gonzalez.
Massachusetts General Hospital, Harvard Medical School, Charlestown, MA, USA.
- 268. Diagnosis of Hepatocellular Carcinoma using Proton Magnetic Resonance Spectroscopy *Ex Vivo*.**
Uwe Himmelreich, Robyn Soper, Ray Somorjai, Brion Dolenko, Dorothy Painter, Cynthia Lean, Carolyn Mountford and Peter Russell.
University of Sydney, Sydney, NSW, Australia and Institute of Biodiagnostics, Winnipeg, Canada.
- 269. ¹H-MRS mobile lipid localization in rat brain glioma.**
Sonia Zoula, Gwénaél Herigault, Régine Farion, Paul Rijken, Hans Peters, Albert Van der Kogel, Chantal Rémy and Michel Decorps.
Université Joseph Fourier, Grenoble cedex 9, France and University of Nijmegen, Nijmegen, The Netherlands.
- 270. ¹H MRS of Neutral Lipids in Low and High Grade Gliomas, Recurrent Gliomas, Metastases, Lymphomas, Abscesses, and Inflammation.**
Ulrich Pilatus, Pia Reichel, Sebastian Herminghaus, Peter Raab, Matthias Setzer, Heinrich Lanfermann and Friedhelm E. Zanella.
University Frankfurt, Frankfurt, Germany.
- 271. Characterization of Brain Tumors Using ¹H-NMR Spectroscopy and Self-Organizing Maps: Relevance of Hydrophilic and Lipophilic Metabolites.**
Olaf Beckonert, Jürgen Monnerjahn, Thomas Nägele and Dieter Leibfritz.
University of Bremen, Bremen, Germany and University Hospital, Tübingen, Germany.
- 272. Single voxel 2D J-resolved spectroscopy of the in situ human prostate.**
Mark Swanson, Daniel B. Vigneron, Napapon Sailasuta, Ralph Hurd, John Kurhanewicz
University of California, San Francisco, San Francisco, CA, USA and G.E. Medical Systems, Fremont, CA, USA
- 273. Metabolic Classification of Renal Tumors with ¹H Magnetic Resonance Spectroscopy: Comparison of Ex Vivo and Localized In Vivo Results.**
Gregory J. Metzger, Lidia S. Szczepaniak, Arthur I. Sagalowsky, David H. Ewalt and Pamela Nurenberg.
Philips Medical Systems and University of Texas Southwestern Medical Center, Dallas, TX, USA.
- 274. Investigation of the Predictive Value of the Pretreatment Tumor Content of Phosphoethanolamine and Phosphocholine Measured by *In Vivo* ³¹P MR Spectroscopy in Non-Hodgkin's Lymphoma in a Multi-Institutional Setting.**
Fernando Arias-Mendoza, Kristen Zakian, Marion Stubbs, David Collins, Geoffrey Payne, Truman R. Brown, Martin O. Leach, John R. Griffiths, Jason A. Koutcher, Jerry Glickson, Jeffrey L. Evelhoch, Arend Heerschap, H. Cecil Charles and Sarah J. Nelson.
Fox Chase Cancer Center, Philadelphia, PA, USA; Memorial Sloan Kettering Cancer Ctr., New York, NY USA; St George's Hospital Medical School, London, UK; Royal Marsden Hospital, Sutton, UK; University of Pennsylvania, Philadelphia, PA USA; Wayne State University, Detroit, MI USA; University Hospital Nijmegen, Nijmegen, Netherlands; Duke University, USA and University of California, San Francisco, San Francisco, CA, USA.

- 275. Statistical Classification Strategy (SCS) Analysis of MRS from Biopsies of Barretts Epithelium.**
Sinead Doran, Greg Falk, Cynthia Lean, Jeanette Philips, Ray Somorjai and Carolyn Mountford
University of Sydney; Strathfield Private Hospital; Royal North Shore Hospital, Sydney, NSW Australia
and Institute for Biodiagnostics, NRC, Winnipeg, Canada.
- 276. Pathologic Metabolism of Neuroepithelial Brain Tumors: Prognostic Impact of Total Choline Compounds and Lipids as Measured with In Vivo Proton MR Spectroscopy.**
Sebastian Herminghaus, Ulrich Pilatus, Setzer Matthias, Lang Joseph, Heinrich Lanfermann, Seifert Volker and Zanella Friedhelm.
University Hospital, Frankfurt/Main, Germany.
- 277. Sensitivity and Specificity of In-vivo 1H MRS in Management of Breast Cancer Patients Undergoing Neoadjuvant Chemotherapy.**
Mahesh Kumar and V. Seenu, N.R. Jagannathan
All India Institute of Medical Sciences, New Delhi, India.
- 278. Comparison of in vivo proton MRS of pediatric brain tumors with ex vivo Magic Angle Spinning MRS of intact biopsy tumor samples.**
Aria Tzika, Leo Cheng, Loukas Astrakas, Maria Zarifi, Tina Poussaint, Liliana Goumnerova, David Zurakowski, Douglas Anthony and Gil Gonzalez.
Children's Hospital, Harvard Medical School, Boston, MA USA.
Massachusetts General Hospital, Charlestown, MA and Children's Hospital Agia Sofia, Athens, Greece.

FMRI: Resolution and Characteristics of Signal

- 279. Neural Correlate of BOLD functional MRI.**
Dae-Shik Kim, Itamar Ronen, Louis J. Toth, Oldman Cheryl, Timothy Duong, Hellmut Merkle, Seong-Gi Kim and Kamil Ugurbil.
University of Minnesota, Minneapolis, MN, USA and Harvard Medical School, Boston, MA, USA.
- 280. Oxygenation and Hematocrit Dependence of Blood T₂ Relaxation at 1.5 T.**
M. Johanna Silvennoinen, Chekesha Clingman, Xavier Golay, Risto Kauppinen, Peter C. Van Zijl.
University of Kuopio, Kuopio, Finland and Johns Hopkins University, Baltimore, MD, USA.
- 281. CBV changes during functional and CO₂ challenges: Implications for BOLD calibration**
Fahmeed Hyder, Ikuhiro Kida, Richard P. Kennan and Douglas L. Rothman.
Yale University, New Haven, CT, USA.
- 282. The BOLD post-stimulus undershoot: fMRI versus Imaging Spectroscopy.**
Georg Royl, Christoph Leithner, Matthias Kohl, Ute Lindauer, Ulrich Dirnagl, Kenneth Kwong, Joseph B. Mandeville.
Charité University Hospital, Berlin, Germany and Massachusetts General Hospital, Charlestown, MA, USA.
- 283. Combination of fMRI and VEP Recording: The BOLD Response is not a Linear Transform of the Average Neuronal Activity.**
Clemens Janz, Sven Heinrich, Jens Kornmayer, Michael Bach and Jürgen Hennig.
University of Freiburg, Freiburg, Germany
- 284. Concurrent Optical Spectroscopy and Measurement of Intrinsic Magnetic Resonance Signal During Anoxia and Hypercapnia in Anaesthetised Rat.**
John Martindale, Jason Berwick, Martyn Paley, John Mayhew.
University of Sheffield, Clinical Science, Sheffield, England, UK.

- 285. Synergy from Simultaneously acquired fMRI and Near-infrared Optical Spectroscopy Data.**
Gary Strangman, Tom Gaudette, David A. Boas.
Massachusetts General Hospital, Charlestown, MA, USA.
- 286. Spatial Comparison between fMRI and MEG Studies on Human Somatosensory Area.**
J. He, S. Francis, A. Hillebrand, G. R. Barnes, R.W. Bowtell, P.L. Furlong, I.E. Holliday and P.G. Morris
University of Nottingham, Nottingham, UK and University of Aston, Birmingham, UK.
- 287. Probing Fast Neuronal Interaction in the Human Ocular Dominate Columns Based on fMRI BOLD Response at 7 Testa.**
Xiao-Hong Zhu, Xiaoliang Zhang, Shuangyi Tang, Seiji Ogawa, Kamil Ugurbil and Wei Chen.
University of Minnesota, Minneapolis, MN and Bell Laboratories, Murray Hill, NJ, USA.
- 288. BOLD Localization: the Implications of Vascular Architecture.**
Robert Turner
University College London, London, England, UK.

Motion and Artifact Correction

- 289. PROPELLER MRI:clinical testing of a novel technique for quantification and compensation of head motion.**
Kirsten P. Forbes, James G. Pipe, Roger Bird and Joseph E Heiserman.
St. Josephs Hospital and Medical Center, Phoenix, AZ, USA.
- 290. Artifact Cancellation using SENSE Spatial Array Processing.**
Peter Kellman and Elliot R. McVeigh.
National Institutes of Health, Bethesda, MD, USA.
- 291. Spherical Navigator Echoes for 3-D Rigid Body Motion Detection.**
Edward Brian Welch, Armando Manduca, Roger Grimm, Heidi Ward and Clifford R. Jack Jr.
Mayo Clinic, Rochester, MN, USA.
- 292. Image-based ghost correction for general interleaved EPI.**
Michael H. Buonocore, David C. Zhu.
University of California, Sacramento, CA, USA and G. E. Medical Systems, Milwaukee, WI, USA.
- 293. A New Phase-based Algorithm for Fast and Accurate Motion Extraction from Navigator Echoes in Magnetic Resonance Angiography.**
Thanh D.N Guyen, Yi Wang, Richard Watts, Martin R. Prince.
Cornell University, New York, NY, USA.
- 294. Evaluation of Automatic Elastic Motion Correction in MR-Mammography.**
Harald Fischer, Jürgen Reichenbach, Matthias Otte and Jürgen Hennig.
Universität Freiburg, Freiburg, Germany.
- 295. Autocorrection for EPI Ghost Intensity Reduction.**
Heidi A.Ward, Armando Manduca, Stephen J.Riederer, Clifford R. Jack Jr.
Mayo Clinic, Rochester, MN, USA.
- 296. A novel integrated motion correction algorithm using radial trajectories.**
Ajit Shankaranarayanan, Michael Wendt, Jonathan S. Lewin and Jeffrey L. Duerk.
Case Western Reserve University, Cleveland, OH USA and Siemens Medical Systems,
Iselin, NJ, USA.

297. Reduction Of Noise Associated With Stimulus Correlated Motion In Event Related Overt Word Production fMRI Studies.

Kaundinya Gopinath, Richard W. Briggs, David Soltysik, Nathan Himes and Bruce A. Crosson.
University of Florida, Gainesville, FL, USA.

MR Angiography Techniques

298. Oscillating Dual-Equilibrium Steady State Angriography (ODESSA).

William Overall, Shreyas Vasanawala, Steven Conolly, Dwight G. Nishimura and Bob Hu.
Stanford University, Stanford, CA, USA.

299. Exploiting Three Tesla for Circle of Willis and Carotid Artery Time-of-Flight MR Angiography: A Quantitative, Experimental and Theoretical Study.

Osama Al-Kwif, Derek J. Emery, Reka Ferdinandy and Alan Wilman.
University of Alberta, Edmonton, Alberta, Canada.

300. MR Angiography of Intracranial Aneurysms: 3.0T compared with 1.5T.

Gordon F. Gibbs, John Huston III, Matt A. Bernstein and Norbert G. Campeau.
Mayo Clinic, Rochester, MN, USA

301. Multiple Slab MR Projection Angiography with Subsecond Temporal Resolution.

R. Strecker, S. Arnold, K. Scheffler, J. Hennig.
University Hospital, Freiburg, Germany.

302. Subsecond Contrast-enhanced 3D MR angiography: a new technique for dynamic imaging of the vasculature.

James Carr, Richard Martin McCarthy, Gerhard Laub, Scott Pereles and John Paul Finn.
Northwestern University Medical School, Chicago, Illinois USA and Siemens Medical Systems, Inc., Chicago, Illinois USA.

303. Time-Resolved 3D MR Angiography of the Abdomen with a Real-Time System.

Oliver Wieben, Thomas Hany and Walter Block.
University of Wisconsin-Madison, Madison, WI, USA.

304. Time-resolved MRA Using Undersampled 3D Projection Imaging (VIPR).

Walter Block, Thomas Hany and Andrew Barger.
University of Wisconsin-Madison, Madison, WI, USA.

305. Improved Lumen Visualization in Metallic Stents and Filters by Reduction of Susceptibility and RF Artifacts.

Lambertus W. Bartels, Chris J.G. Bakker, Jan L. Verwoerd and Max A. Viergever.
University Medical Center Utrecht, Utrecht, The Netherlands and Philips Nederland B.V., Medical Systems, Eindhoven, The Netherlands.

306. Navigator-Gated Free-Breathing 3D True-FISP Projection MRA of the Renal Arteries with 2D Pencil Beam Aortic Spin Labeling Pulse.

Elmar Spuentrup, Warren J. Manning, Peter Börnert, Kraig V Kissinger and Matthias Stuber.
Harvard Medical School, Boston, MA USA and Philips Research Laboratories, Hamburg, Hamburg, Germany.

307. In Vivo Vascular Imaging with Hyperpolarized ^3He in Microspheres.

Atsushi M. Takahashi, Laurence W. Hedlund, Mark S. Chawla, G. Allan Johnson.
Duke University Medical Center, Durham, NC, USA.

Stroke: Human Studies

- 308. MR Cerebral Metabolic Rate of Oxygen (MR-CMRO₂) May Reveal the Functional Status of Brain Tissue in Acute Stroke Patients.**
Weili Lin, Hongyu An, Jin-Moo Lee, Katie Vo, Azimcelik, Yueh Lee, Chung Y. Hsu.
UNC-Chapel Hill, Department of Radiology, Chapel Hill, NC, USA.
- 309. The Hemodynamic Response: tissue oxygen concentration and oxygen delivery to brain.**
John Mayhew, Ying Zheng and John Martindale.
University of Sheffield, Sheffield, England, UK
- 310. Relationship Between Apparent Diffusion Coefficient and Absolute Measurements of Cerebral Blood Flow in Acute Stroke Patients.**
Yueh Z. Lee, Azim Celik, Jin-Moo Lee, Katie Vo, Hui Liu, Chung Y. Hsu and Weili Lin.
University of North Carolina at Chapel Hill, Chapel Hill, NC, USA.
- 311. Severe ADC Decreases Do Not Predict Irreversible Tissue Damage In Humans.**
Jens Fiehler, Thomas Kucinski, Mascha Foth, René Knab, Volkmar Glauche, Cornelius Weiller, Hermann Zeumer, Joachim Röther.
University Hospital Eppendorf, Hamburg, Germany.
- 312. Temporal Evolution of Apparent Diffusion Coefficient in Subregions of Perfusion Deficit in Human Ischemic Stroke.**
Yawu Liu, Jari O. Karonen, Ritva L. Vanninen, Jussi Perkiö, Mervi Könönen, Pauli Vainio, Seppo Soimakallio and Hannu J. Aronen.
Kuopio University Hospital, Kuopio University, Helsinki, Finland.
- 313. Cerebral Blood Volume: Possible Predictor of Clinical Deficit in Acute Stroke.**
Ronda C Ryder, Andrea Cole-Haskayne, Robert J Sevick, Andrew M Demchuk, Michael D Hill, Philip A Barber, Alastair M Buchan, and Richard Frayne.
University of Calgary, Calgary, Alberta, Canada.
- 314. A Strategy towards the Automated Estimation of Stroke Evolution Utilising a Diffusion and Perfusion MRI based Predictive Model.**
Stephen E. Rose, Mark Griffin, Jonathan Chalk, Andrew Janke, Fernando Zelaya, Andrew Simmons, H.S. Markus, Wendy Strugnell, David Doddrell and Geoffrey J. McLachlan.
University of Queensland, Queensland, Brisbane, Queensland Australia;
Institute of Psychiatry, London, England, UK;
King's College London, London, United Kingdom and Princess Alexandra Hospital, Brisbane, Australia.
- 315. Identification of acute cerebral ischemic lesion clusters in stroke patients that predict infarction using multiparametric MRI ISODATA analysis**
Mamatha Pasnoor, Panayiotis D Mitsias, Suresh C Patel, Rabih Hammoud, Sunitha Santhakumar, Nikolaosih Papamitsakis, Hamid Soltanian-Zadeh, Michael Jacobs, Mei Lu , Donald Peck, Ibrahim Duhaini and Michael Chopp.
Henry Ford Health System, Detroit, MI, USA.
- 316. Spatial-temporal cluster analysis of serial diffusion tensor MRI in human cerebral ischemia**
Ona Wu, Lee Schwamm, Walter J. Koroshetz, Thomas Benner, William Copen, Thierry Huisman, Ramon Gilberto Gonzalez, Leif Østergaard, Vicky W. Pan, Bruce R. Rosen and A.Gregory Sorensen
Massachusetts General Hospital, Charlestown, MA, USA.

317. Combined BOLD fMRI and Transcranial Magnetic Stimulation Study :Evaluation of Ipsilateral Motor Pathway of Stroke Patients.

Yongmin Chang, Bong-Soo Han, Sung-Ho Jang, Woo-Mok Byun, Yong-Sun Kim and Duk-Sik Kang.
Kyungpook National University Hospital, Yeung Nam University, Taegu, Korea.

MRI-Guided Thermal Therapies

318. MR-Guided Laser-Induced Interstitial Thermotherapy of Liver Tumors in an Interventional 0.5 T MRI System - Technique, Preliminary Results, and Complication Rate in 72 Patients.

Frank Eickmeyer, Volkhart U Fiedler, Frank P Müller, Christian Schoepp, Patrick R Verreet and Hans-Joachim Schwarzmaier.
Klinikum Krefeld, Krefeld, Germany.

319. Laser-induced Thermotherapy in Patients with Hepatic Metastases: Effect of Blood Flow Reduction on Lesion Diameter

F.K. Wacker, K. Reither, J.P. Ritz, F. Brehm, A. Roggan, V. Knappe, C.T. Germer and K. Wolf.
Universitaetsklinikum Benjamin Franklin, Berlin, Germany.

320. Noninvasive MRI-Guided Focal Opening of Blood Brain Barrier:

Kullervo H. Hynynen, Nathan McDannold, Natalia Vykhodtseva and Ferenc A. Jolesz.
Harvard University, Boston, MA, USA.

321. A Phase II Clinical Trial of Interactive MR-Guided Interstitial Radiofrequency Thermal Ablation of Primary Kidney Tumors: Preliminary Results.

Jonathan S. Lewin, Cindy F. Connell, Aaron Sulman, Jeffrey L. Duerk and Martin I. Resnick.
University Hospitals of Cleveland, Cleveland, Ohio, USA.

322. MR-Guided Radiofrequency (RF) Thermal Ablation Of The Lumbar Vertebrae In A Porcine Model

Sherif Gamal Nour, Andrik Aschoff, Ian C. Mitchell, Steven N. Emancipator, Jeffrey L. Duerk and Jonathan S. Lewin.
University Hospitals of Cleveland, Cleveland, Ohio, USA.

323. MR-Guided Focused Ultrasound (FUS) : Ablation of VX2 Carcinoma in Rabbit Thigh using a Short Treatment Period

Rares Salomir, Jean Palussiere, Nicolas Grenier, Jacco de Zwart, Frederic Vimeux, Bruno Quesson and Chrit Moonen.
"Bergonie" Institute, Bordeaux, France;

324. Paramagnetic Liposomes as Thermosensitive Probes for MRI-Guided Thermal Ablation: Feasibility Study on the Perfused Porcine Kidney.

K. A. Il'yasov, A. Bjørnerud, A. Rogstad, U.N. Wiggen, I. Henriksen, B. Eissner and J. Hennig, S.L. Fossheim.
University Hospital, Freiburg, Germany.

325. Radial MRI - A Motion Insensitive Temperature Mapping Method.

Tobias Schaeffter, Steffen Weiss, Volker Rasche
Philips Research, Hamburg, Germany.

326. MR guidance of tumor ablation in canine prostate using a transurethral ultrasound applicator.

R. Jason Stafford, Chris J. Diederich, Roger E. Price, Will H. Nau, Belinda Rivera, Lars E. Olsson and John D. Hazle.
University of Texas M. D. Anderson Cancer Center, Houston, TX USA and University of California, San Francisco, San Francisco, CA, USA.

327. **A New Method for Real-Time Temperature Control During MRI Focused Ultrasound.**
Bruno Quesson, Frederic Vimeux, Rares Salomir, J. Palussiere, Jacco De Zwart and Chrit Moonen.
Universit de Bordeaux, Bordeaux, France.

Musculoskeletal MR Spectroscopy
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328. **Mapping Fiber Orientation in Muscle by Short TE MRSI. Regional Variations of 1 H Spectra of Human Muscle Due to Orientation Dependent Dipolar Splittings.**
Peter Vermathen, Roland Kreis, Chris Boesch.
University & Inselspital, Bern, Switzerland.
329. **Charge Influences Dipolar Coupling Interactions of Lactate and Alanine in Skeletal Muscle.**
Iris Asllani, Eric Shankland, Martin J. Kushmerick.
University of Washington, Seattle, WA, USA.
330. **Determinants of Intramyocellular Lipid Levels are Multifactorial.**
Roland Kreis, Jacques Decombaz, Bruno Jung, Peter Diem, Michael Ith, Beat Schmitt, Hans Hoppeler and Chris Boesch.
University & Inselspital, Bern, Switzerland.
331. **Uncoupling Protein-3 Regulates Skeletal Muscle Mitochondrial Oxidative Phosphorylation, *in vivo*.**
Gary W. Cline, Antonio J. Vidal-Puig, Sylvie Dufour, Kevin S. Cadman, Bradford B. Lowell and Gerald I. Shulman.
Yale University, New Haven, CT, USA; University of Cambridge, Cambridge, UK and Beth Israel Deaconess Medical Center, Boston, MA, USA.
332. **Assessment of the rate of Muscle Glycogen Synthesis using 13 C Magnetic Resonance Spectroscopy in Zucker fa/fa rats, Zucker lean rats and Sprague Dawley rats: Effect of treatment with Rosiglitazone.**
Merrill Nuss, Vincent Hradil, Yanping Luo, Sandra Burke, Eugene Bush, Robin Shapiro, Peer Jacobson and Andy Adler.
Abbott Labs, Abbott Park, IL, USA.
333. **Anaerobic Glycogenolysis is not activated by Calcium.**
Alexander HSU and M. Joan Dawson.
College of Medicine, University of Illinois at Urbana-Champaign, Urbana, IL, USA.
334. **A Quantative Study of Skeletal Muscle Bioenergetics in Muscle Lacking Utrophin and Dystrophin.**
D.J. Taylor, J. Rafael, R. Lodi, M.A. Cole, Kay Elizabeth Davies and Peter Styles.
University of Oxford, Oxford, England, UK.
335. **No correlation between muscle A3243G mutation load and mitochondrial function in vivo. A study of four pedigrees.**
R. Lodi, D. Taylor, D. T. Brown, D. Manners, P. Styles, P. F. Chinnery
Università di Bologna, Bologna, Italy; University of Oxford, UK and The University of Newcastle upon Tyne, UK.
336. **Dynamic asymmetry of simultaneously determined [PCr] and pulmonary oxygen uptake between the on- and off-transients of moderate intensity knee-extensor exercise in humans**
Harry Rossiter, Susan Ward, John Kowalchuk, Franklyn Howe, John Griffiths, Brian Whipp.
St George's Hospital Medical School, London, UK; The University of Glasgow, UK; University of Western Ontario, London, Ontario Canada and St. George's Hospital Medical School, London, UK.

- 337. Bioenergetics of Skeletal Muscle in Maternally Inherited Diabetes and Deafness**
J. Doornbos, E. van Essen, A. de Roos, A.J. Maassen and H. H. P. J. Lemkes.
Leiden University Medical Center, Leiden, Netherlands.

WEDNESDAY

Plenary Lectures: MR and Aging

- 338. The Aging Population**
A.K. Dixon
University of Cambridge, Addenbrooke's Hospital, Cambridge, United Kingdom;
- 339. The Aging Brain**
Nicholas C. FOX
Institute of Neurology, London, United Kingdom
- 340. The Aging Body**
Robert J. Herfkens
Stanford University, Stanford, California, United States

fMRI: Noise Processes and Signal Recovery

- 341. The Physiological Noise in Oxygenation-Sensitive Magnetic Resonance Imaging.**
Gunnar Krueger and Gary H. Glover.
Stanford University, Stanford, CA, USA.
- 342. Auto-Regressive Model Order Estimation in Functional MRI Data.**
Shantanu Sarkar, Essa Yacoub, William Auffermann, Shing-Chung Ngan and Xiaoping Hu.
University of Minnesota, Minneapolis, MN, USA.
- 343. Respiratory Effects in Functional Magnetic Resonance Imaging due to Bulk Susceptibility Changes.**
Devesh Raj, Derek Paley, Adam W. Anderson, Richard P. Kennan and John C. Gore.
Yale University, New Haven, CT, USA.
- 344. T2 * Dependence of Low Frequency Functional Connectivity.**
Scott Peltier, Douglas Noll.
University of Michigan, Ann Arbor, MI, USA.
- 345. Signal Oscillation in voxels containing a large venous vessel and brain parenchyma reflects blood oxygen saturation and blood volume.**
Hongyu An, Weili Lin.
Washington University, St.Louis, MO USA and UNC at Chapel Hill, Chapel Hill, NC, USA.
- 346. Feasibility of Real-Time Auto-Shimming**
Heidi A. Ward, Stephen J. Riederer and Clifford R. Jack Jr.
Mayo Clinic, Rochester, MN, USA.
- 347. Multi-Shot Three-Dimensional Tailored RF Slice-Select Pulses.**
Victor Andrew Stenger, Fernando Boada and Douglas Noll.
University of Pittsburgh, PA, USA and University of Michigan, Ann Arbor, MI, USA.
- 348. Spiral in/out Trajectories for BOLD fMRI.**
Gary H. Glover and Christine S. Law.
Stanford University, Stanford, CA, USA.

349. Single-shot image acquisition with signal recovery from susceptibility-induced losses.

Allen Song
Duke University, Durham, NC, USA.

Animal Brain MRI: New Tricks of the Trade
350. Effects of cellular swelling on diffusion in white matter.

Greg Stanisz and R. Mark Henkelman.
University of Toronto, Toronto, ON Canada.

351. Ghosts, Phantoms and Spectra: Water Diffusion and Cell Swelling in Diffusion Weighted Imaging.

Peter E. Thelwall and Stephen J. Blackband.
University of Florida, Gainesville, FL, USA.

352. Measurement of Transmembrane Water Exchange Rate for the in situ Rat Brain.

J. D. Quirk, G.L. Bretthorst, J.J. Neil and J.J.H. Ackerman.
Washington University, St. Louis, MO, USA.

353. Characterization of MRI Lesion Development in a Macrosphere-Induced Embolic Stroke Model.

M. Silva and C. Sotak, T. Gerriets, F. Li and M. Fisher
Worcester Polytechnic Institute and University of Massachusetts Medical School Worcester, MA, USA.

354. A New Model for Acute Stroke Therapy.

A.J. de Crespigny, H.E. D'Arceuil, K. Maynard, N. Cocoros, D. McAuliffe, C.M. Putman.
R.F. Budzik, A. Norbash, L. Hamberg, G. Hunter and R.G. Gonzalez
Massachusetts General Hospital, Boston, MA, USA.

355. Standardization of MRI Tissue Characterization with Histopathological Validation Using Experimental Cerebral Ischemia in Rat.

H. Soltanian-Zadeh, M. Pasnoor, M.A. Jacobs, R. Hammond, M. Lu, Z.G. Zhang, R.A. Knight, A.V. Goussev, D.J. Peck and M. Chopp.
Henry Ford Health System, Detroit, MI and Johns Hopkins University, Baltimore, MD, USA.

356. Measuring Regional Blood Flow in the Rat Brain using Indirect 17O Magnetic Resonance Imaging.

Dharmesh R. Tailor, Arijit Roy, Ravinder R. Regatte, Sarma V.S. Akella, John S. Leigh
and Ravinder Reddy.
University of Pennsylvania School of Medicine, Philadelphia, PA, USA.

357. On and off-resonance T_1 dispersion in acute cerebral ischemia of the rat.

Olli Gr Hn, Heidi M. Kel, Jouko Lukkarinen, Lance Delabarre, Joseph Lin, Michael Garwood
and Risto Kauppinen.
University of Kuopio, Kuopio, Finland and University of Minnesota, Minneapolis MN, USA.

358. Diffusion Tensor Microimaging of Mouse Brain Development

Susumu Mori, Ryuta Itoh, Jingyang Zhang, Walter Erwin Kaufmann, Peter C. Van Zijl, Paul Yarowsky
Johns Hopkins University, School of Medicine, Baltimore, MD, USA.

359. In Vivo MR Micro-imaging of Neuronal Migration in the Mouse Brain

Daniel H Turnbull, Youssef Zaim Wadghiri, Lee Josephson and Hynek Wichterle.
NYU School of Medicine, New York, NY USA

Renal and Prostate MR Imaging

- 360. Effect of Diabetes Mellitus on Renal Medullary Oxygenation as Evaluated by BOLD MRI.**
Pottumarthi V. Prasad, Aristidis Veves, Paula Smakowski and Franklin H. Epstein.
Northwestern University Medical School, Evanston, IL, USA and Harvard Medical School,
Boston, Massachusetts USA.
- 361. In-Vivo Detection of Acute Rejection in Rat Renal Allograft by MR Imaging with Ultrasmall Superparamagnetic Iron Oxide.**
Qing Ye, Dewen Yang, Mangay Williams, Donald Williams, Charnchai Pluempitiwiriyawej, Jose M.F. Moura and Chien Ho.
Carnegie Mellon University, Pittsburgh, PA, USA.
- 362. Diffusion and BOLD-Contrast Imaging in the Kidneys of Diabetic Rats.**
Mario Ries, Basseau Fabrice, Benoit tyndal, Richard Jones, Chrit Moonen and Nicolas Grenier.
Universit Victor Segalen Bordeaux, Bordeaux, France.
- 363. Evaluation of Renal Parenchymal Disease in a Rat Model with Magnetic Resonance Elastography**
Nihar Shah, Scott Kruse, John Lieske, Bernard King, Richard Ehman.
Mayo Clinic, Rochester, MN, USA.
- 364. The us of dynamic MRI to assess renal Gd(DTPA) clearance in hypertensive and normotensive rats.**
Didier Laurent, Jim Wasvary and Kevin Poirier.
Novartis Pharmaceuticals Corporation, Summit, NJ, USA
- 365. Measurement of Renal Volumes with Voxel Summation Following Contrast Enhanced 3-Dimensional Fast Spoiled Gradient Recalled Echo Imaging of the Kidneys.**
Curtis Coulam, D.M. Bouley, Marcus Alley and F. Graham Sommer.
Stanford University, Stanford, CA, USA.
- 366. A Novel Approach in Analyzing Dynamic Intrarenal Signals Using USPIO and MRI**
Ying Sun, Dewen Yang, Qing Ye, Chien Ho and Jose M. F. Moura.
Carnegie Mellon University, Pittsburgh, PA USA.
- 367. Quantitative Measurement of Blood Perfusion, GFR and Arterial Vascular Fraction in the Kidney Cortex**
AM Smith, R. Materne and B. E. Van Beers.
Universite catholique de Louvain, Belgium
- 368. Apparent Diffusion Coefficient of the Normal Prostate Using Tetrahedral Encoded Diffusion Gradients**
Shantanu Sinha and Usha Sinha.
University of California, Los Angeles, Los Angeles, CA, USA.
- 369. Comparison of Quantitative T2 Mapping and Diffusion Weighted Imaging in the Normal and Pathologic Prostate**
Peter Gibbs, Daniel J Tozer, Gary P Liney and Lindsay W Turnbull.
Centre for MR Investigations, Hull Royal Infirmary, Hull, England.

Flow Quantification

- 370. Multi-site Comparison of Accuracy, Linearity and Precision in MR Flow Measurements**
Paul Summers, Maria Drangova, Anastasia Papadaki, David W. Holdsworth, Brian K. Rutt.
King's College and Imperial College, London, London, England;
Imaging Research Labs, The John P. Robarts Research Institute, London, ON Canada.
- 371. Fast Motion Encoding using Steady State Echoes.**
William Overall, Dwight G. Nishimura and Bob Hu.
Stanford University, Stanford, CA, USA.
- 372. One-Shot Fourier Velocity-Encoding Using a Variable-Density Trajectory.**
Julie Sabataitis, G.T. Luk-Pat, Bob Hu, Dwight G. Nishimura.
Stanford University, Stanford, CA, USA.
- 373. Real-time interactive duplex MR: Application in neurovascular imaging**
Stephan G Wetzel, Andrew Tan, Oliver Heid, Neil M Rofsky, Glyn Johnson, Vivian S Lee
NYU Medical Center, New York, New York USA; Siemens, Erlangen, Germany and Harvard Medical School, Boston, MA, USA.
- 374. Pulse-Wave Velocity Measured in One Heartbeat Using MR Tagging**
Christopher K. Macgowan, R. Mark Henkelman and Michael L. Wood.
University of Toronto, Toronto, Canada
- 375. Fast Phase-Contrast Imaging At A Single Time Point - A Feasibility Study.**
Maria Drangova, Andrew Wheatley, Daniela Galea.
The John P. Robarts Research Institute and University of Western Ontario, London, ON, Canada.
- 376. Measuring Time-Averaged Velocity with Ungated Spiral and 2DFT Phase-Contrast MR**
J.B. Park, B.A. Hargreaves and Dwight G. Nishimura.
Stanford University, Stanford, CA, USA.
- 377. Microscopic Spin Tagging (MIST) for Flow Imaging.**
Silvia Olt, P. Schmitt, Florian Fidler, Axel Haase, P.M. Jakob.
Universitat Wurzburg, Wurzburg, Germany.
- 378. Visualization of Flow in the Aorta Using Time-resolved 3D Phase Contrast MRI.**
John-Peder Escobar Kvitting, Einar Brandt, Lars Wigström, and Jan Engvall.
Linköping University, Linköping, Sweden.
- 379. Combined MRI and computational fluid dynamics detailed investigation of flow in a realistic coronary artery bypass graft model.**
Y. Papaharilaou, D.J. Doorly, S.J. Sherwin, J. Peiro, J. Anderson, B. Sanghera, N. Watkins
and C.G. Caro.
Imperial College, London, UK.

MR Spectroscopy in Neuropsychiatric Disorders
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- 380. Anterior Cingulate Proton MRSI in Unipolar Major Depression: Choline Metabolite Changes During SSRI Discontinuation.**
Marc J. Kaufman, Michael E. Henry, Blaise deB. Frederick, John Hennen, Rosemond A. Villafuerte, Eve Stoddard, Bruce M. Cohen, Perry F. Renshaw.
McLean Hospital, Harvard Medical School, Belmont, MA USA.

- 381. Evidence of Subtle Prefrontal Neuropathology in Patients with Borderline Personality Disorder. A Pilot Proton Magnetic Resonance Spectroscopy Study.**
Thorsten Thiel, Ludger Tebartz Van Elst, Dieter Ebert, Jürgen Hennig.
University Hospital Freiburg, Freiburg, Germany.
- 382. Is voxel composition and NAA as measured by 1 H MRS influenced by structural abnormalities associated with major depressive disorder?**
Bettina Pfeleiderer, Nikolaus Michael, Patricia Ohrmann, Andreas Erfurth, Ulrike Homann, Volker Arolt, Walter Heindel.
University of Münster, Münster, Germany.
- 383. Functional Spectroscopic Imaging in Patients with Migraine.**
U. Dydak, P. S. Sandor, J. Schoenen, G. Crelier, S. S. Kollias, K. Hess, R.M. Agosti and P. Boesiger
University and ETH Zurich, Zurich, Switzerland.
- 384. Measurement of Human Brain --hydroxybutyrate in Acute Hyperketonemia.**
Jullie W. Pan, Lee J.H., F.W. Telang, I. Gabriely, Robin De Graaf, Manoj K. Sammi, D.T. Stein, Douglas L. Rothman and Hoby Hetherington.
Albert Einstein College of Medicine, Bronx, NY and Yale University, School of Medicine, New Haven, CT, USA
- 385. Early Proton MRS in Normal Appearing Brain Correlates with Clinical Outcome in a Longitudinal Study of Patients Following Traumatic Brain Injury.**
Matthew Romney Garnett, Andrew Blamire, T Ad Codoux-Sudson, R. G. Corkill, Balasubramanian Rajagopalan and Peter Styles.
University of Oxford, Oxford, England, UK.
- 386. 1H MRSI Predicts Surgical Outcome in Temporal Lobe Epilepsy Patients with Normal MRI.**
Joyce Suhy, Kenneth D. Laxer, Aristides Andres Capizzano, Peter Vermathen, Gerald Matson, Nicholas M. Barbaro and Michael W. Weiner
University of California, San Francisco, San Francisco, CA, USA and Inselspital and University, Bern, Switzerland;
- 387. A Short Echo Time Proton Magnetic Resonance Spectroscopic Imaging Study of Metabolites in Temporal Lobe Epilepsy.**
Robert J Simister, Mary A McLean, Friedrich G. Woermann, Gareth J Barker and John S Duncan.
University College London, London, UK.
- 388. Using 1 H-MR Spectroscopy in Forensic Medicine to Estimate the Post-Mortem Interval: A Pilot Study in an Animal Model and its Application to Human Brain**
Michael Ith, Roland Kreis, Eva Scheurer, Richard Dirnhofer and Chris Boesch.
University & Inselspital, Bern, Switzerland.
- 389. Novel Information Management Methodology for Interactive Reading of over 1000 Magnetic Resonance Spectroscopic Imaging Studies**
J.R. Alger, A.J. Frew, T.F. Cloughesy, W. del Vecchio and J.G. Curran.
UCLA, Radiological Sciences, Los Angeles, CA, USA

Clinical Science Focus Session: Clinical MR Angiography

- 390. Cost-effective diagnostic strategies for renal artery stenosis in medication resistant hypertension: a decision analysis comparing MR angiography and conventional angiography.**
Ruth C. Carlos, Paul H. Abrahamse, David A. Axelrod and A. Mark Fendrick.
University of Michigan, Ann Arbor, MI, USA.
- 391. Motion of the distal renal artery during 3D contrast-enhanced breathhold MRA.**
Boudewijn Vasbinder, Dave Kaandorp, KaiYiu Ho and Jos van Engelshoven.
University Hospital Maastricht, Maastricht, The Netherlands
- 392. Preoperative Living Renal Donor Evaluation by MRI.**
John Strang, Bulent Arslan, Deborah J. Rubens and Erdal Erturk.
University of Rochester, Rochester, New York, USA.
- 393. MR-angiographic assessment of vascular abnormalities and perfusion parameters of the dysfunctioning and normal functioning pancreatic allograft.**
R Wolf, WJ Boeve, Th Kok, W J. Sluiter, RL Kamman, J. J. Homan van der Heide, R. J. Ploeg and M. Oudkerk.
Groningen University Hospital, Groningen, The Netherlands.
- 394. Evaluation of Pediatric Congenital Anomalies of the Aortic Arch with Three-Dimensional Gadolinium-Enhanced Magnetic Resonance Angiography: Comparison with Intraoperative Findings**
Sabah D. Butty, Klaus D. Hagspiel, J. Fritzsche, Daniel A. Leung, Alan H. Matsumoto, David J. Spinosa and Irving L. Kron.
University of Virginia, Charlottesville, VA, USA.
- 395. Free Breathing Time Resolved Contrast Enhanced-MRA using SENSE in Pediatric Patients**
Raja Muthupillai, G W Vick III, Scott Flamm, Taylor Chung.
Philips Medical Systems; Texas Children's Hospital and St. Luke's Episcopal Hospital Houston, Texas USA
- 396. High resolution, contrast enhanced MRA: Evaluation of the entire carotid circulation with a single-station acquisition**
Wyatt C. Jaffe, Ali Shaibani, Kenneth Spero, Elizabeth Krupinski, Eric J. Russell and Paul Finn.
Northwestern University, Chicago, IL, USA
- 397. Time-Resolved Contrast-Enhanced Carotid MR Angiography Using SENSE**
Xavier Golay, Elias R. Melhem, Ryuta Ito.
Johns Hopkins University, Baltimore, MD ;
- 398. Cardiac-Gated High Spatial Resolution 3D Gd-MRA Technique for the Carotid Arteries.**
Jae K. Kim, Mathieu Laliberte, Richard I. Farb, Rhonda Walcarius and Graham Wright.
Sunnybrooke & Women's College Center and University of Toronto, Toronto, ON, Canada.
- 399. Ultra-High Resolution Three-Dimensional Carotid MRA: Validation of ceMRA and MOTSA with CRA**
Brian K. Rutt, David W. Holdsworth, Sandeep Naik, Donald H. Lee, Allan J. Fox.
The John P. Robarts Research Institute, London, Ontario Canada.

- 400. MR Matas Test: Comparison with Conventional Intraarterial Balloon Occlusion Matas Test.**
Masaaki Hori, Shigeki Aoki, Toshiyuki Okubo, Keiichi Ishigame, Hiroshi Kumagai, Tsutomu Araki, Noriko Hirasawa, Kenji Suzuki and Touru Hayasaka.
Yamanashi medical university, Nakakoma, Yamanashi Japan and Tokyo University, Bunkyo-ku, Tokyo Japan.
- 401. MR angiography in patients treated with GDC.**
Isabel Wanke, Arnd Doerfler, Enno Janning, Carsten Wehl, Michael Mull, Armin Thron and Michael Forsting.
University of Essen, Essen, Nordrhein-Westfalen Germany and Technische Hochschule, Aachen, Germany;

Clinical Science Focus Session: Pediatric Neuro MR Imaging

- 402. Three-dimensional Modeling and Volume Assessment of the Fetal and Neonatal Intracranial Ventricles.**
Lore Schierlitz, Petra S. Hüppi, Marianna Jakab, Ron Kikinis, Mary Catherine Frates and Clare McTempany, Ferenc A. Jolesz.
Harvard University, Boston, MA, USA and University of Geneva, Geneva, Switzerland.
- 403. Post Mortem Imaging of the Fetal Central Nervous System - Does this Provide Accurate and Valuable Information?**
Elspeth Helen Whitby, Martyn Paley, Margaret J Evans, Richard Gillott and Paul David Griffiths.
University of Sheffield, Sheffield, UK
- 404. Ultrafast magnetic Resonance Imaging in-utero with ex-utero follow up.**
Elspeth Helen Whitby, Martyn Paley, Susan Rutter, Michael F Smith, Alan Sprigg, Norman Davies, Iain Wilkinson, Margaret J Evans, Kathy Frost and Paul D Griffiths.
University of Sheffield, Sheffield, UK
- 405. MR quantification of the brain in preterm infants at term equivalent age.**
Helen J Lewis, Joanna M Allsop, Serena J Counsell, Glyn A Coutts, Sabrina Larroche and Mary A. Rutherford
Imperial College School of Medicine, London, UK.
- 406. Phys-Maps: Mapping Cardiac and Respiratory Physiological Activity Within the Preterm Infant Brain.**
Gary P. Zientara, Lawrence P. Panych, Janet S. Soul, Joseph J. Volpe, and Ferenc A. Jolesz.
Harvard Medical School, Boston, MA, USA.
- 407. Early Cerebral Magnetic Resonance Imaging and Ultrasound in Preterm Infants: Prospective Comparison Study.**
Maria J. Miranda, Peter Born, Charlotte Strandberg, Anne-Mette Leffers, Margrethe Herning, Hans Lou and Birgit Peitersen.
Hvidovre University Hospital, Hvidovre, Denmark.
- 408. Quantitative MR Demonstration of altered of Brain Development in Newborns following Intrauterine Growth Restriction.**
Petra S. Hüppi, Slava Zimine, Francois Lazeyras, Terrie Inder, Sylviane Hanquinet, Simon Warfield, Ron Kikinis and Joseph J. Volpe.
University of Geneva, Geneva, Switzerland; University of Otago, New Zealand;
Brigham and Women's Hospital and Children's Hospital of Boston, Harvard Medical School, Boston, MA USA.

- 409. White Matter Maturation in Older Children Demonstrated with Diffusion Tensor MRI.**
Joseph V. Philip, Pratik Mukherjee, Jeffrey J. Neil, Robert C. McKinstry.
Washington University, St. Louis, MO, USA.
- 410. T2 Relaxation Values in the Developing Preterm Brain.**
Serena J Counsell, Nigel L Kennea, Amy H Herlihy, Joanna M Allsop, Helen J Lewis, A David Edwards,
Mary A. Rutherford.
Imperial College, Hammersmith Hospital, London, England, UK.
- 411. Diffusion-weighted imaging (DWI) in neonates: relation with histopathology.**
Ariadne M. Roelants-Van Rijn, Jeroen Van der Grond, Peter G.J. Nikkels, Floris Groenendaal
and Linda S. de Vries.
Wilhelmina Children's Hospital, University Medical Center, Utrecht, Netherlands.
- 412. Exploring White Matter Tracts in Band Heterotopia with Diffusion Tractography.**
Sofia Eriksson, Geoffrey Parker, Fergus Rugg-Gunn, Gareth Barker, Claudia Wheeler-Kingshott
and J.S. duncan.
Sahlgrenska University Hospital, Goteborg, Sweden and Institute of Neurology, London, England, UK.

Clinical Focus Session: Body MR Imaging: MRCP
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- 413. MRCP versus ERCP in the evaluation of patients with suspected bile duct obstruction: A randomized clinical trial**
Caroline Reinhold, Naeim Salah, Alan Nicolas Barkun, Lawrence Joseph, Jeffrey S Barkun and Eric Valois.
Montréal General Hospital, McGill University, Montreal, Quebec Canada.
- 414. Bile Duct Strictures Following Hepatobiliary SURGERY: Assessment WITH MAGNETIC RESONANCE Cholangiography**
Janice Ward, Maria Sheridan, Ashley Guthrie, Mervin Davies, Charles Millson, Daniel Wilson and Philip Robinson.
St James's Hospital, Leeds Teaching Hospitals, Leeds, UK
- 415. Ability of MR Cholangiography to Demonstrate Stent Position and Luminal Diameter in Patients with Biliary Endoprostheses: in vitro Measurements and in vivo Results in 30 Patients**
Elmar Merkle.
University of Ulm, Ulm, Germany.
- 416. Pitfalls and Optimisation of Breath-hold Single-shot Fast Spin-echo MR Cholangiopancreatography**
M. A. Schmidt, G.D. Charles-Edwards, S. Cleminson, S. Fleischer-Thompson, N. Bedford, S.D. Heenan
St George's Hospital, London, UK.
- 417. Diagnostic accuracy MR cholangiography in detection of the common duct stones for the preoperative evaluation of the cholelithiasis according to the clinical risk group**
Myeong-Jin Kim, Joo-Hee KIM, Sung-II Park, Hyung Sik Yoo and Jong Tae Lee.
Severance Hospital, Yonsei University, College of Medicine, Seoul, Korea.
- 418. Chronic Pancreatitis in Children: Role of Dynamic MRCP after Secretin Administration**
Riccardo Manfredi, Benedetta Gui, Vincenzina Lucidi, Maria Gabriella Brizi, Giulia Maresca, Amorino Vecchioli and Pasquale Marano.
Piazza Ennio, Rome, Italy.
- 419. Volumetric Mangafodipir-Enhanced MR Cholangiography to Define Intrahepatic Biliary Anatomy**
Vivian S. Lee, Glenn A. Krinsky, Andrew Tan, Neil M. Rofsky, Glyn R. Morgan, Lewis
W. Teperman, Michael T. Lavelle, Phil Berman and Jeffrey C. Weinreb.
New York, NY USA and Harvard Medical School, Boston, MA USA.

- 420. Contrast-enhanced MRCP: a comparison of Gd-BOPTA and mangafodipr.**
Declan G. Sheppard, J Graeme Houston, Jean-Paul Charon, James S Anderson, Pat Martin, Lindsay Allan
Ninewells Hospital, Tayside University Hospitals, Scotland, UK.
- 421. High-Resolution MRCP Imaging Using 3D Fast Imaging Employing Steady-state Acquisition (FIESTA)**
Bernice E. Hoppel, Robert K. Breger, Anthony T. Vu, Tonya J. Hollrith, Lynda L. Yanny, Yu Liu
and Thomas K.F. Foo.
GE Medical Systems, Milwaukee, WI, USA.
- 422. Clinical Evaluation of 3D Half-Fourier RARE for MRCP-Portography: Comparison of Short and Long Effective Echo Time RARE Sequence.**
Hiroshi Sugimura, Kenichiro Yamaguchi, Yoshio Machida, S. Kitane, M. Asato, Y Yuki, E. Ochiai, R. Ochiai and S. Tamura.
Miyazaki Medical College, Miyazaki, Japan.
- 423. 3D Steady State Free Precession (3D-FIESTA) Imaging of The Pancreaticobiliary Ductal System**
Hani Marcos, Vincent B. HO, Peter Choyke, Maureen N. Hood and Thomas Foo.
National Institutes of Health, Bethesda, MD USA and G. E. Medical Systems, Milwaukee, WI, USA.
- 424. Interactive SSFSE-based MR Fluoroscopy of the Abdomen with Real-time Contrast Control**
Malek Makki, Martin J. Graves, David J.Lomas
University of Cambridge, Addenbrooke's Hospital, Cambridge, England, UK.

Clinical Science Focus Session: Imaging in Psychiatry
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- 425. Detecting Hippocampal Shape Change in Patients At-Risk for Psychosis.**
Stephen Wood, Geoff Stuart, Dennis Velakoulis, Deidre Smith, Lisa Phillips, Patrick McGorry, Patricia Desmond and Christos Pantelis.
Mental Health Research Institute, Victoria Australia.
- 426. Unbiased Estimation of Fornix and Hippocampal Volume on Co-axial MR Images: Application in the Study of Patients with Organic Amnesia.**
Qi-Yong Gong, Daniela Montaldi, Andrew R Mayes, John Aggleton, John R Hanley and Neil Roberts.
University of Liverpool, UK and University of Wales, Cardiff, UK and University of Essex, UK.
- 427. Frontal and Temporal Lobe Brain Volumes in Patients with Idiopathic Parkinson's Disease and Treatment-induced Hallucinations.**
Jacqueline M. Graham, Nigel Hoggard, Richard A Grünewald and Paul D Griffiths.
University of Sheffield, Sheffield, UK.
- 428. Alien Voices: Neural correlates of impaired self-monitoring associated with auditory hallucinations in schizophrenia.**
Cynthia H.Y. Fu, Nanda Vythelingum, Mick J.Brammer, Chris Andrew, David Gasston, Steve Williams, Edson.
Amaro Jr, and Philip K. McGuire
Institute of Psychiatry, De Crespigny Park, London, UK.
- 429. A Twin Study in Schizophrenia: Preliminary Relaxometry Results**
Vít Herynek, Monika Dezortová, Filip Spaniel, Tomáš Hájek, Milan Hájek
Institute for Clinical and Experimental Medicine, Prague, Czech Republic;

- 430. Abnormalities in corpus callosum signal intensity in schizophrenia.**
Vaibhav A. Diwadkar, Elizabeth L. Dick, Keith A. Harenski, Rupali Kotwal, Michael D. DeBellis, Jay W. Pettegrew and Matcheri S. Keshavan.
University of Pittsburgh, Pittsburgh, PA, USA.
- 431. Region Specific Effects of Amphetamine on Brain Activation Detected with fMRI**
S. J. Uftring, S. R. Wachtel, D. Chu, C. McCandless, D. N. Levin, H. de Wit
University of Chicago, Chicago, IL, USA.
- 432. Regional Distribution of Brain Structural Abnormalities in Chronic Cocaine and Alcohol Abuse Determined by Volumetric MRI.**
Joseph O'Neill, Valerie A Cardenas and Dieter J Meyerhoff.
University of California, San Francisco, San Francisco, CA, USA.
- 433. 4T fMRI Evaluation of Cerebral Blood Vessel Function in Cocaine-Dependent Subjects.**
J.-H. Lee, F. W. Telang, C. Springer, N. Volkow
Brookhaven National Laboratory, Upton, NY, USA and State University of New York, Stony Brook, NY, USA.
- 434. Reduction of Functional Connectivity in the Hippocampus of Chronic Human Cocaine Users Detected by Functional MRI.**
S. Li, A. Kacmarowski, Z. LI, G. WU, E. A. Stein, H. Garavan, and R. Risinger
Biophysics Research Institute, Medical College of Wisconsin, Milwaukee, WI, USA.
- 435. A Diagnostic Analysis of Magnetization Transfer Ratio (MTR) Histograms in Neuropsychiatric Systemic Lupus Erythematosus (NPSLE) Patients.**
J. Dehmeshki, G. P. Th. Bosma, M. J. Rood, T. W. Huizinga, Mark Van Buchem, and P. S. Tofts
Institute of Neurology, London England, UK, Leiden University Medical Center, Leiden, The Netherlands, and University College London, Queen Square, London, UK.
- 436. Correlation of apparent diffusion coefficient (ADC) histogram parameters with clinical functioning in neuropsychiatric systemic lupus erythematosus (NPSLE).**
G.P. Th. Bosma, T.W.J. Huizinga, E.L.E.M. Bollen, H.A.M. Middelkoop and M.A. Van Buchem
Leiden University Medical Center, Leiden, The Netherlands.

Rapid Imaging

- 437. Hyperechoes - Basic Principles and Applications.**
Jürgen Hennig and Klaus Scheffler.
University Hospital Freiburg, Freiburg, Germany.
- 438. T2-Weighted 3D Spin-Echo Train Imaging of the Brain at 3 Tesla: Reduced Power Deposition Using Low Flip-Angle Refocusing RF Pulses.**
John P. Mugler III, Lawrence L. Wald and James R. Brookeman.
University of Virginia, School of Medicine, Charlottesville, VA, USA and Massachusetts General Hospital, Charlestown, MA, USA.
- 439. Characterization of the Transient Response in Steady-State Sequences.**
B. A. Hargreaves, S. Vasanawala, J. M. Pauly, and D. G. Nishimura
Stanford University, Stanford, CA, USA.

- 440. Magnetization Preparation during the Steady State: Fat Saturated 3D TrueFISP.**
Klaus Scheffler, Oliver Heid, Jürgen Hennig
Universität Freiburg, Freiburg, Germany and Siemens Medical Imaging, MRZ, Erlangen, Germany
- 441. 3D True-FISP Imaging with Fat Suppression.**
W. Block, T. Hany, and A. Barger
University of Wisconsin-Madison, Madison, WI, USA.
- 442. Real-Time Spiral SSFP Cardiac Imaging.**
Craig Meyer, John M. Pault, Krishna Nayak, Michael McConnell, Albert Macovski, Dwight G. Nishimura and Bu Hu.
Stanford University, Stanford, CA, USA.
- 443. Cardiac Imaging using Echo-Planar Steady-State Free Precession.**
Glenn S. Slavin and Thomas K.F. Foo.
GE Medical Systems, Milwaukee, WI, USA.
- 444. Using UNFOLD to remove artifacts in dynamic imaging.**
Bruno Madore
Harvard University, Boston, MA, USA.
- 445. Adaptive Sensitivity Encoding Incorporating Temporal Filtering (TSENSE).**
Peter Kellman, Frederick H. Epstein, Elliot R. McVeigh.
NIH, National Heart, Lung, and Blood Institute, Bethesda, MD USA and University of Virginia, Charlottesville, VA, USA.
- 446. Off-Resonance Artifacts in Single Shot EPI using Partially Parallel Imaging.**
Mark Griswold, Peter Jakob, Robin Heidemann, Mathias Nittka, Jianmin Wang, Berthold Kiefer.
Universität Würzburg, Würzburg, Germany

Myocardial Tagging and Hemodynamics
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- 447. Limiting Dilatation Improves Ventricular Function in a Model of Myocardial Infarction as Assessed by Tissue-tagged MRI.**
James J Pilla, Aaron S Blom, Daniel J Brockman, Lawrence Dougherty, Frank W Bowen, Joseph Giammarco, Qing Yuan, Victor Ferrari, Michael A Acker, Leon Axel
University of Pennsylvania Medical Center, Phila., PA, USA.
- 448. Myocardial Tagging with 3D-CSPAMM.**
Salome Ryf, Marcus Spiegel, Oliver M Weber, Peter Boesiger.
Institute for Biomedical Engineering, University and ETH Zurich, Zurich, Switzerland.
- 449. MR Tagging of the Entire Cardiac Cycle: Regional Analysis of Normal Subjects and Hypertrophic Cardiomyopathy Using A New Quantity for Assessment of Regional Cardiac Function.**
Daniel B. Ennis, Frederick H. Epstein, Elliot R. McVeigh and Andrew E. Arai.
Johns Hopkins University School of Medicine, Baltimore, MD, USA; University of Virginia Charlottesville, VA and National Institutes of Health, National Heart, Lung, and Blood Institute, Bethesda, MD, USA.

- 450. MRI Tagging in Mice After Acute Myocardial Infarction Demonstrates Heterogeneity of Function in the Non-Infarcted Zone.**
Frederick H. Epstein, Zequan Yang, Wesley D. Gilson, Christopher M. Kramer, Brent A. French and Stuart Scott Berr.
University of Virginia, Charlottesville, Virginia USA.
- 451. Improved Harmonic Phase (HARP) Instantaneous Myocardial Strain Maps.**
Joost P.A. Kuijer, Eric Jansen, J. Tim Marcus, Robert M. Heethaar.
University Hospital Vrije Universiteit, Amsterdam, Netherlands.
- 452. Relationship Between k-space Trajectory and Artifacts in Breath Held, Gated Segmented k-space Imaging.**
Moriel Nessai
University of Maryland at Baltimore, Baltimore, Maryland, USA.
- 453. Estimation of Time-varying Three-dimensional Relative Pressure Fields within the Human Heart.**
Tino Ebbens, Lars Wigström, Ann F Bolger, Bengt Wranne and Matts Karlsson
Linköping University, Linköping, Sweden and University of California, San Francisco, San Francisco, USA.
- 454. Free Breathing Fourier Velocity Encoded M-Mode MRI for Measurement of Aortic Distensibility**
Manojkumar Saranathan, Christopher J. Hardy, Xuli Zong, Vincent B. Ho.
GE Medical Systems, Waukesha, WI, USA; GE Corporate Research & Development, Schenectady, NY and Uniformed Services University of the Health Sciences, Bethesda, MD, USA.
- 455. MRI Assessment of Atrial Septal Defects in Adults**
Xiuling Qi, Naeem Merchant, Fiona Walker, Gary D. Webb, Peter McLaughlin, Jeffrey Stainsby, Graham Wright.
University of Toronto, Toronto, Canada
- 456. Measurements of left ventricular dimensions and function using Steady-State Free Precession Imaging: comparison with Turbo Gradient Echo Imaging**
Sven Plein, Timothy N. Bloomer, John P. Ridgway, Tim R. Jones, Gavin J. Bainbridge, Mohan U. Sivananthan.
Leeds General Infirmary, Leeds, England, UK;

Animal Brain MR Imaging: Ischemia and Infarction

- 457. Separating MR Changes of Intra- and Extracellular Water in Focal Cerebral Ischemia in the Rat Brain**
Matthew Silva, Tsuyoshi Omae, Karl Helmer, Fuhai Li, Marc Fisher, Christopher Sotak
Worcester Polytechnic Institute, Worcester, MA, USA.
- 458. Mismatch between lactate and the apparent diffusion coefficient of water in progressive focal ischemia**
Toshihiko Ebisu, Tetsuro Takegami, Yoshitaka Bito, Satoshi Hirata, Yukari Yamamoto, Masahiro Umeda, Shoji Naruse and Chuzo Tanaka.
Meiji University of Oriental Medicine, Kyoto, Japan.
- 459. Comparison of the Temporal and Spatial Evolution of the Water Apparent Diffusion Coefficient and T2 Following Transient Middle Cerebral Artery Occlusion in Rats.**
Matthew Silva, Fuhai Li, Marc Fisher, Christopher Sotak.
Worcester Polytechnic Institute, Worcester, MA, USA.

- 460. Mild Hypothermia Attenuates Cyclooxygenase-2 mRNA Expression and Transient Water ADC Reduction during Permanent Focal Ischemia in Rats.**
Anthony Mancuso, Nikita Derugin, Theresa A Marsh, Kazushi Hara, Kong L Daniel, Frank R Sharp and Philip R. Weinstein.
University of Pennsylvania, Philadelphia, PA, USA ; University of California, and Dept. of Veterans Affairs Medical Center, San Francisco, CA, USA and University of Cincinnati, Cincinnati, OH, USA.
- 461. Ischaemic Preconditioning in the Rat Brain: A Longitudinal Magnetic Resonance Imaging (MRI) Study.**
Paul G Mullins, David G Reid, Paul Hockings, Sarah J Hadingham, Colin A Campbell, Jonathan Chalk and David Doddrell.
University of New Mexico, Albuquerque, NM USA; SmithKline Beecham Pharmaceuticals, The Frythe, Welwyn, England, UK and University of Queensland, QLD Australia;
- 462. SB 234551 improves cortical collateral perfusion following permanent MCAO in the rat.**
Stephen C. Lenhard, Jeffrey J. Legos, Robin E. Haimbach, Ross G. Bentley, Thomas R. Schaeffer, Frank C. Barone, Eliot H. Ohlstein, Susanta K. Sarkar, Andrew A. Parsons, Sudeep Chandra
SmithKline Beecham Pharmaceuticals, King of Prussia, PA, USA.
- 463. A Comparative Stroke Study between Wild-Type and PARP Transgenic Mice Using Diffusion MRI**
R. Xue, S. Goto, M. Sawada, P. D. Hurn, V.L.Dawson, T.M.Dawson, R.J.Traystman, P.C.M.vanZijl and S. Mori.
The Johns Hopkins University, School of Medicine, Baltimore, MD, USA.
- 464. Delayed rt-PA Treatment Induces Rapid Blood-Brain Barrier Breakdown and Subsequent Hemorrhagic Transformation in a Rat Embolic Stroke Model**
Rick M. Dijkhuizen, Minoru Asahi, Ona Wu, Bruce R. Rosen, Eng H. Lo.
Massachusetts General Hospital, Harvard Medical School, Charlestown, MA USA.
- 465. Topographical representation of functional recovery in the Brain Detected by fMRI Analysis**
Zhengguang Chen, Masahiro Abo, Li-Ju LAI, Torsten Reese, Satoshi Miyano, Kyozo Yonemoto and Börje Bjelke.
Karolinska Hospital, Karolinska Institute, Stockholm, Sweden and The Jikei University School of Medicine, Tokyo, Japan.
- 466. Quantitative Sodium MRI of Evolving Focal Brain Ischemia in the Rat.**
Fernando Boada, A. Kharlamov, D.K. Kim, E.D. Reid. Ileana Hancu and S.C. Jones
University of Pittsburgh, Pittsburgh, PA, USA.

MR Spectroscopy of White Matter and Degenerative Diseases
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- 467. Absolute quantification of metabolites in white matter using MR spectroscopy in patients with MS or syndromes suggestive of MS with normal MRI scans of the brain**
Maria Gustafsson, Peter Lundberg, Anne-Marie Landtblom.
University Hospital of Linköping, Linköping, Sweden.
- 468. Proton MR Spectroscopy with Metabolite-Nulling Reveals Elevated Macromolecules in Acute MS**
Irina Mader, Uwe Seeger, Robert Weissert, Uwe Klose, Thomas Naegele, Arthur Melms, Wolfgang Grodd
Tuebingen University, Tuebingen, Germany.

- 469. T2-based volume correction for edema in single volume MRS of contrast-enhancing multiple sclerosis lesions**
 Gunther Helms
 Karolinska Institute, Stockholm, Sweden;
- 470. In Vivo 3D 1 HMRSofT1 -Hypointense Lesions in Relapsing-Remitting Multiple Sclerosis.**
 Belinda S.Y. Li, David M. Moriarty, Juleiga Regal, Lois J. Mannon, Robert I. Grossman, Oded Gonen.
 Fox Chase Cancer Center and University of Pennsylvania, Philadelphia, PA, USA.
- 471. Proton Magnetic Resonance Spectroscopy in Assessing Axonal Loss in the Corpus Callosum Related with Volume of Regional T1 Lesion Load in Multiple Sclerosis.**
 Joonmi Oh, Daniel Pelletier and Sarah J Nelson.
 University of California, San Francisco, San Francisco, CA, USA.
- 472. 1H MRS and Volumetric MRI Studies of Multiple Sclerosis: Correlations between Brain Metabolite Levels, Brain Atrophy, and Cognitive Functions.**
 Wei Huang, C. Christodoulou, Dongqing Chen, Alina Tudorica, Patricia Roche, W. Scherf, R. Peyster, Clemente Roque, P. Melville, V. Geronimo, Terry M. Button, Z. Liang and Lauren Krupp.
 State University of New York at Stony Brook, Stony Brook, NY, USA.
- 473. Thalamic neuronal loss in multiple sclerosis: a combined structural and spectroscopic study.**
 Marzena Wylezinska, Alberto Cifelli, Paul Matthews and Peter Jezzard.
 University of Oxford, FMRIB Centre, John Radcliffe Hospital, Oxford, UK.
- 474. Metabolic Differences Between Multiple Sclerosis Subtypes Measured by Quantitative MR Spectroscopy.**
 Jullie W. Pan, Patricia Coyle, Lauren Krupp, John N. Whitaker, K. Bashir, Hoby Hetherington.
 Albert Einstein College of Medicine, Bronx, NY; State University of New York at Stony Brook, Stony Brook, NY and University of Alabama at Birmingham, Birmingham, AL, USA.
- 475. Brain MR Spectroscopy Follow-up in Aging Women and Men.**
 Paul E. Sijens, Tom den Heijer, Sahra E. Vermeer, Monique M.M.B. Breteler, Albert Hofman, Oudkerk Matthijs.
 University Hospital Groningen, Groningen, Netherlands and University Medical School, Rotterdam, Netherlands.
- 476. Fast Proton MR Spectroscopic Imaging of Temporal Lobe and Hippocampus in Alzheimer's Disease**
 Wolfgang Block, Frank Träber, Frank Jessen, Sebastian Flacke, Christoph Manka, Rolf Lamerichs, Reinhard Heun, Ewald Keller, Hans H. Schild.
 University of Bonn, Bonn, Germany and Philips Medical Systems, Best, The Netherlands.

Tumor Anti-Vascular Therapy

- 477. Tumor Perfusion Efficiency and Mean Vessel Size Measured in Experimental Human Gliomas.**
 Scott D. Packard, Tomogatsu Ichikawa, Joseph B. Mandeville, Ennino. A. Chiocca, Bruce Rosen and John J.A. Marota.
 Massachusetts Institute of Technology, Massachusetts General Hospital, Charlestown, Massachusetts USA and Harvard University, Medical School, Boston, MA, USA.
- 478. ZD6474, a VEGF signalling inhibitor: effects on DCEMRI in human tumour xenografts and approaches to the analysis of the Ktrans maps.**
 David Checkley, Jean Tessier, Stephen Wedge, Michael Dukes, Jane Kendrew and John C Waterton.
 Astrazeneca, Macclesfield, Cheshire England.

- 479. Anti-Angiogenic agent TNP-470 Significantly Decreases Permeable Regions.**
Zaver M. Bhujwalla, Dmitri Artemov, Kshama Natarajan, Paul E.G.Kristjansen.
Johns Hopkins University, School of Medicine, Baltimore, MD, USA and University of Copenhagen, Copenhagen, Denmark.
- 480. A Dynamic Contrast-Enhanced Study of the Effects of the Novel Tumour Vascular Targeting Agent ZD6126 in GH3 Rat Tumours.**
Dominick J.O. McIntyre, Simon P. Robinson, Franklyn A.Howe, John R. Griffiths, Jean J. Tessier, David Checkley, David C. Blakey and John C. Waterton.
St. George's Hospital Medical School, London, UK and AstraZeneca, Alderley Park, Macclesfield, Cheshire UK;
- 481. Dynamic Contrast-Enhanced MRI Evaluation of the Effects of ZD6126 on Tumor Vasculature**
Jeffrey L. Evelhoch, Zhanquan He, Lisa Polin, Thomas H. Corbett, DavidC Blakey and John C. Waterton.
Karmanos Cancer Institute, Detroit, MI USA and Astrazeneca, Alderley Park, Cheshire, England, UK.
- 482. Combretastatin reduces blood flow in animal and human tumours, demonstrated by dynamic MRI**
Susan M Galbraith, Martin Lodge, N. Jane Taylor, Ross Maxwell, Gill M Tozer, James J Stirling, Luiza Sena, Anwar Padhani, Gordon Rustin.
Gray Laboratory Cancer Research Trust, Northwood, Middlesex, UK.
- 483. Dynamic Gadolinium-Enhanced MRI Evaluation of Tumor Vascularity in Humans: Determination of Physiologic Parameters and Effects of Combretastatin A4 Phosphate.**
Mark Alan Rosen, Sarah Englander, Peter B. O'Dwyer, James Stevenson and Mitchell Schnell.
University of Pennsylvania, Philadelphia, PA, USA.
- 484. MRSI of Antiangiogenesis/Radiation in Pediatric Gliomas**
Loukas Astrakas, Aria Tzika, Tina Poussaint, Marc Kieran.
Children's Hospital and Harvard Medical School, Boston, MA, USA.
- 485. Reproducibility of Quantitative Permeability Measurements in Dynamic Contrast-Enhanced MRI Studies**
Martin A Lodge, Susan M Galbraith, N.Jane Taylor, Ross Maxwell, J James Stirling, Hiram Baddeley, Gordon JS Rustin and Anwar R. Padhani.
Mount Vernon Hospital, Northwood, UK.
- 486. Reproducibility of Blood Volume and Relative Recirculation Measurements in cerebral glioma using T2* Techniques**
Andrea Kassner, Xiaoping Zhu, Ka-Loh Li, Alan Jackson.
Philips Medical Systems, Leeds, England, UK and University of Manchester, Manchester, England,UK;

MR Spectroscopy of Animal Brain
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- 487. Transient Hypoxia Studied By Proton Spectroscopy and Diffusion-Weighted Imaging in Embryonic Chicken Brain In Ovo.**
John Thornton, Ernest Cady, Roger Ordidge, Suzanne Miller, Donald Peebles.
University College London, UK.
- 488. In vivo quantification of metabolites in the hippocampus, striatum, and cortex of the developing neonatal rat.**
Ivan Tkac, Raghavendra Rao, Michael K Georgieff, Rolf Gruetter.
University of Minnesota, Minneapolis, MN USA.

- 489. Effects of Dexamethasone Pretreatment on Brain and Whole Body Metabolism in a Neonatal Hypoxia-Ischemia Animal Model**
Jian-li Wang, Shannon Beabes, Bernard Dardzinski and Michael B. Smith.
Pennsylvania State University, Hershey, PA, USA and University of Cincinnati, Cincinnati, OH, USA.
- 490. Cellular and developmental tissue distribution of NAA catabolic enzyme, aspartoacylase. Insights into NAA Function.**
Kishore Bhakoo, Timothy Craig, Peter Styles.
University of Oxford, Oxford, England, UK.
- 491. Biochemical and Histological Correlates of Elevated Lipid Signals after Stroke in Rats**
Charles Gasparovic, Gary A. Rosenberg, James A. Wallace, Eduard Y. Estrada, Kristianna Roberts and Glenn D. Graham.
University of New Mexico School of Medicine (UNMSOM), Albuquerque, NM USA.
- 492. Relationship between glucose / glycogen metabolism and CBF during insulin-induced hypoglycemia *in vivo***
In-Young Choi, Sang-Pil Lee, Seong-Gi Kim, Rolf Gruetter.
University of Minnesota, Medical School, Minneapolis, MN, USA.
- 493. Glial uptake of selectively ¹³C-enriched neurotransmitter glutamate observed *in vivo* through ¹³C-¹⁵N coupling.**
Keiko Kanamori and B.D. Ross.
Huntington Medical Research Institutes, Pasadena, CA, USA.
- 494. A Robust Approach for Spatial Mapping of CMR₀₂ in Rat Brain Using ¹⁷O MRS Imaging Within Two Minutes.**
Xiao-Hong Zhu, Runxia Tain, Jae-Hwan Kwag, Xiaoliang Zhang, Hellmut Merkle, John Paul Strupp, Kamil Ugurbil, Wei Chen.
University of Minnesota, Minneapolis, MN, USA.
- 495. ³¹P and ¹H MRS of brain and muscle in Guanidino Acetate Methyltransferase deficient mice.**
W.K.J. Renema, A. Schmidt, D. Isbrandt, K. Ulrich, B. Wieringa, A. Heerschap.
University Medical Center Nijmegen, Nijmegen, Netherlands and University of Hamburg, Hamburg, Germany.
- 496. Direct Detection of Neural Activity in the Rat Brain with ²³Na NMR.**
Itamar Ronen, Kamil Ugurbil and Seong-Gi Kim.
University of Minnesota, CMRR, Minneapolis, MN USA.

THURSDAY

Plenary Lectures: Multinuclear MR

497. High Field Multinuclear MRS: The Challenge is Paying Off.

Michael Garwood
University of Minnesota, Minneapolis, MN, USA.

498. Multinuclear Studies on Metabolism in Disease

Douglas L. Rothman
Yale University, New Haven, CT, USA.

499. Hyperpolarized Gas Methods in the Clinic.

Hans-Ulrich Kauczor
Universitaet Mainz, Klinik fuer Radiologie, Mainz, Germany

Diffusion Analysis

500. White Matter Fiber Tracking Using the Eigenvalue Weighted Average Eigenvector.

Tie-Qiang LI, Stefan Skare, Jonathan Cohen
Princeton University, Princeton, NJ USA and Karolinska Institute, Stockholm, Sweden;

501. Validation of DT-MRI tractography in the descending motor pathways of human subjects.

Carlo Pierpaoli, Alan S. Barnett, Sinisa Pajevic, Anette Virta and Peter J. Basser
National Institutes of Health, Bethesda, MD, USA.

502. Measuring Cortico-Cortical Connectivity Matrices with Diffusion Spectrum Imaging.

David S. Tuch, Mette R Wiegell, Timothy G. Reese, John W. Belliveau and Van J. Wedeen.
Massachusetts General Hospital, Charlestown, MA, USA.

503. Diffusion Tensor Imaging of the Fast and Slow Diffusion Coefficient Components in Human Brain.

Stephan Maier, Sridar Vajapeyam, Hatsuho Mamata, Carl-Fredrik Westin, Ference Jolesz and Robert Mulkern.

504. Diffusion Spectrum Imaging Of Fiber White Matter Degeneration

Mette R Wiegell, Timothy Reese, David S Tuch, A. Gregory Sorensen and Van J Wedeen.
Massachusetts General Hospital, Charlestown, MA, USA.

505. Elucidating Neural Structure in Diffusion Tensor MRI Volumes using Streamtubes and Streamsurfaces

Song Zhang and David Laidlaw.
Brown University, Providence, RI, USA.

506. Error Analysis of White Matter Tracking Algorithms (Streamlines and Tensorlines) for DT-MRI

Mariana Lazar and Andrew Alexander.
University of Utah, Salt Lake City, UT, USA.

507. Diffusion Tensor Imaging and Fiber Tracking of Brain Tumors.

Susumu Mori, Michael A. Kraut, Peter C. Van Zijl, Meiyappan Solaiyappan, Henry Brem, Martin Pomper
Johns Hopkins University, School of Medicine, and F.M. Kirby Research Center, Kennedy Krieger Inst.,
Baltimore, Maryland USA.

- 508. Correction of eddy-current induced image warping in diffusion-weighted single-shot EPI using constrained non-rigid mutual information image registration.**
R. Bammer and M. Auer.
University of Graz, Auenbruggerplatz 22, Graz, Austria.
- 509. Early Detection of the Pathologies in Experimental Allergic Neuritis Using High b Value q-Space Diffusion MRS.**
Yaniv Assaf, Michal Kafri, Hadassah Shinar, Joab Chapman, Amos D.Korczy, Gil Navon, Yoram Cohen.
Tel Aviv University, Tel Aviv, Israel.

Myocardial Perfusion and Coronary MR Angiography

- 510. Comparative Diagnostic Accuracy of Stress Myocardial Perfusion MRI and SPECT in Detecting Coronary Artery Disease: Receiver Operating Characteristic Analysis in Patients without Myocardial Infarction.**
Nanaka Kawada, Hajime Sakuma, Yasutaka Ichikawa, Kan Takeda, Munenobu Motoyasu, Takeshi Nakano, Atsushi Nozaki.
Mie University School of Medicine, Tsu, Mie Japan and Yokogawa Medical Systems, Hino, Tokyo Japan
- 511. Does Myocardial Perfusion Reserve (MPR) represent Ischemia Extent/Severity dependent Microvascular Integrity?: First-pass MRI Investigation.**
Kyung Il Chung, Tae-Sub Chung, RichardDWhite, Arthur E Stillman, Hanns-J Weinmann, Tae-Hwan Lim 5 , Jung-Ho Suh.
Cleveland Clinic Foundation, Cleveland, Ohio USA; Yonsei University Severance Hospital, Korea; Schering AG, Berlin, Germany; University of Ulsan, AMC, Korea; Ajou University Hospital, Radiology, Korea.
- 512. EVP 1001-1 Allows for a New Paradigm in Cardiac MR Perfusion Imaging.**
Pottumarthi Prasad, Peter Danias, Pippa Storey, Mark Post, Wei LI, Peter Seoane, Phillip Harnish, Robert Edelman.
Northwestern University Medical School, Evanston, IL USA; Harvard Medical School, Boston, MA USA and Eagle Vision Pharmaceutical Corp., Chester Springs, PA USA.
- 513. Assessment of Regional Differences in Myocardial Blood Flow using MR True-FISP BOLD Imaging**
Kara B. Wright, Francis J. Klocke and Debiao Li.
Northwestern University, School of Medicine, Chicago, IL, USA.
- 514. MR angiography of the coronary arteries using magnetization-prepared contrast-enhanced breath-hold volume-targeted imaging (MPCE-VCATS) - initial clinical experience.**
James Carr, Richard Martin McCarthy, Vibhas Deshpande, Stephen Shea, John Paul Finn, Debiao Li
Northwestern University Medical School, Chicago, Illinois USA.
- 515. Free-Breathing Balanced FFE Coronary Magnetic Resonance Angiography.**
Matthias Stuber, Peter Börnert, René M.Botnar, Elmar Spuentrup, Kraig V. Kissinger, Warren J. Manning.
Philips Research Laboratories, Hamburg, Germany and Beth Israel Deaconess Medical Center, Boston, MA USA.
- 516. Noninvasive Measurement of Coronary Vasodilation**
Michael V. McConnell, Brian G. Keeffe, Eric J. Putz, Craig H. Meyer, Dwight G. Nishimura.
Stanford University, Stanford, CA USA.

- 517. Coronary MR Imaging Using Laser-Polarized Helium3 Microbubbles: Preliminary Results in Isolated Pig Heart.**
Virginie Callot, E. Canet, J. Brochet, H. Humblot, Andr Briguet, H. Tournier Cr Millieux.
Universit Claude Bernard Lyon, Villeurbanne, France and Bracco Research, Geneva, Switzerland.
- 518. 3D T2-Weighted Imaging of the Coronary Arteries Using the Intravascular Contrast Agent NC100150 Injection: a Patient Study**
Lars Johansson, Tomas Bjerner, Hakan Ahlstrom.
Uppsala University Hospital, Uppsala, Sweden.
- 519. B-22956, a New Intravascular Contrast Agent for MR Coronary Angiography**
Friedrich Michael Cavagna, Pier Lucio Anelli, Vito Lorusso, Fabio Maggioni, Jie Zheng, Debiao Li, DanaR. Abendschein and Paul J. Finn.
Bracco S.p.A., Milano, Italy; Washington University, St. Louis, MO and Northwestern University, Chicago, IL, USA.

Relaxometry and Contrast Mechanisms
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- 520. Gd relaxivity depends on macromolecular content.**
G.J. Stanisiz and R.M. Henkelman.
Sunnybrook & Women's College, University of Toronto, Toronto, ON, Canada
- 521. Quantitative T1 Imaging with Inversion Recovery True FISP.**
Klaus Scheffler and Jürgen Hennig.
Universität Freiburg, Freiburg, Germany.
- 522. A sequence for Rapid Mapping of T_2^* with Optimised Susceptibility Compensation.**
James Wild, W.R. Wayne Martin and Peter Allen.
Royal Hallamshire Hospital, Sheffield, UK and University of Alberta, Edmonton, Alberta Canada.
- 523. Functional Imaging of the Kidneys Using the Inhalation of Pure O₂: A Feasibility Study.**
Richard A. Jones, Mario Ries, Chrit Moonen and Nicolas Grenier.
Universite Bordeaux and Universit Victor Segalen, Bordeaux, France.
- 524. Quantitative imaging of magnetization transfer exchange and relaxation properties in vivo using MRI.**
John G. Sled and Bruce Pike.
McGill University, Montreal Neurological Institute, Montreal, PQ Canada.
- 525. Relaxation behavior of intermolecular longitudinal spin orders.**
Zhong Chen, Zhiwei Chen, Edmund Kwok and Jianhui Zhong.
University of Rochester, Rochester, NY, USA
- 526. Physical Origins of Contrast in Intermolecular Multiple-Quantum Coherence Imaging.**
Louis-Serge Bouchard, Tie-Qiang LI, RahimRizi and Warren S.Warren.
Princeton University, Princeton, NJ USA and University of Pennsylvania, Philadelphia, PA, USA.
- 527. Pulsed Z-spectroscopic imaging for human MRI: theory and experimental technique.**
V.L. Yarnykh.
Moscow State University, Vorob'evy Gory, Moscow, Russia.

- 528. Dipolar Contrast Imaging Applied to In vivo Musculo-skeletal Imaging**
Denis Grenier, Lydia K. Wachsmuth, Lucas Carjaval, Sharmila Majumdar.
University of California, San Francisco, San Francisco, CA USA and Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany;
- 529. Deuterium Quenching of $^1\text{H}_2\text{O}$ Relaxation in the living Rat Brain.**
Jing-Huei Lee, D.C. Medina, Xin Li, F.W. Telang, P.L. Micca, J.A. Coderre and Charles Springer.
State University of New York at Stony Brook, Stony Brook, NY, USA.

FMRI: Clinical Aspects

- 530. fMRI Studies of Visceral and Cutaneous Pain in IBS Patients and Normal Subjects**
Nathan C. Himes, Richard W. Briggs, Kaundinya S. Gopinath, Michael E. Robinson, Donald D. Price and G. Nicholas Verne.
University of Florida, Gainesville, FL, USA.
- 531. Identifying which Brain Areas Activated by Painful Stimulation are Specifically Modulated by Drugs**
R. Wise, R. Rogers, S. Clare, S. Bantick, A. Ploghaus, S. Smith, P. Williams, G. Rapeport and I. Tracey.
University of Oxford, John Radcliffe Hospital, Oxford, United Kingdom and GlaxoWellcome Research and Development, Stevenage, United Kingdom.
- 532. Temporal Dynamics of Cerebral Processing of Heat Pain—a fMRI Study**
P. Erhard, M. Valet, Frode Willoch, F. Weilke, A. Schikowski, M. Schwaiger, B. Conrad and T. R. Tölle.
Technische Universität, München, Germany.
- 533. Preliminary Study of Vasoactive Hormone Insulin Effect on fMRI BOLD Response in Human Visual Cortex.**
Jae-Hwan Kwag, Elizabeth Seaquist, Xiao-Hong Zhu, S. Michaeli, Kamil Ugurbil, W. Chen.
University of Minnesota, Minneapolis, MN, USA.
- 534. Direct Electrical Stimulation of the Auditory System in Deaf Subjects: An fMRI Study**
A.Z. Alwatban, C.N. Ludman, S.M. Mason, G.M. O'Donoghue, A.M. Peters, and P.G. Morris.
University of Nottingham, and Queen's Medical Centre, Nottingham, UK.
- 535. Wada-validated clinical fMRI reveals typical and atypical speech activation patterns in individual patients with epilepsy**
M. Okujava, Hennric Jokeit and F. G. Woermann.
Bethel Epilepsy Center, Germany, Bielefeld, Germany.
- 536. Cerebral Activation During Vagal Nerve Stimulation: A Functional MR Imaging Study in Seizure Patients**
C.G. Filippi, R. Watts and P. Markli
Weill Medical College, Cornell University, New York, NY, USA.
- 537. “Visual” and “Auditroy” Cortical Activation by Acupuncture Has No Specific Cortical-Acupoint Correlation—A fMRI Study of Electroacupuncture with Control Stimulation**
Ming-Ting Wu, Jer-Ming Sheen, Kai-Hsiung Chuang, Chin-Ying Tsai, Shieuh-Lii Chin, Ping-Hong Lai, Huay-Ben Pan and Chien-Fang Yang.
Kaohsiung Veterans General Hospital, School of Medicine, National Yang Ming University, Kaohsiung, Taiwan; Chang-Chung Memorial Hospital-Kaohsiung Medical Center and National Taiwan University.

- 538. Evidence of Chronic Tolerance to Nicotine as Measured with fMRI**
 Thomas J Ross, Stephen A Williams, Robert C Risinger, Betty Jo Salmeron, Alan S Bloom and Elliot Stein
 Medical College of Wisconsin, Milwaukee, WI, USA and Central Research Division, Pfizer, Inc, Groton, CT USA.
- 539. The functional connectivity during deep brain stimulation: A pilot fMRI study**
 Jaroslav Tintera, Robert Jech and Dusan Urgosik
 Charles University, Prague, Czech Republic.

Vascular Intervention and Device Tracking
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- 540. Toward comprehensive performance of MR-guided vascular interventions: combined dynamic imaging of the coronary arteries and assessment of myocardial perfusion**
 Nikolaos V. Tsekos, Pamela Woodard, Glenn Foster, Terry Sharp and Robert J. Gropler
 Washington University, St. Louis, MO, USA.
- 541. Coronary Artery Intervention Guided with Magnetic Resonance Imaging**
 Jean-Michel Serfaty, X. Yang, A. Kumar, E. Atalar.
 Johns Hopkins University, Baltimore, MD, USA.
- 542. A Combined Electrophysiology / MR Antenna Catheter**
 R.C Susil, C.J Yeung, A.C Lardo and E. Atalar
 Johns Hopkins University, Baltimore, MD, USA.
- 543. Intravascular MR imaging of vascular gene delivery: a feasibility study**
 Xiaoming Yang, Ergin Atalar, Dechun Li, Jean-Michel Serfaty, Danming Wang and Linzhao Cheng
 Johns Hopkins University, Baltimore, USA.
- 544. MR-controlled fast optical switching of a resonant circuit mounted to the tip of a clinical catheter**
 S. Weiss, H. Eggers and T. Schaeffter.
 Philips Research Hamburg, Hamburg, Germany.
- 545. A Fast 3D Tracking System Using Tuned Fiducial Markers and Limited Projection Reconstruction**
 Chris Flask, Kent Lee, Ajit Shankaranarayanan, Eddy Wong, Daniel Elgort, Jeffrey L. Duerk, Jonathan Lewin and Michael Wendt.
 Case Western Reserve University / University Hospitals of Cleveland, Cleveland, OH USA and Siemens Medical Systems, Iselin, NJ, USA.
- 546. Instrument Localization in MRI Using Electron Spin Resonance**
 Mika Ylihautala, Gösta Ehnholm, Erkki Vahala, Lasse Jyrkinen, Osmo Tervonen
 Marconi Medical Systems Finland, Inc., Vantaa, Finland; and University of Oulu, Oulu, Finland;
- 547. A Truly Hybrid X-Ray/MR System for Guidance of Minimally Invasive Procedures: *In Vivo* Validation**
 R. Fahrig, K. Butts, Z. Wen, R. Saunders, S Kee, N.J. Pelc
 Stanford University, Stanford, CA, USA.
- 548. Optical Tracking of Surface Coils for Image-Guided Interventional Procedures.**
 C.A. White M.J. Bronskill, G. Sela, W. Kucharczyk.
 University of Toronto, Toronto, Ontario, Canada.

549. A Flexible Instrument Tracking System for Intra-Operative MRI

Gal Sela, Michael Bronskill, Walter Kucharczyk
University of Toronto, Sunnybrook & WCHSC, Toronto, ON Canada;

Clinical Science Focus Session: MR Spectroscopy in Neurologic and Psychiatric Diseases
550. Alterations on mitochondrial functionality in migraine studied by functional 1HMRS

R. Tarducci, O. Presciutti, P. Sarchielli, A. Alberti, V. Gallai and G. Gobbi.
Azienda Ospedaliera di Perugia—Servizio di Fisica Sanitaria, Perugia, Italy.

551. Effect of Tamoxifen on Brain Chemistry.

T. Ernst, L. Chang, K. Boone, D. Cooray, C. Slavador and R. Chlebowski.
Brookhaven National Laboratory, Upton, NY, USA.

552. A Comparison of Single Voxel Proton MR Spectroscopy and Spectroscopic Imaging in Subjects with HIV-Associated Cognitive Impairment: Results of a Multi-Center Trial.

P.B. Barker, M. Pomper, L. Bobo, T. Ernst, K. Zhong, L. Chang, D.C. Shungu, X. Mao, K. Marder, D. Shibata, G. Schifitto and N.C. Sacktor.
Johns Hopkins University, Baltimore, MD, USA; Brookhaven National Laboratory, Upton, NY, USA; Brookhaven National Laboratory, Upton, NY, USA and Columbia University, New York, NY, USA.

553. Evaluation and prognosis of severe traumatic brain injury using single and multi-voxel proton MR spectroscopy.

Karen Angela Tong, Barbara Ann Holshouser, Austin Colohan and Lori Shutter.
Loma Linda University, Loma Linda, California, USA.

554. H-MRS-spectroscopy and apparent diffusion coefficients of the hippocampus in patients with temporal lobe epilepsy.

R. Tarducci, O. Presciutti, P. Sarchielli, A. Alberti, V. Gallai and G. Gobbi.
Azienda Ospedaliera di Perugia—Servizio di Fisica Sanitaria, Perugia, Italy.

555. Frontal Lobe NAA Reductions in Temporal Lobe Epilepsy by 1H MRSI

Joyce Suhy, Kenneth D. Laxer, Derek Lee Flenniken, Jana Axelrad, Aristides Andres Capizzano, Michael W. Weiner.
University of California, San Francisco, San Francisco, CA, USA.

556. Brain myo-inositol decreases, NAA is unchanged in healthy volunteers in response to lithium administration

B. de B. Frederick, A.M. P., C.M. Demopoulos, G.S. Sachs, C. Dufault, C.M. Moore, P.F. Renshaw
McLean Hospital Brain Imaging Center, Harvard Medical School, Boston, MA, USA.

557. Different Relationships among Cortical Amino Acids in Unipolar and Bipolar Depression

G.F. Mason, A. Anand, G. Sanacora, N. Epperson, K. Haga, M. Appel, A.W. Goddard, De.S. Charney, D.L. Rothman and J.H. Krystal.
Yale School of Medicine, New Haven, CT, USA

558. Electroconvulsive therapy induces metabolic changes in severe depressed patients in the anterior cingulum

B. Pfeleiderer, N. Michael, A. Erfurth, P. Ohrmann, M. Wolgast, V. Arolt, W. Heindel
University of Münster, Münster, Germany.

559. Brain Dysfunction in Alcohol Dependence: Neuropsychological and In-vivo proton MRS Study.

M. Kumar, A. Ambekar, N.G. Desai, H.P. Jhingen, S. Gupta, N.R. Jagannathan
All India Institute of Medical Sciences, Ansari, Nagar, New Delhi, India.

560. Region-Specific Changes in Phospholipid Metabolism in Schizophrenia: A 31P Chemical-Shift Imaging Study at 4.0 Tesla

J. Eric Jensen, Yousef M. Al-Semaan, DickJ.Drost, Peter C. Williamson, Richard W.J. Neufeld and Ravi S. Menon.

Lawson Health Research Institute, University of Western Ontario, London, ON Canada.

561. 31 P NMR Detects Abnormal Phospholipid Composition in Postmortem Schizophrenic Brain

Ri.A. Komoroski, J.M. Pearce, M. Omori, W.S. Griffin, R.E. Mrazek and C.N. Karson.

University of Arkansas for Medical Science (UAMS), Little Rock, AR USA.

Clinical Science Focus Session: Breast MR Imaging
562. Optimising Flip Angles for Improved T1 Calculation in 3D Contrast-Enhanced Breast MR Imaging

P. Armitage, C. Behrenbruch, M. Brady, N.R. Moore.

University of Oxford, Oxfordshire, England, UK.

563. Diagnosis of Benign and Malignant Breast Lesions using Multiparametric MRI.

M. Jacobs, D.A. Bluemke, Z. Bhujwalla, C. Maranto, P.B. Barker.

Johns Hopkins University, Baltimore, MD, USA

564. Simultaneous Dynamic and Architectural MR Breast Imaging

L. Dougherty, H.K. Song, M.D. Schnall

University of Pennsylvania Medical Center, Philadelphia, PA, USA.

565. Concentric Regional Sampling in Contrast Enhanced Imaging of the Breast

P. Gibbs, and L.W. Turnbull

Centre for MR Investigations, Hull Royal Infirmary, Hull, England

566. A Two Center Clinical Testing of the 3TP Method for Contrast Enhanced Breast MRI.

Edna Furman-Haran, Hadassa Degani, Kevin Kirshenbaum, Frederick Kelcz

Weizmann Institute of Science, Rehovot, Israel; Illinois Masonic Medical Center, Chicago, USA and University of Wisconsin Hospital, Madison, Wisconsin USA.

567. Measurements of Regional Blood Flow and Blood Volume in Breast Cancer With MRI

Jean-Paul Delille, Leoncio Garrido, Priscilla J Slanetz, Eren D Yeh and Daniel B Kopans

Massachusetts General Hospital, Harvard Medical School, NMR Center, Charlestown, MA, USA.

568. Assessment of Angiogenesis in Breast Lesions Using Dynamic Contrast Enhanced MR Mammography and Immunohistochemical Biomarkers

M. Y. Su, Y. L. Wan, Y.C.Cheung, J.P.Fruehauf, H. Yu, A. Kyshtoobayeva, S. Hsueh, S.S.Chen and O. Nalcioglu

University of California, Irvine, CA, USA and Chang Gung Memorial Hospital, Linkou, Taiwan.

569. Lymph node staging with a lymph node-specific contrast agent (Sinerem®, Guerbet) in patients with breast cancer

Sven Claude André Michel, Borut Marincek, Johannes Fröhlich, Daniel Nanz, Daniel Fink, Rosmarie Caduff and Rahel Kubik-Huch

University Hospital, Zurich, Switzerland.

570. In Vivo Turbo Spin Echo Intensities Correlate with Oestrogen Receptor Status in Breast Tumors.

Patrick J Gilligan, Orla Mc Cormack, Fidelma L Flanagan, Diane Bergin, Michael J Kerin, Thomas F Gorey, Joseph T Ennis.

Institute of Radiological Sciences, University College Dublin, Dublin, Ireland.

- 571. Evaluation of Hormone Replacement Therapy by MRI**
Adrian Knowles, Clare Kearney, David Purdie, Peter Gibbs and Lindsay W. Turnbull.
Philips Medical Systems, Best, The Netherlands and Hull Royal Infirmary, Hull, U.K.
- 572. Non-Rigid Registration of Contrast-Enhanced MRI to Quantify Chemotherapy Response in Breast Cancer for Histological Comparison.**
C. Behrenbruch, P. Armitage, M. Brady, N.R. Moore and C. Hardingham.
University of Oxford, Oxford, UK.
- 573. Assessment of soya bean oil breast implants by MRI**
Jane Hawnaur, Mary Wilson, Edwin Elangovan and Nigel Bundred.
University of Manchester, Manchester, England, UK.

Clinical Science Focus Session: Pediatric MR Spectroscopy
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- 574. Ureidopropionase deficiency: a novel inborn error of metabolism discovered using body fluid NMR spectroscopy**
S. Moolenaar, U. Engelke, G. Göhlich-Ratmann, B. Assmann, C. Bräutigam, A. van Kuilenburg, A. van Gennip 4 ,J. de Jong, T. Voit, G. Hoffmann, P. Vreken and R. Wevers.
University Medical Centre, Nijmegen, The Netherlands; University Hospital, Essen, Germany; University Hospital, Heidelberg, Germany and Academic Medical Centre, Amsterdam, The Netherlands;
- 575. In vivo NAA synthesis rate in Canavan's Disease patients using 13 CMRS**
Angel Moreno-Torres, Stefan Bluml and Brian Ross
Rudi Schulte Research Institute, Santa Barbara, CA USA and Huntington Medical Research Institutes, Pasadena, CA USA.
- 576. Brain Glycogen Detection in Pompe's Disease**
Adrianus Van den Bergh, Dennis Klomp, Jan Smeitink, Ron Wevers and Arend Heerschap
University Hospital Nijmegen, Netherlands
- 577. Brain Neurochemical Abnormalities in Childhood Autism**
S. D. Friedman, D. W.W. Shaw, A.A.Artru, D. Echelard, T.L.Richards, S. Posse, G. Dawson and S.R. Dager.
University of Washington, Seattle, WA, USA and Wayne State University, Detroit, MI, USA
- 578. Comparison of Regional Cerebral Metabolite Profiles in Two Mitochondrial Encephalomyopathies, MELAS and MERRE, using 1 H MRSI**
D.C. Shungu, M. Sano, W.S. Millar, P. Kaufmann, X. Mao, A. Kwan, S. DiMauro and D.C. De Vivo.
Columbia University, New York, NY USA.
- 579. A Comparison of Proton MR Spectroscopic and Diffusion Tensor Brain MR Imaging in X-linked Adrenoleukodystrophy**
F. Eichler, R. Itoh, P.B. Barker, E. Melhem, S. Mori, P.C. Van Zijl, H.W. Moser, G.V. Raymond.
Johns Hopkins University, Baltimore, MD, USA.
- 580. Predicting Clinical Outcome in Perinatal Asphyxia by MRI and MRS**
M. Zarifi, L. Astrakas, D. Zurakowski, T. Poussaint, A. du Plessis and A. Tzika
Harvard Medical School, Boston, MA, USA.

- 581. Proton Spectroscopic Metabolite Signal Relaxation Times in Preterm Infants - a Prerequisite for Quantitative Spectroscopy in Infant Brain**
Harald Kugel, Bernhard Roth, Oliver Schulte, Frank Pillekamp, Gabriele Benz-Bohm, Klaus Lackner
University of Cologne, Köln, Germany.
- 582. In Vivo Magnetic Resonance Spectroscopy in a Patient with Creatine Deficiency Syndrome: New Aspects on Mechanism of Creatine Uptake in Brain and Muscle**
Thorsten Thiel, Regina Ensenaer, Jürgen Hennig, Willy Lehnert.
University Hospital Freiburg, Freiburg, Germany;
- 583. Quantitative Analysis of Brain Metabolites in 13 Patients with Sj gren-Larsson Syndrome.**
M. Van Der Graaf, M.A.A.P. Willemsen, J.J. Rotteveel, A. Heerschap.
University Medical Center Nijmegen, Nijmegen, The Netherlands.
- 584. MRS in Homocystinuria: Severely reduced mI in neurologically normal MTHFR deficient patients**
Else Rubæk Danielsen, Flemming Skovby, Carsten Thomsen
University of Copenhagen, Copenhagen, Denmark;
- 585. MR spectroscopic changes in pediatric acute hydrocephalus, sub-acute hydrocephalus and cortical atrophy**
Miriam Scadeng, Rex Moats, S Yamada, Marvin D Nelson Jr, and J Gordon McComb.
Childrens Hospital Los Angeles, Los Angeles, CA, USA.

Clinical Science Focus Session: MR Imaging of Female Pelvis
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- 586. Dynamic MRI of the Pelvic Floor in Stress Urinary Incontinence: Technique, Normative Data in Continent Women, and Comparison with Physical Examination**
Alan H. Stolpen, Marc A. Hodroff, Melody A. Denson, Lizann Bolinger, Bridget Zimmerman, Bruce P. Brown and Karl Kreder.
University of Iowa Hospitals and Clinics, Iowa City, Iowa USA.
- 587. Pelvic floor anatomy in stress urinary incontinence: MR imaging with endovaginal coil**
Jeong Kon Kim, Kyoung-Sik Cho, Hong Sik Kim, Myoung Soo Choo
Asan Medical Center, University of Ulsan, Seoul, Korea;
- 588. Magnetic Resonance Imaging of the Paravaginal Fascia and Urethra in Women with Urinary Stress Incontinence**
Nandita Maria deSouza, O J Daniels, Andreanna Williams Ms, David James Larkman Dr, David John Gilderdale.
Imperial College School of Medicine, Hammersmith Hospital, London, England, UK.
- 589. Reproducibility of Serial MR Measurement of Female Sexual Arousal Response**
K.R Maravilla, Y. Cao, P. Garland, D. Echelard, J.R. Heiman, L.J.Hart, J. Kallhoff, B. Peterson and R. Weisskoff.
University of Washington, Seattle, WA, USA.
- 590. The Application of a Quantitative Magnetisation Transfer Sequence in the Study of Placental Development**
D. Tyler, R. Moore, S. Ong, P. Baker, I. Johnson, P. Gowland
University of Nottingham, Nottingham, England, UK.

- 591. Fetal Volumetry Based on 3D Reconstructions of 2D Single-Shot Fast Spin-Echo MR Data Sets**
 Rahel A Kubik-Huch, Simon Wildermuth, Luca Cettuzzi, Annett Rake, Burkhardt Seifert, Rabih Chaoui, Nino Teodorovic and Borut Marincek.
 University Hospital Zürich, Zürich, Switzerland;
- 592. Intra-voxel Incoherent Motion Measurements of Spiral Artery Function During Normal and Compromised Pregnancy.**
 Rachel Moore, Stephen Ong, Damian Tyler, Philip Baker, Ian Johnson and Penny Gowland.
 Nottingham University, Nottingham, United Kingdom.
- 593. Uterine Fibroid Embolization: Assessment of Treatment Response Using Extraslice Spin Tagging (EST) MRI**
 Klaus D. Hagspiel, Alan H. Matsumoto, Stuart Scott Berr.
 University of Virginia, Charlottesville, Virginia USA.
- 594. Application of the VIBE (Volumetric Interpolated Breath-hold Examination) MR Technique to the Evaluation and Follow-up of Patients Undergoing Uterine Fibroid Embolization**
 Naoki Takahashi, Vamsidhar Narra, Brooke E Spencer and David Hovsepian.
 Washington University, St Louis, MO, USA.
- 595. Improving the Specificity of Diagnosis of Ovarian Cancer Using Dynamic Contrast-Enhanced MRI (DCE-MRI)**
 Glen H. Hall, Stephen Latkin, Lindsay W. Turnbull.
 University of Hull, East Yorkshire UK.
- 596. Preoperative Staging of Endometrial Carcinoma: Accuracy of T2-Weighted Fast Spin Echo Sequence and Dynamic Gadolinium-Enhanced MR Imaging**
 Riccardo Manfredi, Paoletta Mirk, Tommasina Meloni, Rossella Lopez, Alessandro P. Margariti, Antonia Testa and Giovanni Scambia.
 "A Gemelli" University Hospital, Rome, Italy.
- 597. Evaluation of Fast Real IR Imaging in the Pelvis**
 Yuichi Yamashita, Satoshi Sugiura, Takashi Ishimori, Satoru Nakano, Yasutane Mori, Motoomi Ohkawa.
 Toshiba Medical Systems Co., Kagawa Medical University, Kagawa, Japan.

Imaging Processing: Cardiac and Vascular

- 598. Real-time Volumetric MR Imaging**
 Michael A. Guttman, Jonathan Sorger and Elliot R. McVeigh
 National Institutes of Health, Bethesda, MD, USA and Johns Hopkins University, Baltimore, MD, USA.
- 599. A Graphical Approach for the Analysis of Myocardial BOLD effect.**
 Meiyappan Solaiyappan, Garth M. Beache, Sandeep N. Gupta, Paul A. Bottomley
 Johns Hopkins University, School of Medicine, Baltimore, MD, USA and GE Medical Systems, Waukesha, WI, USA.
- 600. Fully automated, time-continuous contour delineation of the endo- and epicardium in short-axis cardiac MR image sequences**
 B.P.F. Lelieveldt, R.J. van der Geest, S.C. Mitchell, J.G. Bosch, M. Sonka, J.H.C. Reiber
 Image Processing, Leiden University Medical Center, Leiden, the Netherlands. and The University of Iowa, Iowa City, IA USA.

- 601. Rapid Left Ventricular Border Detection with a Multi-Resolution Graph Searching Approach**
Daniel R. Thedens
University of Iowa, Iowa City, IA USA.
- 602. Automatic realignment of serial myocardial perfusion images**
Alain Lalande, Mélanie Lourdet, Paul Michael Walker, Douraied Ben Salem, Yves Cottin, Louis Legrand, Jean Eric Wolf and François Brunotte.
Faculté de Médecine de Dijon, Dijon, France.
- 603. Virtual Tagging: A novel method for evaluating myocardial function**
S. Masood, G N Estcourt, D N Firmin, P Gatehouse, S Collins, GZ Yang
Imperial College of Science, Technology and Medicine, London, UK.
- 604. Automated Tag Line Tracking In Tagged White Blood Images**
T.S. Denney Jr.
Auburn University, College of Engineering, Auburn, Alabama, USA.
- 605. Improving HARP to Produce Smooth Strain Maps of the Heart**
N.F Osman and J.L. Prince.
Johns Hopkins University, School of Medicine, Baltimore, MD USA.
- 606. Active Edge Maps for Registration of Carotid Artery MRI**
W. Kerwin and C. Yuan.
University of Washington, School of Medicine, Seattle, WA, USA.
- 607. An Analysis of Vessel Enhancement Filters Based on the Hessian Matrix for Intracranial MRA**
B.E. Chapman, D.L. Parker
University of Pittsburgh, Pittsburgh, PA, USA and University of Utah, Salt Lake City, UT, USA.

Magnets, Gradients, and Shims

- 608. Elliptical MRI Magnets**
S. Crozier, H. Zhao, D. Doddrell.
Queensland University, Brisbane, Australia.
- 609. Super-Parallel MR Microscope**
Katsumi Kose, Tomoyuki Haishi, Yoshimasa Matsuda, Izumi Anno
University of Tsukuba, Tsukuba, Japan.
- 610. A Prepolarized MRI Scanner**
G. Scott, B. Chronik, N. Matter, H. XU, P.N. Morgan, L. Wong, A.t Macovski, S. Conolly
Stanford University, Stanford, CA USA and Texas A&M University, College Station.
- 611. Making MRI Quiet**
W.A. Edelstein, R.A. Hedeem, R.P. Mallozzi, S.-A. EL-Hamamsy, R.A. Ackermann, D.E. Dean
GE Corporate R&D, Schenectady, NY, USA and GE Medical Systems, Milwaukee, WI, USA.
- 612. Magnetic Forces and Torques on Local Gradient Coils: An Example Using a Head Gradient Coil**
John Schenck, William Barber, Mark Albers, Lawrence Latour, Lisa Shumaker, William Edelstein.
GE Corporate R&D, Schenectady, NY, USA and GE Medical Systems, Milwaukee, WI, USA.
- 613. Short Local Gradient Coil Design Using Efficiency-Optimized Remote Current Return Paths.**
H. Lu, A. Jesmanowicz, S.-J. Li and J. Hyde
Medical Center of Wisconsin, Milwaukee, WI, USA.

- 614. A Universal Law for Optimizing Short Magnets and Gradient Coils**
B. Zhang, C. Gazdzinski, B. Chronik, H. Xu, S. Conolly, B.K.Rutt
The John P. Robarts Research Institute, London, Ontario Canada and Stanford University, Stanford, CA, USA.
- 615. The Fiber Optic Stethoscope: An MR-Compatible Cardiac Monitoring and Gating System**
Anja C.S. Brau, Laurence W. Hedlund and G. Allan Johnson
Duke University Medical Center, Durham, NC, USA.
- 616. Calculation of Static Magnetic Field Distortions in a Multi-tissue Human Head Model for MRI**
Bei Yang, Christopher M. Collins, Michael B. Smith.
Penn State College of Medicine, Hershey, PA, USA.
- 617. Local Ferrosims Using Office Copier Toner.**
A. Jesmanowicz, V. Roopchansing, R.W. Cox, P. Starewicz, W.F.B. Punchard and J. Hyde.
Medical College of Wisconsin, Milwaukee, WI, USA.

Spectroscopy Localization and Methodology
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- 618. Initial Experience with an "Unspoiled" Spin-Echo Sequence for Short TE Proton-MR-Spectroscopy of the Human Brain**
S. Roell
Siemens AG, Erlangen, Germany.
- 619. Phase Coherent Averaging in Magnetic Resonance Spectroscopy Using Interleaved Reference Scans: Compensation of Motion Artifacts and Magnetic Field Instabilities**
T. Thiel, M. Czisch, G.-K. Elbel, J. Hennig
University Hospital Freiburg, Freiburg, Germany and Institute of Psychiatry, München, Germany.
- 620. Determination of glutamate in human brain at 3 Tesla using PRESS and a multiple quantum filter**
Florian Schubert, Frank Seifert and Herbert Rinneberg
Physikalisch-Technische Bundesanstalt, Berlin, Germany
- 621. A New Filtering Strategy Specific to Strongly-Coupled Spin Systems in Proton NMR Spectroscopy.**
H. Kim, J.M. Wild and P.S. Allen
University of Alberta, Edmonton, Alberta, Canada.
- 622. Dualband Spectral-Spatial Pulses in Prostate MRSI**
Amir A. Schricker, John M. Pauly, John Kurhanewicz, Mark G. Swanson, Daniel B. Vigneron
University of California, San Francisco, USA and Stanford University, Stanford, CA, USA.
- 623. Reduction of Truncation Artifact in Spectroscopic Images Using a Dual-Density Spiral k-space Trajectory.**
S. Sarkar, K. Heberlein, X. Zhang, Y. Kadah and X. Hu.
University of Minnesota, Minneapolis, MN, USA.
- 624. ¹H MR Spectroscopic Imaging in Human Muscle: Removal of Extra-Myocellular Lipid Artifacts and Determination of the Spatial Distribution of Intra-Myocellular Lipids**
Peter Vermathen, Roland Kreis, Bruno Jung and Chris Boesch.
University & Inselspital, Bern, Switzerland.

- 625. Fast Multislice Spectroscopic Imaging using SENSE**
U. Dydak, K.P. Pruessmann, M. Weiger, D. Meier and P. Boesiger
Institute for Biomedical Engineering, University and ETH Zurich, Zurich, Switzerland
- 626. Reduced Measurement Time in U-Flare based Correlation Peak Imaging by Circular Chemical Shift.**
D. Mayer, W. Dreher, D. Leibfritz.
Stanford University, Stanford, CA, USA.
- 627. Feasibility of ¹³C NMR spectroscopy of the human brain at 7 Tesla using adiabatic ¹H decoupling**
Rolf Gruetter, Gregor Adriany, Peter Andersen and Kamil Ugurbil.
University of Minnesota, Minneapolis, MN, USA.

Tumor Perfusion and Oxygenation
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- 628. Factoring the Permeability and Perfusion Contributions to CR Bolus-Tracking Pharmacokinetics.**
T.E. Yankeelov and C. Springer.
Brookhaven National Laboratory, Stony Brook, NY, USA.
- 629. Perfusion and Permeability: Can Both Parameters Be Evaluated Separately from Dynamic MR Data?**
Juergen Griebel, Sascha Pahernik, Robert Lucht, Alexander DeVries, Karl-Hans Englmeier, Marc Dellian, Gunnar Brix
Federal Office for Radiation Protection, Neuherberg, Germany; University of Munich, Munich, Germany and University of Innsbruck, Innsbruck, Austria;
- 630. Dynamics of Tumor Signal Enhancement by Polymeric Agents: Difference Between Growing Tumors and Small Dormant Tumors.**
E. Uzgiris and Yudong Zhu.
G. E. R & D Center, Schnectady, NY, USA.
- 631. Overexpression of Dimethylarginine Dimethylaminohydrolase Increases Tumour Blood Volume, Assessed by Susceptibility Contrast Enhanced MRI.**
V. Kostourou, G.S. Whitley, J.R. Griffiths and S. Robinson.
St. George's Hospital Medical School, London, England, UK.
- 632. Differentiation of Prostatitis from Prostate Carcinoma Using ¹H MR Spectroscopic Imaging and Dynamic Contrast-Enhanced MRI**
F.A. Van Dorsten, M. Engelbrecht, M. Van der Graaf, J. de la Rosette, J. Barentsz, A. Heerschap
University Medical Center Nijmegen, Nijmegen, Netherlands.
- 633. Effects of carbogen breathing on tissue oxygenation and perfusion in head and neck tumors as measured by MRI**
M. Rijpkema, J. Kaanders, F. Joosten, A. Van der Kogel, A. Heerschap
University Medical Center Nijmegen, Nijmegen, Netherlands;
- 634. *In vivo* BOLD contrast MRI mapping of subcutaneous vascular function and maturation: Validation by intravital microscopy**
M. Neeman, H. Dafni, O. Bukhari, R. L. Braun, M.W.Dewhirst
The Weizmann Institute of Science, Rehovot, Israel and Duke University Medical Center, Durham, NC, USA.

- 635. 19F MRI Determination of Tumor pO₂ During Growth and in Response to Carbogen Breathing Using 15C5-Loaded Alginate Capsules as Oxygen Sensors.**
U. Noth, L.M. Rodrigues, A. Jork, J.U.G. Streif, U. Zimmerman, J.R. Griffiths.
St. George's Hospital Medical School, London, England, UK.
- 636. Analysis of the BOLD Effect in KHT Tumors Following Vasomodulation using Quantitative R₂* Maps**
Patrick Connelly, Zhong Chen, Edmund Kwok, Bruce M. Fenton and Jianhui Zhong
University of Rochester, Rochester, New York, USA.
- 637. Correlation of Tumour Pre-Treatment R₂* And Carbogen-Induced Δ R₂* With Response to Radiotherapy**
L. Rodrigues, F. Howe, J.R. Griffiths and S. Robinson.
St. George's Hospital Medical School, London, England, UK.

Vessel Wall MR Imaging

- 638. MRI of Plaque Components and Fibrous Cap Inflammation in Abdominal Aortic Aneurysm**
Christopher M. Kramer, Lisa A. Cerilli, Klaus D. Hagspiel, Stuart S.Berr, John N. Oshinski, Joseph M DiMaria, Frederick H. Epstein and John A. Kern.
University of Virginia, Charlottesville, VA USA.
- 639. Apparant Vessel Wall Inflammation Detected using MS-325, a Blood Pool Contrast Agent**
Jeffrey H Maki, Gregory J Wilson, Randall B Lauffer, Robert M Weisskoff and Chun Yuan.
University of Washington, Seattle, WA USA
- 640. Detection of Macrophage Infiltration and Intraplaque Hemorrhage in Vulnerable Atherosclerotic Plaque Using Magnetic Resonance Imaging Contrast Media: Super Paramagnetic Iron Oxide (SPIO)**
Morteza Naghavi, Mitra Rajabi, Mohammed ASIF, Michael Quast, Jingna W6, Daniel C.F. Chan, Mohammad Madjid, Khawar Gul, Samuel Ward Casscells III and James T. Willerson
University of Texas, Houston, TX USA; University of Texas Galveston, TX USA and University of Colorado Health Sciences Denver, CO, USA.
- 641. Contrast Enhanced High Resolution MRI for Atherosclerotic Carotid Artery Tissue Characterization**
Chun Yuan, Marina Ferguson, William Kerwin, Nayak Polissar, Jianming CAI, Thomas S. Hatsukami.
University of Washington, Seattle, WA, USA.
- 642. High Resolution MRI of Vulnerable Atherosclerotic Lesions in Excised Human Carotid Arteries Using a Novel Fibrin-Targeted Paramagnetic Nanoparticle Contrast Agent.**
P.M. Winter, J. Chen, S.-K. Song, M.J. Scott, R.W. Fuhrhop, J. Tan, P.J. Gaffney, G.A. Sicard, S.A. Wickline, G.M. Lanza and X. Yu.
Washington University School of Medicine, St. Louis, MO, USA.
- 643. Phase-Contrast Measurements of Aortic Wall Strain In Vivo.**
K. Wedding, M. Draney, R.J. Herfkens, C.K. Zarins, C.A. Taylor and N.J. Pelc.
Stanford University, Stanford, CA, USA.
- 644. High-resolution acquisition of wall shear rates shows significant differences between males and females**
Shengping Wu, Steffen Ringgaard, Sten Oyre, Michael Schacht Hansen, Erik Morre Pedersen
Aarhus University Hospital, Aarhus, Denmark.

- 645. Contrast Transport in Intracranial Aneurysms**
Liang-Der Jou, David Saloner.
University of California at San Francisco, San Francisco, CA, USA.
- 646. The study of carotid and aortic atherosclerotic plaques in humans by in vivo MR and the effects of therapy**
R. Corti, B.J. Juan, V. Fuster, S.G. Worthey, G. Helft and Z.A. Fayad
Mount Sinai School of Medicine, New York, NY USA.
- 647. The Prevalence and Relevance of MRI High Signal within the Carotid Arteries of Patients with Cerebral Ischaemia**
R. Murphy, AR Moody, P. S. Morgan, A Martel, G.S. Delay, S. Allder, S MacSweeney, W Tennant, J Gladman and J Lowe.
University of Nottingham, Nottingham, UK.

FMRI: Animal Models

- 648. Proton MRI Detection of Metabolically Generated H₂ 17 O from Inhaled 17 O₂**
D.R. Taylor, J.E. Baumgardner, J.S. Leigh, R. Reddy
University of Pennsylvania School of Medicine, Philadelphia, PA USA.
- 649. Feasibility Studies of ¹⁷O MRS Imaging for Fast and Repeatable Measurements of 3D CMR_{O₂} Image in the Rat Brain.**
X.-H. Zhu, R. Tian, K. Ugurbil, W. Chen.
University of Minnesota, Minneapolis, Minnesota, USA.
- 650. Observation of Positive and Negative BOLD Signals in Visual Cortex**
N. Harel, A. Shmuel, S.-P. Lee, D.-S. Kim, T. Duong, E. Yacoub, X. Hu, K. Ugurbil and S.-G. Kim.
University of Minnesota Medical School, Minneapolis, Minnesota, USA.
- 651. Dynamic CBV Imaging of the Mouse Cortex During Electrical Stimulation of the Hindpaw**
T. Mueggler, D. Baumann and M. Rudin
Novartis Pharma Ltd, Core Technology Area, Basel, Switzerland
- 652. Magnetite-enhanced fMRI improves CNR relative to BOLD fMRI in awake-behaving macaque monkeys at 1.5T**
D. Dubowitz, K. Bernheim, D.-Y. Chen, W.G. Bradley Jr., R.A. Andersen
California Institute of Technology, Pasadena, CA, USA and Memorial MRI Center, Long Beach, CA, USA.
- 653. Region-Specific and Biphasic Dose Dependence of Cocaine-Induced BOLD Signal in Rat Brain Detected by Functional MRI**
S.-J. Li, H. Xu, G. Wu and E. Stein.
Medical College of Wisconsin, Milwaukee, WI, USA.
- 654. Mapping of dopamine receptor hypersensitivity in an unilateral 6-OHDA model using BOLD imaging at 7T**
D.P. Auer, G.-K. Elbel, R. Kalisch, M. Delfino, M. Czisch, J. Winkelmann, G. Murer, O. Gershanik and C. Trenkwalder
Max Planck Institute of Psychiatry, Munich, Germany and Instituto de Investigaciones Farmacologicas, Buenos Aires, Argentina.

- 655. Involvement of Voltage-Gated Na⁺ Channels in the BOLD fMRI Response during Forepaw Somatosensory Activation in the Rat**
Ikuhiro Kida, Fahmeed Hyder, Kevin L. Behar.
Yale University, New Haven, CT, USA
- 656. Function MRI Studies of the Effects of MPTP-Lesions on the Nigrostriatal System of Awake Rhesus Monkeys**
Zhiming Zhang, Anders Andersen, Greg Gerhardt and Don Gash.
University of Kentucky, Lexington, KY USA.
- 657. Negative Functional MRI Changes in Capsaicin-Induced Painful Stimulation in Rats**
Krisztina Malisza, Uta Frankenstein, Patrick Stroman and John Docherty.
National Research Council Canada, Institute for Biodiagnostics, Winnipeg, MB Canada.

FRIDAY

Plenary Lectures: Current and Future Roles for fMRI

658. Mapping Task-Induced Changes in Cerebral Oxygen Metabolism

R. Hoge
Massachusetts General Hospital, Charlestown, MA, USA.

659. Clinical Applications of fMRI: Bold Claim or Reality?

K.R Thulborn
University of Illinois at Chicago, Chicago, IL, USA.

660. Advancing Our Knowledge of Brain Function and Structure

K. Zilles and N.J. Shah.
Institute of Medicine, Research Centre Jülich, Jülich, Germany

fMRI: Neurophysiology and Cognitive Science

661. Effect of Frequency of Vibrotactile Stimulation on the Brain Response Measured Using fMRI

Alison Sleight, Susan Francis, Francis McGlone, Edward Kelly, Penny Gowland, Richard Bowtell
University of Nottingham, Nottingham, U.K.;
University of Wales, Bangor, UK and University of North Carolina at Chapel Hill, Chapel Hill, NC. USA.

662. Brain Activation During Sexual Arousal in Healthy Heterosexual Males

Bruce A. Arnow, J. E. Desmond, Linda Banner, Gary H. Glover, C Abbehussen, Tom F.lue, Scott W. Atlas.
Stanford University, Stanford, CA, USA.

663. Acoustic fMRI and Sleep: Negative BOLD Response in the Visual Cortex

Michael Czisch, Christian Kaufmann, Thomas C. Wetter, Dorothee P. Auer.
Max Planck Institute of Psychiatry, Munich, Germany;

664. Functional MRI of the Retina.

T. Duong, D.-S. Kim, K. Uguurbil, S.-G. Kim.
University of Minnesota, Minneapolis, MN, USA.

665. Rate Dependence of Human Visual Cortical Response Due to Transient Stimulation

B. Ozus, H.-L. Liu, L. Chen, M. B. Iyer, P. T. Fox and J.-H.g Gao
University of Texas Health Science Center at San Antonio, San Antonio, TX USA
Chang Gung Univ., Taoyuan, Taiwan and University of Science and Technology of China, Beijing, China.

666. Functional MRI for Validating Neuronavigation of Transcranial Magnetic Stimulation

A. Wunderlich, Uwe Herwig, Carlos Schönfeldt-Lecuona, Henrik Walter, Reinhard Jürgen Peter Tomczak,
Manfred Spitzer, Hans-Jürgen Brambs.
Universitaet Ulm - Klinikum, Abt. Roentgendiagnostik, Ulm, Germany;

667. Brain Areas Specific for Attentional Load in a Motion Tracking Task

Jorge Jovicich, Robert J. Peters, Christof Koch, Jochen Braun, Linda Chang, Thomas Ernst
California Institute of Technology, Pasadena, CA USA; Brookhaven National Laboratory, Upton, NY and
Harbor-UCLA Medical Center, Torrance, CA.

- 668. An fMRI Analysis of Driving-Related Networks with Independent Component Analysis Applied in a Between-Condition (BC-ICA) and Within-Condition (WC-ICA) Manner**
Vince Calhoun, James Pekar, Tulay Adali and Godfrey Pearlson.
Johns Hopkins University, F.M. Kirby Research Center, Kennedy Krieger Institute, Baltimore, MD.
- 669. Cortical Basis of Phonological Effects in Reading Words: A fMRI Study of Written Chinese**
Ching-Mei Feng, Li Hai Tan, Peter T. Fox, Jia-Hong Gao
University of Texas Health Science Center at San Antonio, San Antonio, TX, USA and University of Hong Kong, Hong Kong, P.R. China;
- 670. Cross-modal plasticity in congenitally blind subjects**
Rupert Lanzenberger, Frank Uhl, Christian Windischberger, Andreas Gartus, Bernhard Streibl, Vinod Edward, Ewald Moser, Lüder Deecke, Roland Beisteiner
Universität Wien, Institut Medizinische Physik, Vienna, Austria;

Animal Brain: A Potpourri

- 671. Revealing Neuronal Substates of Epileptogenesis by Multiparametric MRI in a Rat Model of Temporal Lobe Epilepsy**
J. Nairismagi, O. G. Hn, M. Kettunen, J. Nissinen, A. Pitkanen, R. Kauppinen.
University of Kuopio, Kuopio, Finland.
- 672. MRI Studies of the Pathogenesis of Transmissible Spongiform Encephalopathy in a Mouse Model of Scrapie**
Y-L Chung*1, A Williams, S Rebus, K. K. Changani, S. C. R. Williams, J. D. Bell.
Imperial College School of Medicine, Hammersmith Hospital, London, UK;
Glasgow University Veterinary School, Glasgow, UK.
- 673. GABAergic Regulations on Heroin-Induced Activation in Rat Brain Detected by Functional MRI**
S.-J. Li, Z.-X. Xi, G. Wu and E. Stein.
Medical College of Wisconsin, Milwaukee, WI, USA
- 674. Chronic Expression of TNF- α in the Rat Brain causes Changes in Cerebral Perfusion, Tissue Water Diffusion and Blood-Brain Barrier Permeability as determined by MRI.**
N. Sibson, A. Blamire, V.H. Perry, P. Styles and D.C. Anthony.
University of Oxford, Oxford, England, UK.
- 675. Stress response in the brain of a common carp submitted to a sublethal cold shock as measured by BOLD and CBV sensitive fMRI**
R. R. Peeters, E. H. Van den Burg, G. Flik, S.E.WendelaarBonga, A. Van der Linden
Bio-Imaging Lab RUCA, Antwerp, Belgium and University of Nijmegen, Nijmegen, Netherlands;
- 676. Magnetic Resonance Imaging of Spontaneous Hemorrhagic Stroke in Conscious Rats**
Mathew E. Brevard, Jean A. King, Mark Mattingly, Gang Zhu, David Olson, Robert M.K.W. Lee, Craig F. Ferris
University of Massachusetts, Worcester, MA USA and University, Hamilton, Ontario Canada.
- 677. Metabolic changes induced by hypoxia and lactate in the brain of the amphibian *Bufo marinus*, observed with flow weighted and T2 * weighted MR imaging**
Christian Bock, Ilka Pinz and Hans-Otto Pörtner
Alfred Wegener Institute for Polar and Marine Research, Columbusstraße, Bremerhaven, Germany

- 678. Cerebroprotection by delayed hypothermia after perinatal asphyxia shown by diffusion-weighted imaging**
John Thornton, Frances O'Brien, Keith Brooks, Yasuko Sakata, Nicola Parker, Phillip Amess, Martina Noone, Mark Sellwood, Ernest Cady, Matthew Clemence, Quyen Nguyen, Marzena Wylezinska, John Wyatt, Roger Ordidge
University College London, London, UK; University of Exeter, UK and University of Oxford, Oxford, UK.
- 679. Deferoxamine Enhances Postresuscitative Cerebral Reperfusion After Prolonged Cardiac Arrest**
S.M Liachenko, P. Tang and Y. Xu
University of Pittsburgh, Pittsburgh, PA, USA.
- 680. Monitoring USPIO Accumulation in Ischemic Brain Tissue of Rats after Permanent MCAO**
M. Rausch, A. Sauter, J. Fröhlich, M. Rudin
Core Technology Area, Novartis Pharma AG, Basel, Switzerland and Guerbet AG, Zürich, Switzerland

Other MR Imaging Sequences

- 681. A Genetic Algorithm for Optimal Design of Spectrally Selective k-Space**
Douglas C. Noll
University of Michigan, Ann Arbor, MI, USA.
- 682. Optimal Sampling for 3D Projection Reconstruction Imaging**
Benjamin S. Wilbur, Khader M. Hasan, Andrew L. Alexander, Dennis L. Parker
University of Utah, Salt Lake City, UT, USA.
- 683. Signal and Contrast in Prepolarized MRI: First Data**
S. Conolly, B. Chronik, N.I. Matter, P.N. Morgan and H. Xu.
Stanford University, Stanford, NY, USA.
- 684. Electric Current Density Imaging of Chemical Reactions**
Ursa Mikac, Alojz Demsar, Igor Sersa, Franci Demsar
University of Ljubljana, Ljubljana, Slovenia.
- 685. Current Densities Produced by Surface Electrodes: Comparison of MRI measurements and Finite Element Modeling**
Tim P. Demonte, Andrei Patriciu, Michael L.G. Joy, Johannes J. Struijk
University of Toronto, Toronto, Canada; Aalborg University, Denmark
- 686. Study of current pathways in porcine heart using current density imaging**
Richard S. Yoon, Tim P. Demonte, Dawn Jorgenson, Michael L.G. Joy
University of Toronto, Toronto, Ontario Canada and Agilent Technologies, Seattle, WA, USA.
- 687. Design of Null Pulses for use in Pulsed Arterial Spin Labeling by the Principle of Time Reversal.**
G. Matson and T. Schleich.
University of California, San Francisco, CA, USA.
- 688. Non-Linear Phase RF Pulses for Reduced Dynamic Range in 3D RARE.**
J.M. Pauly E. Wong.
Stanford University, Stanford, CA, USA and University of California, La Jolla, CA, USA.

- 689. Shortening multiband RF pulse duration for reduced motion sensitivity**
C.H. Cunningham, G.A. Wright and M.L. Wood
University of Toronto, Toronto, ON, Canada
- 690. Improving Dynamic Range in 3D MRI with RF Pulses Producing Quadratic Phase**
L. DelaBarre, P.J. Bolan and M. Garwood
Center for Magnetic Resonance Research, University of Minnesota, Minneapolis, MN, USA.

RF Methods and Modeling

- 691. A parallel technique for the inverse design of RF coils**
B. G. Lawrence, D. Yau, S. Crozier, K. Luescher, W. Roffmann and D. Doddrell
University of Queensland, St Lucia, Brisbane, Queensland, Australia
- 692. Obtaining a Homogeneous B1 Field at UHF Frequencies: Use of Multiple Drives and Variable Amplitude/Phases.**
T. Ibrahim, R. Lee, B. Baertlein, P.-M. L. Robitaille.
Ohio State University, Columbus, OH, USA.
- 693. Electromagnetic characterisation of RF coils using the Transmission Line Modelling (TLM) method**
P.J. Cassidy, S. Grieve, K. Clarke and D.J. Edwards
Univeristy of Oxford, Oxford, England, UK
- 694. Calculated SNR and Absorbed RF Power with Field Strength and Definition of RF Excitation Pulse**
Christopher M. Collins and Michael B. Smith
Penn State College of Medicine, Hershey, PA, USA.
- 695. Minimally Invasive Probing of B1 Field Distributions in MR coils using infrared sensors.**
T. Ibrahim, B. Baertlein, R. Lee, R. D. Gilbert, R. Lee, A. Abduljalil, P.-M. L. Robitaille.
Ohio State University, Columbus OH, USA.
- 696. Perfectly Sinusoidal SMASH Field Shapes from Birdcage Sectors**
J. Willig, R. Brown, T. Eagan, Sh. Shvartsman
Case Western Reserve University, Cleveland, OH USA
- 697. Quantitative Mapping of RF Magnetic Fields using Spectral Methods**
D. Spence, M.P. McDougall and S.M. Wright
Texas A&M University, Texas, USA.
- 698. Analysis of the RF Field of a Quadrature Surface Coil at 7.0T**
Jinghua Wang, Qing X. Yang, Christopher M. Collins, Michael B. Smith, Xiaoliang Zhang, Gregor Adriany, Haiying Liu, Xiao-Hong Zhu, J.Thomas Vaughan, Kamil Ugurbil and Wei Chen.
Hershey Medical Center, Hershey, PA USA; Pennsylvania State University, Hershey, PA, USA and University of Minnesota, CMRR, Minneapolis, MN.
- 699. Analysis of Single Microstrip Resonator with Capacitive Termination at Very high Fields.**
X. Zhang, R. Sainati, T. Vaughan and W. Chen.
University of Minnesota, Minneapolis, MN, USA.
- 700. Closed loop feedback control of microwave heating using MRI**
Babak Behnia and Andrew Webb
University of Illinois at Urbana-Champaign, Urbana, Illinois, USA.

Body MR Imaging: <i>Ex Vivo</i> and Animal Models
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- 701. Sinusoidal permeability changes in liver fibrosis: assessment with contrast-enhanced MR imaging**
Bernard E Van Beers, Roland Materne, Anne M Smith, Christine Sempoux and Yves Horsmans
Université catholique de Louvain, médecine, Cliniques universitaires St-Luc, Brussels, Belgium;
- 702. Functional MRI Demonstrated Reduced Hepatic Blood Oxygenation During Intestinal Ischaemia – Reperfusion.**
J. Utting, P. Vejchapipat, D. L. Thomas, E. Proctor, A. Pierro, D. Gadian and R. Ordidge.
University College London, London, England, UK and Institute of Child Health, Royal College of Surgeons, London, England, UK.
- 703. Hepatic Oxygenation Changes in Chronic Ethanol-Treated Rats Analysed by fMRI**
Lesley May Foley, Melissa Jamie Yau, R. Terry Thompson, Manfred Brauer
University of Guelph, Guelph, Ontario Canada and University of Western Ontario, London, ON Canada.
- 704. Preliminary evaluation of EVP-ABD as a liver contrast agent exhibiting both a vascular and a tissue phase**
Pippa Storey, Wei Li, Peter Seoane, Phillip Harnish, Pottumarthi Prasad
Northwestern University Medical School, Illinois USA.
Eagle Vision Pharmaceutical Corp, Chester Springs, PA, USA.
- 705. The Quantitative Evaluation of Liver Function Using Gd-EOB-DTPA : Deconvolution Analysis**
Yongmin Chang, Hun-Kyu Ryeom, Bong-Soo Han, Hyun-Jung Park, Kyung-Eun Song and Duk-Sik Kang
Kyungpook National University Hospital, Taegu, Korea
- 706. Unesterified Cholesterol and Magnetization Transfer MRI in Livers of Mice with Niemann-Pick Type C Disease**
J. Guo, T. Trouard, J.-Philippe G., R. Erickson and R. Gillies.
University of Arizona, Tucson, AZ, USA.
- 707. Efficacy of ferucarbotran on T1 weighted images in vitro and in vivo study**
Naoki Kato, Tomoaki Miyazawa, Satoshi Yoshise, Taro Takahara, Masao Obuchi 5 , Akihiro Tanimoto 6 , Takashi Yokawa.
Basic Research Institute, Nishimiyahara, Yodogawa-ku, Osaka, Japan and Keio University Hospital, Tokyo, Japan;
- 708. An In-Vivo Validation Study of Body Composition in Rats Using High Resolution MRI**
Haiying Tang, Ed X. Wu, Dymrna Gallagher, Joseph R. Vasselli, Carol N. Boozer
Columbia University, and St. Luke's-Roosevelt Hospital, New York, NY USA.
- 709. The Normal Adrenal Cortex: In Vitro High Resolution Chemical Shift MRI**
Donald Gordon Mitchell, Alessandra Bettega Nascimento, Faiyaz Alam, Ralf P Grasel, Brian J O'Hara.
Thomas Jefferson University, Philadelphia, PA, USA
- 710. Quantitive Testicular Perfusion MRI using Continuous Arterial Spin-Labeling.**
E. S. Pretorius, D. A. Roberts, S. Dheer and M. Schnall.
University of Pennsylvania, Philadelphia, PA, USA.

Cardiac MR Spectroscopy: Preclinical and Clinical
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- 711. Combined analysis of several 31P NMR inversion transfer protocols: a new strategy to assess sub-cellular energy transfer fluxes in the perfused rat heart.**
F. Joubert, P. Mateo, J.L. Mazet
Université Paris Sud, Faculté de Pharmacie, Chatenay Malabry, France.
- 712. Differential Effect of β_1 -vs β_2 - Adrenergic Receptor Stimulation on Bioenergetics and Work Rate in the Isolated, Perfused Rat Heart**
Patrick McConville, Kenneth W. Fishbein, Edward G. Lakatta and Richard G. S. Spencer
NIH/National Institute on Aging, Baltimore, MD, USA.
- 713. Myoglobin scavenges bioactive NO in muscle assessed by 1 H NMR spectroscopy**
Ulrich Flögel, Marc W. Merx, Axel Gödecke, Ulrich K.M. Decking and Jürgen Schrader
Heinrich-Heine-Universität Düsseldorf, Düsseldorf, Germany
- 714. Ischemic Preconditioning Activates Mitochondrial but not Sarcolemmal ATP-sensitive Potassium Channels in Intact Rat Hearts: 87 Rb NMR Study.**
Olga Jilkina, Bozena Kuzio, Valerie Kupriyanov.
U. of Manitoba, Winnipeg, MB Canada.
- 715. Phosphorus-31 Magnetic Resonance Spectroscopic Imaging (31P MRSI) in Patients with Hereditary Hemochromatosis**
Michael F.H. Schocke, Bernhard Metzler, Christian Wolf, Steinboeck Peter, Wolfgang Vogel, Pachinger Otmar, Jaschke Werner.
University Innsbruck, Innsbruck, Tyrol Austria.
- 716. Cardiac 31P MRS Identifies Ischemia in Twenty Percent of Women with Chest Pain but No Significant Angiographic Stenosis**
Hee-Won Kim, Katherine N. Scott, Angela P. Bruner, Steven Buchthal, Jan den Hollander, Gerald M. Pohost and Carl J. Pepine.
University of Florida, Gainesville, Florida USA and University of Alabama at Birmingham, Birmingham, Alabama.
- 717. Volume Tracking Using Multiple Navigator Echoes in Cardiac 31P Spectroscopy**
Sebastian Kozerke, Hildo J Lamb, Peter Boesiger
University and ETH, Zurich, Switzerland and Leiden University Leiden, The Netherlands
- 718. 3D Density-weighted Chemical Shift Imaging (denCSI) to Map 31P Metabolites of the Human Heart.**
Greiser, A. Haase and M. Von Kienlin.
Physikalisches Institut, Universität Würzburg, Würzburg and Am Hubland, Germany and Hoffmann-La Roche Pharmaceuticals, Basel, Switzerland.
- 719. Coenzyme Q10 plus vitamin E treatment of patients with Friedreich Ataxia. A 24 month clinical and MRS follow up study.**
R. Lodi, A. H. Schapira, B. Rajagopalan, D. J. Taylor, P. Hart, J. G. Crilly, J. L. Bradley, A. M. Blamire, D. Manners, P. Styles, J. M. Cooper.
Università di Bologna, Bologna, Italy; Royal Free Hospital, London, UK and University of Oxford, UK
- 720. The Mitochondrial ATPase and High Energy Phosphates in Failing Hearts.**
J. Zhang, J. Liu, R. J. Bache and K. Ugurbil.
University of Minnesota, Minneapolis, MN, USA.

The Tumor Microenvironment

- 721. Choline Kinase Activity Modulates Proton Extrusion in Precarcinogenic Livers.**
M.L. García-Martín, M. A. García-Espinosa, P. Ballesteros and S. Cerdán.
Instituto de Investigaciones Biomédicas "Alberto Sols", Madrid, Spain.
- 722. Enhanced expression of metastasis suppressor gene may play a role in phospholipid changes in breast cancer cells following treatment with an anti-inflammatory agent indomethacin**
Kshama Natarajan, Noriko Mori, Dmitri Artemov, Zaver Bhujwalla
Johns Hopkins University, School of Medicine, Baltimore, MD USA.
- 723. MRS Detects Alterations in Lipid Metabolism during Apoptosis**
N. Al-Saffar, J. Titley, D. Robertson, E. Jackson, P. Clarke, M. Leach and S. Ronen
Institute of Cancer Research, Sutton, Surrey, SM2 5PT UK;
- 724. Combined 1 H MR spectroscopic imaging of extracellular pH and metabolites in rat glioma : high lactate is not associated with lower extracellular pH**
Marisa García-Martín, Gwenaél Herigault, Chantal Rémy, Régine Farion, Paloma Ballesteros, Jonathan Coles, Sebastian Cerdán, Anne Ziegler
CSIC, Instituto de Investigaciones Biomedicas, Madrid, Spain and Fourier, CHU de Grenoble, Grenoble, France.
- 725. Combined Optical and Magnetic Resonance Microscopy of Heterogeneous JB6 Tumor Spheroid Populations**
Paul D. Majors, Thomas J. Weber, Gary R. Holtom, Kevin R. Minard and Robert A. Wind
Pacific Northwest National Laboratory, Richland, WA USA.
- 726. Differentiation of Tumor Recurrence from Treatment-Induced Necrosis Using Quantitative Diffusion MRI**
Xiaohong Joe Zhou, Norman E. Leeds, Ashok J. Kumar, June Chong, Victor A. Levin
M.D. Anderson Cancer Center, Houston, Texas USA.
- 727. Endothelial Cells promote Cancer Cell Invasion under Hypoxia**
Ellen Ackerstaff, Dmitri Artemov, Zaver Bhujwalla and Robert Gillies
Johns Hopkins University, School of Medicine, Baltimore, MD USA and University of Arizona, Tucson, AZ
- 728. Physiological mechanisms underlying the MR-visible acidic pH of tumors**
P.A. Schornack and R.J. Gillies
University of Arizona, Tucson, AZ USA.
- 729. The Use of Contrast Enhanced MRI to Guide Functional Genomic Microarray Analysis in Tumors.**
S. Guccione, Y.-S. Yang, K. C. Li and M. Bednarski.
Stanford University, Stanford, CA, USA.
- 730. Acute Vascular Response to VEGF: Vasodilation, Hyperpermeability, Increased Lymphatic Uptake and Growth Factor Inactivation (MRI and Confocal Microscopy)**
Hagit Dafni, Fortune Kohen, Michal Neeman and Bilha Schechter
Weizmann Institute of Science, Rehovot, Israel

POSTER SESSIONS**Basic Science Focus Session: Artifact Reduction**

- 731. Inverse MRI: Imaging a Freely Rotating Object**
Kate McLeish, David Atkinson, Derek Hill and Stephen Keevil
Guy's, King's and St. Thomas' School of Medicine, London, England
- 732. An Intelligent Real Time Navigator Control System for MRI**
Jeffrey Bezanson, Richard Watts, Thanh Nguyen, Martin R. Prince, Yi Wang
Cornell University and University of Michigan, Medical School, New York, NY USA.
- 733. DTI using an improved segmented EPI protocol**
Anders Franck, Sara Brockstedt, Jimmy Lätt, Stefan Skare, Freddy Ståhlberg.
Huddinge University Hospital, Huddinge, Sweden; Lund University Hospital, Lund, Sweden; Karolinska Hospital, Stockholm, Sweden and The Jubileum Institute, Lund, Sweden.
- 734. Motion artefact reduction using SMASH**
Mark Bydder, David J Larkman and Joseph V Hajnal
Imperial College, School of Medicine, The Robert Steiner MR Unit, Hammersmith Hospital, London, UK
- 735. Dynamic View Ordering (DVO) FSE for reduced artifacts**
James G. Pipe
Barrow Neurological Institute, St. Joseph's Hospital and Medical Center, Phoenix, AZ USA.
- 736. Correction of Eddy Currents in EPI-based Diffusion Tensor Imaging**
Aziz Hatim Poonawalla and Xiaohong Joe Zhou
University of Texas, Houston, TX USA.
- 737. Correcting for Translational Motion in 3D Projection Reconstruction**
Oliver Wieben, Andrew V. Barger, Walter F. Block and Charles A. Mistretta.
University of Wisconsin-Madison, Madison, WI, USA
- 738. Correction of Slab Boundary Artifact using Histogram Matching.**
E. Kholmovski and A. L. Alexander.
University of Utah, Salt Lake City, Utah, USA.
- 739. A Simple Technique for Reducing Aliasing Artifacts in Projection Reconstruction MRI**
Hee Kwon Song
University of Pennsylvania Medical Center, Philadelphia, PA, USA.
- 740. Deblurring of Multiphase Spiral 3D CE-MRA Data: Dynamic Changes of Susceptibility During Contrast Media Transit**
Michael Amann, Michael Bock and Lothar Schad
Deutsches Krebsforschungszentrum, Heidelberg, Germany;
- 741. Reduction of the Blurring Artifacts due to the Local Field Inhomogeneity in Spiral Imaging.**
Q. Yang, V. Stenger, M. B. Smith, F. Boada and D. Noll.
The Penn State College of Medicine, Hershey, PA, USA, University of Pittsburgh, Pittsburgh, PA, USA and University of Michigan, Ann Arbor, MI, USA.

- 742. Higher order geometrical distortion in serial MR brain imaging**
Mark Holden, Marcel Breeuwer, Kate McLeish, David J Hawkes, Stephen Keevil, Derek LG Hill
King's College London, London, UK and Philips Medical Systems, Best, Holland;

Motion and Artifact Correction

- 743. Improved In-Plane Motion Correction for PROPELLER MRI**
James G. Pipe
Barrow Neurological Institute, St. Joseph's Hospital and Medical Center, Phoenix, AZ, USA.
- 744. Motion Correction from Orthogonal k-Space Phase Difference**
Edward Brian Welch and Armando Manduca
Mayo Clinic, Rochester, MN, USA.
- 745. Dash Artifact Associated with Sinusoidal Frequency Encoding Gradient and Coherent Noise**
Weiliang Du, Xiaobing Fan and Gregory Karczmar
University of Chicago, Chicago, IL, USA.
- 746. Application of RF Subencoding Acquisition to Flow Compensated 3D half-Fourier FSE MRA**
Yoshio Machida, Miguel Angel Gonzalez Ballester, Hiroshi Takai, Yoshimori Kassai and
Yoshinori Hamamura
Medical Systems R&D Center, Toshiba, Otawara, Tochigi, Japan
- 747. Automatic Motion Correction Using Prior Knowledge**
David Atkinson and Derek Hill
Guy's Hospital, Radiological Sciences, London, England, UK
- 748. Delineation of an Acquisition Window within the Respiratory Cycle of Laboratory Animals**
Shannon P Holmes, Micheal Thornton, Paula Gareau, David W Holdsworth
The John P. Robarts Research Institute, London, ON, Canada
- 749. Previewing during Coronary Artery Examinations based on Motion-Adapted Gating**
Holger Eggers, Lars Steen, Ralph Sinkus, Peter Boesiger
Philips Research, Division Technical Systems, Hamburg, Germany;
University of Applied Sciences Hamburg, Hamburg, Germany;
Swiss Federal Institute of Technology Zurich and University of Zurich, Zurich, Switzerland.
- 750. Motion Correction of Single-Shot Multi-Echo fMRI Data**
Oliver Speck and Jürgen Hennig
University Medical Center Freiburg, Freiburg, Germany
- 751. Amplitude-Adaptive Filtering of Respiration Noise in fMRI Data**
Ulas Ziyen, Jared R. Brosch and Thomas M. Talavage
Purdue University, West Lafayette, IN, USA.
- 752. Estimation and Correction of Rotation Induced Artifacts using Autocorrection and A Linear Distortion Model**
Kiaran P. McGee, Joel P. Felmlee, Clifford R. Jack Jr.1, Armando Manduca, Richard L. Ehman.
Mayo Clinic, MR Research Lab, Rochester, MN, USA.
- 753. Navigation of the Heart with Single-Shot Images**
Bernd A. Jung, Axel Haase, Peter M. Jakob.
Albert-Ludwig-Universität Freiburg, Freiburg, Germany and University of Würzburg,
Würzburg, Germany.

- 754. Magnetic Susceptibility Quantitation for Arbitrarily-Shaped Objects in Inhomogeneous Fields.**
L. Li.
University of Pennsylvania, Philadelphia, PA, USA.
- 755. Optimal Polarization States for Radiofrequency Fields in Magnetic Resonance Imaging.**
R. H. Weening and F. Wehrli.
University of Pennsylvania, Philadelphia, PA, USA.
- 756. Correction of Distortions in Non-Axial Echo Planar Imaging**
J. Y. Chiou and O. Nalcioglu.
University of California, Irvine, CA, USA.
- 757. Automatic Elimination of a Ringing Artefact Introduced by Eddy Current Correction**
Arjan W. Simonetti, Willem J. Melssen, Marinette Van Der Graaf, Arend Heerschap and Lutgarde M.C. Buydens
Nijmegen University, Nijmegen, Netherlands.
- 758. Correction of K-Space Mapping Errors in Phase Encoding Direction**
Yong-Gwon KIM, Chang-Hyun OH, Sun-Kyung Kim, Sung-Taek Chung, Yun-Jeong Yang and Yong-Hyun Kim.
Medinus MRI Research Center, Seoul, South Korea.
- 759. Correction for Artifacts in 3D Angularly Undersampled MR Projection Reconstruction**
Sean B. Fain, Walter Block, Andrew Barger, Charles A. Mistretta.
University of Wisconsin-Madison, Madison, WI, USA.
- 760. Spike Removal in EPI Data for fMRI.**
X. Zhang, P.-F. Van de Moortele, J. Pfeuffer, K. Ugurbil and X. Hu.
University of Minnesota, Minneapolis, MN, USA.

Various Image Reconstruction Techniques
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- 761. A Model for Time-Resolved Contrast-Enhanced Magnetic Resonance Angiography.**
F. Wajer, D. Van Ormondt, M. Fuderer, J. Van den Brink and R. de Beer.
Delft University of Technology, Delft, Netherlands and Philips Medical Systems, Best, Netherlands.
- 762. Time resolved MRA with continuous acquisition of the k-space center**
Alain Herment, Elie Mousseaux, Elodie Roullot, Isabelle Bloch, Odile Jolivet 5, Jacques Bittoun.
Chu Pitie-Salpetriere, Paris, France; Hopital Broussais, Paris, France and 6 C.I.E.R.M., Hôpital de Bicêtre, Le Kremlin-Bicêtre, France;
- 763. A Min-Max Approach to the Nonuniform N-Dimensional FFT for Rapid Iterative Reconstruction of MR Images**
B. Sutton, D. Noll and J.A Fessler
University of Michigan, Ann Arbor, MI, USA.
- 764. Super-Resolved MRI by Back-Projection**
Dimitrios Mitsouras, Alan Edelman, Lawrence P. Panych, Ferenc A. Jolesz, Gary P. Zientara 5
Massachusetts Institute of Technology, Cambridge, MA USA. and Brigham and Women's Hospital, Harvard Medical School, Boston, MA USA

- 765. An Iterative Regularized Algorithm for Tensor Tomography in MRI**
Vladimir Y Panin, G Larry Zeng, Grant T Gullberg, Andrew Alexande R, Dennis L Parker
University of Utah, Salt Lake City, UT, USA.
- 766. P awCSI Metabolite Maps of the Human Heart by Time Domain Fitting of Multidimensional in vivo spectroscopic MR Data.**
Greiser, A. Haase and M. Von Kienlin.
Physikalisches Institut, Universit t Wurzburg, Wurzburg, Germany and Hoffmann-La Roche Pharmaceuticals, Basel, Switzerland.

Image Reconstruction from Coil Arrays

- 767. Major Speedup of Reconstruction for Sensitivity Encoding with Arbitrary Trajectories.**
F. Wajer and K. Pruessmann.
Delft University of Technology, Delft, Netherlands and University and ETH Zurich, Zurich, Switzerland.
- 768. Optimization of Parallel Imaging By Use of Selective Excitation.**
W. Kyriakos and L. P. Panych.
Harvard University, Boston, MA, USA and Children’s Hospital, Boston, MA, USA.
- 769. Generalized Parallel Imaging Using Array Coil Encoding**
J. Wang
Siemens Medical Engineering, Erlangen, Germany
- 770. kSENSE: k-Space Sensitivity Encoding Reconstruction**
Keith Heberlein and Xiaoping Hu
University of Minnesota, Minneapolis, MN, USA.
- 771. Iterative MR Image Reconstruction Using Sensitivity and Inhomogeneity Field Maps**
B. Sutton, J.A.Fessler, D. Noll
University of Michigan, Ann Arbor, MI, USA.
- 772. 2-way SMASH**
J. V. Hajnal, M. Bydder and D.J. Larkman
Imperial College School of Medicine, Hammersmith Hospital, London, UK
- 773. Use of Information Theory to align separately acquired reference and target data for SENSE processing**
M. Bydder, D.J Larkman and J.V. Hajnal
Imperial College School of Medicine, Hammersmith Hospital, London, England, UK
- 774. Adaptive Coil Selection in Reconstructing Phased Array Images.**
J. Ma, D. Halliyur, L. Estkowski and R. Becerra.
G. E. Medical Systems, Milwaukee, WI, USA.

Image Reconstruction: Gridding and Novel Sampling

- 775. Artifact-Free, Maximal-SNR, Efficient Image Combination for Coronary MR Using the Correlation Coefficient Template Grid Matching Technique**
M.S. Sussman, N. Robert and G.A. Wright
University of Toronto, Toronto, Ontario ,Canada

776. **Simple Formula for the Accuracy of Gridding.**
F. Wajer, R. Lethmate, J. A. C. van Osch, D. Graveron-Demilly, M. Fuderer and D. van Ormondt.
Delft University of Technology, Delft, Netherlands, Universite Claude Lyooooon, Villeurbanne, France and Philips Medical Systems, Best, Netherlands.
777. **A Modified Block Uniform Resampling (BURS) Algorithm using Truncated Singular Value Decomposition: Fast Gridding with Noise Reduction**
Hisamoto Moriguchi and Jeffrey L. Duerk.
Case Western Reserve University / University Hospitals of Cleveland, Cleveland, Ohio USA.
778. **Keyhole/RIGR Dynamic Imaging using Deformable References**
Xiuquan Ji, Qiao Jia Zeng and Zhi-Pei Liang
Beckman Institute of Advanced Science and Technology, University of Illinois at Urbana-Champaign, Urbana, IL, USA.
779. **Neuman Expansion in Real Variables, An Example of a Bandwidth Limited Expansion**
Mirko I. Hrovat, Samuel Patz.
Brigham & Women's Hospital, Harvard Medical School, MA.
780. **Efficient In Vivo T2 Mapping by Prior-information-driven SLIM-BLAST Reconstruction**
Jeffrey TSAO, Victor D. Schepkin, Paul C. Lauterbur
University of Illinois at Urbana-Champaign, Urbana, IL, USA.
781. **MR Image Reconstruction from Novel 3D Radial Sampling Distributions.**
R. Lethmate, J. A. C. van Osch, F. Wajer, D. van Ormondt and D. Graveron-Demilly.
Universite Claude Bernard, Villeurbanne, France and Delft University of Technology, Delft, Netherlands.
782. **Non-Orthogonal Non-Fourier Spatial Encoding for Dynamic MRI**
Gary P. Zientara, Arjun V. Masurkar, Dimitrios Mitsouras, Lawrence P. Panych, Ferenc A. Jolesz.
Brigham & Women's Hospital, Harvard Medical School, Boston, MA USA.
783. **NoQuist: Reduction of Spatial Sampling Rate In Dynamic MR Imaging**
Marijn Brummer, W.Thomas Dixon, Chung-Yi Hong, Roderic Pettigrew
Emory University, School of Medicine, Atlanta, GA USA. and General Electric Corporate R&D, Niskayuna, NY USA.
784. **Partial Fourier imaging in multi-dimensions: A means to save a full factor of two in time**
Yingbiao Xu and E. Mark Haacke
The MRI Institute for Biomedical Research, St. Louis, Missouri USA.
785. **A Novel Method to Obtain Spatially Localized Point-Spread-Functions in Phase Encoded Imaging.**
L. P. Panych and L. Zhao.
Harvard University, Boston, MA, USA.
786. **A Variable Resolution Reconstruction Technique**
Eugene G Kholmovski, Dennis Lee Parker and Andrew Alexander
University of Utah, Salt Lake City, Utah USA.
787. **A Least Squares Approach to Half-Fourier Imaging for fMRI.**
X. Zhang, E. Yacoub and X. Hu
University of Minnesota, Minneapolis, MN, USA.

788. Localization of Active MR Devices: A Comparison between Different Postprocessing Methods
Michael Bock, Steffen Volz, Hans-Joachim Zabel, Reiner Umathum, Wolfhard Semmler
Deutsches Krebsforschungszentrum (DKFZ), Abt. Biophysik u. Medizinische Strahlenphysik,
Heidelberg, Germany.

789. Improved Single Point Water-Fat Imaging with Virtual Shimming
Qing-San Xiang
University of British Columbia, Vancouver, BC Canada

Various Image Processing and Display Techniques

790. Generalized Line Integral Convolution Rendering of Diffusion Tensor Fields
Edward Hsu
Duke University, Durham, NC USA.

791. An Algorithm for Preservation of Orientation during Non-Rigid Warps of Diffusion Tensor Magnetic Resonance (DT-MR) Images
Daniel Alexander, Carlo Pierpaoli, Peter Basser, James C.Gee.
UCL (University College London), Computer Science, London, UK and National Institutes of Health, Bethesda, MD and University of Pennsylvania, Philadelphia, PA USA.

792. Anisotropic Diffusion Method for Denoising Dynamic Susceptibility Contrast-Enhanced Magnetic Resonance Images
Kenya Murase, Takayuki Kitada, Youichi Yamazaki, Shin-ichiro Iwamoto, Yoshihiro Ueno, Keiichi Kikuchi, Hitoshi Miki, Junpei Ikezoe
Department of Medical Engineering, Osaka University Medical School, 1-7 Yamadaoka, Suita, Osaka Japan; Ehime University School of Medicine, Onsen-gun, Japan.

793. Techniques For The Deformation Morphology Of MRI Data Using Modifications Of The Kohonen Network Model
Simon J. P. Meara, John Suckling, Steven C.R. Williams, Tonmoy Sharma.
Institute of Psychiatry, and Guy's, King's and St.Thomas' School of Medicine, London, UK.

794. An MLE Based Segmentation Method for Quantitation in MR Images
R.K.S. Rathore, Sushmita Datta, R. K. Gupta, S. B. Rao, R. Verma.
Indian Institute of Technology Kanpur, Kanpur, U. P. India.

795. Lesion Size Estimation Using Warped Registration of Interval Images.
J. B. Weaver, S. Periaswamy, H. Farid, D. N. Rockmore, C. J. Kasales, W. Black and D. M. Healy, Jr.
Dartmouth-Hitchcock Medical Center, Lebanon, NH, USA and Dartmouth College, Hanover, NH, USA.

796. Tissue Volume Estimation of an object Based on Polygonal Model
Chao Han, Shaoxiong Zhang, Thomas S.Hatsukami, Chun Yuan.
University of Washington, Seattle, WA, USA.

797. Quantitative Mapping of Magnetic Fluid Distributions by Means of MR Susceptometry
Koshan Mahdi, Waldemar Wlodarczyk, Thomas Lange, Regina Scholz, Andreas Jordan, Peter Wust.
Humboldt-Universität zu Berlin, Berlin, Germany.

798. NMRj: A feasibility study for a fully Java based platform independent MR processing and analysing program
Torsten Schlumm and Thomas Riemer
Interdisziplinäres Zentrum für Klinische Forschung (IZKF) Leipzig,
Leipzig, Germany.

Image Processing: Coil Sensitivity Maps

- 799. Robust Estimation of Coil Sensitivities for RF Subencoding Acquisition Techniques**
Miguel Angel Gonzalez Ballester, Yoshio Machida, Yoshimori Kassai, Yoshinori Hamamura and Hiroshi Sugimoto.
Medical Systems R&D Center, Toshiba, Otawara, Tochigi Japan
- 800. Variational Based Coil Sensitivity Estimation**
S.L. Keeling and R. Bammer
University of Graz, Graz, Austria
- 801. Estimation of coil sensitivity map and correction of surface coil magnetic resonance images using wavelet decomposition**
Fa-Hsuan Lin, Lawrence L. Wald, Ying-Jui Chen, John W. Belliveau
Harvard-MIT Division of Health Sciences and Technology, Charlestown, MA USA
- 802. Phased-Array Coil SNR Maps using Sensitivity Analysis.**
C. C. Guclu.
GE Medical Systems, Milwaukee, WI, USA.

Image Processing: Brain and Spine

- 803. 3D Neuroanatomical Segmentation of MR Brain Images**
C. Leong Tan and J. Rajapakse
Nanyang Technological University, Singapore.
- 804. Hybrid Atlas-Based and Image-Based Approach for the Automatic Segmentation of Brain Structures.**
O. Musse, G. Bueno, F. Heitz, J.-P. Armspach, I. Namer, D. Grucker
Institut Physique Biologique, Strasbourg, France.
- 805. Effect of gain field inhomogeneity correction on automated segmentation of the intracranial cavity**
Ying Wu, William M. Wells III, Simon K Warfield, Xingchang Wei, Xiaoming Li, Mark Anderson and Charles R.G. Guttmann.
Center for Neurological Imaging, Harvard Medical School, Boston, MA, USA.
- 806. Unsupervised Statistical Segmentation and Stereological Validation of 3D T1/T2 Brain Tissue Grey and White Matter Volumes Using Mahalanobis Distance Method**
Calvin Hisley, Katrina Read and Rao P Gullapalli
University of Maryland, Baltimore, MD, USA.
- 807. Application of Independent Component Analysis for Better Segmentation of Gray and White Matters**
Toshiharu Nakai, Shigeru Muraki, Haruo Isoda, Yasuo Takehara, Harumi Sakahara, Kayako Matsuo, Chikako Kato and Yukio Miki.
Medical Vision Lab, LERC, Osaka Japan; Electrotechnical Laboratory, Ibaragi Japan; Hamamatsu University School of Medicine, Shizuoka Japan; Mecial Vision Lab, Osaka Japan; Toyohashi Sozo College, Toyohashi, Japan and Kyoto University Hospital, Kyoto, Japan.

- 808. Segmentation of Brain Tumor Boundaries using Pattern Recognition of Magnetic Resonance Spectroscopy**
Donald J. Peck 1,3 , David O. Hearshen, Lisa Scarpace, Hamid Soltanian-Zadeh and Tom Mikkelsen.
Henry Ford Hospital, Detroit, MI.
- 809. Comparison of Quadratic and Linear Discriminate Analyses in the Self-Adaptive Feature Vector Quantization Scheme for MR Image Segmentation.**
Lihong Li, dongqing chen, hongbing lu and Zhengrong Liang.
State University of New York at Stony Brook, Stony Brook, NY, USA.
- 810. An Automated Registration Algorithm for Measuring Relative Rotation of Vertebrae in Spinal MR Images**
B. Rogers, V. Haughton and M. Meyerand.
University of Wisconsin-Madison, Madison, WI, USA.
- 811. Intra-Subject Slice-to-Volume Registration of MR Images.**
Tae-Seong Kim, Sunghoon Kim, Nilesh Ghugre, Jeong Won Jeong and Manbir Singh.
University of Southern California, Los Angeles, CA, USA.
- 812. Evaluation of Brain Atrophy Measurements from Multiple Scanners.**
Elizabeth Fisher, Karla Dixon, Daniel Finelli, Jean Tkach and Frank Difilippo.
Cleveland Clinic Foundation, Cleveland, OH USA.
- 813. Volume measurements of the caudate nucleus using high-resolution 3D magnetic resonance imaging.**
K. Gurleyik, Y. XU, E. M. Haacke.
Washington University, Brentwood, MO, USA and St. Louis, MO, USA.
- 814. Registration of Postmortem Brain Slices to Matching MR Slices within 3D Reference MRI.**
Tae-Seong Kim, Manbir Singh, Nilesh Ghugre, Sunghoon Kim, Chris Zarow and Helena Chui,
University of Southern California, LA, CA USA.
- 815. Estimation of Multiple Sclerosis Lesions' 3-D Geometry by Spherical Harmonics.**
Daniel Goldberg-Zimring, Anat Achiron, Shmuel Miron, Haim Azhari
Technion- Israel Institute of Technology, Technion City, Haifa, Israel; Multiple Sclerosis Center, Sheba Medical Center, Tel Hashomer, Israel.
- 816. Brain Volumes From 3D Volumetric MRI Images**
Charles Dennis Smith, Anders Andersen
University of Kentucky, Lexington, KY.
- 817. Reduction of the brain tissue volume in Alzheimer Disease. Clinical study vs Quantitative Measurements**
Krzysztof Szybinski, Andrzej Urbanik, Rafal Motyl, Andrzej Szczudlik, Justyna Kozub, Barbara Sobiecka, Andrzej Jasinski
H. Niewodniczanski Institute of Nuclear Physics, and Jagiellonian University, Krakow, Poland.
- 818. Building Whole Brain Maps of Atrophy Rate from Multi-Subject Longitudinal Studies Using Free Form Deformations.**
Colin Studholme, Valerie A Cardenas-Nicolson and Michael Weiner.
University of California, San Francisco, San Francisco, CA, USA.

- 819. Quantification of Spinal Cord Atrophy via an Active Surface Model**
Olivier Coulon, Geoffrey J.M. Parker, Simon J. Hickman and Simon R. Arridge.
University College London, London, England, UK.
- 820. Validation of Anisotropic Filtering for Myelin Water Maps.**
C. Jones, K. Whittall and A. MacKay.
University of British Columbia, Vancouver, BC, Canada and Non Given, Vancouver, BC, Canada.
- 821. An Alternative Approach to Visualizing m-Dimensional MRI Data**
Sean Deoni, Brian K. Rutt and Terry M. Peters
The John P. Robarts Research Institute, London, Ontario, Canada
- 822. Definition of the Neurochemical Patterns of Human Head Injury in 1 H MRS Using Wavelet Analysis**
Frederick Shic, Alexander Lin, C Hunter Shelden, Nick PanagiotaCopulos, Brian Ross.
Huntington Medical Research Institutes, Pasadena, CA US and California State University, Long Beach, CA USA
- 823. Hippocampal sclerosis in mesial temporal lobe epilepsy characterised by MRI-texture analysis; Clinical Interest**
Olivier Yu, Yves Mauss, Izzie Namer, Jacques Chambron
Université Louis Pasteur de Strasbourg, Faculté de Médecine, Strasbourg, France.

Image Processing: Cardiac and Vascular

- 824. An Automatic Method to Measure Vessel Wall Thickness Based on Black Blood MRI**
Xiaojian Kang, Dongxiang Xu, Chun Yuan
University of California at Davis, Martinez, CA USA.
University of Washington, Seattle, Washington USA.
- 825. Automatic Perfusion Analysis Tool from Contrast Enhanced Cardiac MRI**
Maria Filomena Santarelli, Vincenzo Positano, Franco Gianvanni, Luigi Landini, Massimo Lombardi, Antonio L'Abbate, Antonio Benassi
Institute of Clinical Physiology, Pisa, Italy
- 826. Fast LV Segmentation in Single Slices.**
K. Nayak, S.-I. Urayama, C. Meyer.
Stanford University, Stanford, CA, USA and National Cardiocascular Center, Osaka, Japan.
- 827. Automated Segmentation of Cardiac Magnetic Resonance Images**
M. B. Stegmann, J. C. Nilsson and B. A. Grønning.
Technical University of Denmark, Hvidovre, Denmark;
- 828. Mapping left ventricle wall motion and strain from MR tagging images. Application on left bundle branch block patients.**
Annette Van der Toorn, Gabriel Snoep, Petra Van Pol, Frits W. Prinzen and Theo Arts,
CARIM, Maastricht University, Maastricht, Netherlands.
- 829. Synthetic Tagged MR Images For Real-time HARP Imaging**
Nael F Osman, Smita Sampath, J. Andrew Derbyshire, Ergin Atalar and Jerry Ladd Prince .
Johns Hopkins University, School of Medicine, Baltimore, Maryland USA.

- 830. Automatic, Accurate, Real-time Processing of SPAMM-tagged Myocardium Images**
Cyril Allouche
LEP-Medical Imaging Systems Group-Philips Research France, Limeil-Brevannes, France.
- 831. Computation and Visualization of 3D Tag Intersections fro a 4D B-Spline Model of Tagged MRI**
J. Huang and A. A. Amini.
Washington University, St. Louis, MO, USA.
- 832. A Novel Segmentation Technique For Quantitative Evaluation of Atherosclerotic Plaque Tissues Using MR Images with Multiple Contrast Weighting**
Dong xiang XU
4200 Mary Gates Mem Dr. NE, Seattle, WA, USA.
- 833. Quantitative tissue characterization of atherosclerotic plaques by Magnetic Resonance: comparison between ex vivo and histological findings**
Maria Filomena Santarelli, Alessandro Pingitore, Mirko Cosottini, Vincenzo Positano, Angelo Bonadio, Luigi Landini, Massimo Lombardi, Antonio L'Abbate, Antonio Benassi.
Institute of Clinical Physiology, Pisa, Italy.
- 834. Detecting Objects In MR Image Sequences Based On Minimal Path Active Contour Model**
Chao Han, Williams S Kerwin, Thomas S. Hatsukami, Jeng Neng Hwang, Chun Yuan.
University of Washington, Seattle, Washington USA.
- 835. Automated Analysis of Cine Phase Contrast Velocity Images using Score Guided Erosion**
Martin J Graves, Mark P Brewin, Andrew N Priest and Richard A R Coulden.
University of Cambridge, Addenbrooke's Hospital, Cambridge, England, UK.
- 836. A New Automatic Method for Producing Venograms From Pre and Post Gadolinium Enhanced 3D Data**
David Brennan, Barrie Condon, Donald Hadley
Institute of Neurological Sciences, Southern General Hospital, Glasgow, Scotland, UK.

Image Processing: Body

- 837. 3D Finite Element Model for Breast MRI Non-rigid Registration.**
A. Samani, J. Bishop and D. Plewes.
University of Toronto, Toronto, ON, Canada.
- 838. 3-D Topographic Characterization of Breast Lesions based on Contrast Enhanced MR Images**
Meiyappan Solaiyappan, Karen H. Shahar, David A. Bluemke
Johns Hopkins University, School of Medicine, Baltimore, MD USA.
- 839. An Artificial Neural Network for the Segmentation of Dynamic MR Mammographic Image Series**
Robert E.A. Lucht, Stefan Delorme, Gunnar Brix
Bundesamt fuer Strahlenschutz, Oberschleissheim, Germany.
- 840. Automated Nasopharyngeal Carcinoma Detection with Pharmacokinetic Dynamic Gadolinium-Enhanced MR Imaging**
Ping H. LAI, Cheng C Hsu, Chung N Lee, Wei L Chen, Huay B Pan, Chien F Yang
Veterans General Hospital-Kaohsiung, Taiwan.

- 841. Validation of a Registration Algorithm for Serial 3D MR Data Sets**
Jürgen R. Reichenbach, Jens Hopfe, Matthias E. Bellemann, Werner A. Kaiser
Institut für Diagnostische und Interventionelle Radiologie, Jena, Germany.
- 842. Border and Texture Descriptors for Breast MRI Lesions**
R. Sivaramakrishna, N. Obuchowski, S. A. Englander, M. Schnall
Cleveland Clinic Foundation, Lerner Research Institute, Cleveland, OH USA and University of Pennsylvania, Philadelphia, PA USA.
- 843. Modeling Liver Motion and Deformation During the Respiratory Cycle Using Intensity-Based Free-Form Registration of Gated MR Images**
Torsten Rohlfing, Walter O'Dell, Calvin Rmaurer Jr, Jianhui Zhong.
University of Rochester, Rochester, NY USA.
- 844. A Fast Method for Estimating Voxel Bone Volume Fractions from In Vivo High-Resolution MR Images**
Scott Nyshin Hwang, Felix W. Wehrli.
University of Pennsylvania Medical Center, Philadelphia, PA USA.
- 845. Integrated Processing System for In Vivo MR Images of Trabecular Bone Networks.**
B. Gomberg, P. Saha, S. N. Hwang, H. K. Song and F. Wehrli.
University of Pennsylvania, Philadelphia, PA, USA.
- 846. A numerical model for the quantitation of high-resolution skin images at 2.0 T with application to the effects of hydration**
Karen Gannon, Matthew Clemence, Ian Robert Summers, Nigel Davies, Gill Miller,
University of Exeter, Exeter, Devon, UK.
- 847. In-Vivo Measurement of Changes in Cartilage Lesions from MRI of the Knee using Image Registration and Semi-Automated Image Analysis.**
John A Lynch, Souhil Zaim, Jenny Zhao, Charles G Peterfy, Harry K Genant.
University of California at San Francisco, San Francisco, CA USA.
- 848. Quantification of Bone Lesion Changes in Rheumatoid Arthritis by Temporal Multispectral Analysis**
Richard A. D. Carano, John A. Lynch, Yves Miaux, Souhil Zaim, Harry K. G.
Synarc Inc., and University of California, San Francisco, CA USA.
- 849. Segmentation of muscle and fat compartments from MR images using a fuzzy clustering algorithm**
Vincent Barra, boire Jean-Yves
ERIM - Faculty of Medicine, Place Henri Dunant, Clermont Ferrand, France;

Contrast Mechanisms

- 850. Enhanced sensitivity to molecular diffusion with intermolecular multiple-quantum coherences (iMQCs) and its potential applications**
Jianhui Zhong, Wing-chi Edmund Kwok, Zhong Chen, Scott Kennedy.
University of Rochester, School of Medicine and Dentistry, Rochester, NY.

- 851. Quantitative investigation of optimized RF flip angles for different intermolecular multiple-quantum coherences**
Zhiwei Chen, Shaokuan Zheng, Zhong Chen, Jianhui Zhong
NMR Laboratory, Xiamen University, Xiamen University, Xiamen, Fujian P.R.China and University of Rochester, School of Medicine, Rochester, New York USA.
- 852. Quantitation of transverse relaxation time of intermolecular multiple-quantum coherences.**
Z. Chen, S. Zheng, Z. Chen and J. Zhong.
University of Rochester, Rochester, NY, USA and Xiamen University, Xiamen, Fujian China.
- 853. SNR Potential of Intermolecular Double-Quantum Coherence Imaging at High Magnetic Fields**
Edward J. Auerbach, Jianhui Zhong, Edmund Kwok, Xiaoping Hu
University of Minnesota, Minneapolis, MN USA and University of Rochester and Rochester, NY USA.
- 854. Effects of Proton Exchange and Cross-Relaxation on the On-Resonance T1 Relaxation in the Protein Phantoms: Search for the Mechanism of T1 Contrast in Tissue.**
H. Mäkelä, O. Gröhn, M. Kettunen and R. Kauppinen.
University of Kuopio, Kuopio, Finland.
- 855. Vascular Imaging Using T1rho Weighting and Spin-Lock Labeling**
Haim Azhari, Charles A McKenzie, Robert R. Edelman
Technion-Israel Institute of Technology, Technion City, Haifa Israel and Harvard Medical School, Boston, MA.
- 856. Examination of Susceptibility Effects by Spin-Locking Technique**
Petros Martirosian, Michael Deimling, Axel Haase.
University of Tübingen, Tübingen, Germany; Siemens Medical Systems, Erlangen, Germany and Institute of Physics, Würzburg, Germany.
- 857. True Carr-Purcell Imaging for High Resolution and Novel Contrast**
Robert Bartha, Shalom Michaeli, Hellmut Merkle, Gregor Adriany, Peter Andersen, Wei Chen, Kamil Ugurbil, Michael Garwood.
The University of Minnesota, Minneapolis, MN USA.
- 858. Protein Mediated MT of Small Molecules.**
S. D. Swanson.
University of Michigan, Ann Arbor, MI, USA.
- 859. Serial Investigation of Magnetization Transfer in New Multiple Sclerosis Lesions.**
C. Laule, I. Vavasour, A. MacKay, K. Whittall, D. K. B. Li and D. W. Paty.
University of British Columbia, Vancouver, BC, Canada.
- 860. Histogram Analysis of Magnetization Transfer Measurements Reveals Calf-Muscle Abnormalities in Venous Leg Ulcer Patients**
Nigel Davies, Alan Bainbridge, Matthew Clemence, William Vennart.
University of Exeter, Physics Department, Exeter, United Kingdom; and Pfizer Central Research, Sandwich, UK.
- 861. Rapid Quantitation of Magnetisation Transfer Using Echo Planar Imaging**
Damian Tyler and Penny Gowland
University of Nottingham, Nottingham, England, UK

- 862. SIR-PGSE: a two-dimensional MT-diffusion pulse sequence**
Daniel F. Gochberg and John C. Gore
Yale University, New Haven, CT, USA.
- 863. Impact of Tensile Load on Rabbit Achilles Tendon Characterized by MRI Spatial Differential of T_1 , T_2 and ADC Parameters.**
J. Wellen, K. Helmer, P. Grigg, and C. Sotak.
Worcester Polytechnic Institute, University of Massachusetts Medical School, Worcester, MA, USA.
- 864. Multi-Inversion Technique For Robust T1 Suppression in Conjunction with Blood-Labeled Inflow**
Puneet Sharma, W. Thomas Dixon, John Oshinski
Georgia Institute of Technology, Atlanta, Georgia USA.
- 865. Magnetization driven preparation scheme for selective enhancement of short T1 species suitable for fast imaging of contrast enhanced tissue.**
Yun Gao, Erbil Akbudak, Nikolaos V. Tsekos.
Mallinckrodt Institute of Radiology, Washington University, St. Louis, MO USA.
- 866. A Quantative Model for Brain Iron Imaging Using R2.**
J. Wild, W. R. Wayne Martin, and P. Allen.
University of Alberta, Sheffield, England and Edmonton, Alberta, Canada.
- 867. Analysis of Echoes in Missing Pulse Steady State Free Precession by Phase Encoding Separation**
Ken-Pin Hwang, Jeffrey L. Duerk.
Case Western Reserve University /University Hospitals of Cleveland, Cleveland, OH USA.
- 868. Water $T_{1\rho}$ Dispersion is Influenced by Amide Protons at Physiological pH.**
A. Goldberg, U. Duvvuri, L. Hoang, S. W. Englander, F. Wehrli, R. Reddy, and J. S. Leigh.
University of Pennsylvania, Philadelphia, PA, USA.

New Contrast Agents and Applications

- 869. Development of a New MRI Contrast Agent for the Targeting of the Endothelial Leukocyte Adhesion Molecule ELAM-1.**
J.-M. Colet, S. Laurent, Y. Fu, and R. Muller.
University of Mons-Hainaut, Mons, Belgium.
- 870. Paramagnetic PLGA Microspheres for the Monitoring of Drug Delivery with MRI**
Anthony Z. Faranesh, Cristina Perez de la Cruz, Michael F. Haller, Kam W. Leong, Elliot R. McVeigh.
The Johns Hopkins University, School of Medicine, Baltimore, Maryland, USA and National Institutes of Health, Bethesda, Maryland, USA.
- 871. Detection of Cationic-Polymer-Based Gene Delivery Systems Without Paramagnetic Metals.**
N. Goffeney, J. Bulte, J. Duyn, L.H. Bryant, Jr., and P. C. Van Zijl.
Johns Hopkins University School of Medicine and Johns Hopkins Hospital, Baltimore, MD, USA and National Institutes of Health, Bethesda, MD, USA.
- 872. USPIO-Enhanced Dynamic MRI: Evaluation of Normal and Transplanted Rat Kidneys.**
D. Yang, Q. YE, T. Hu, M. Williams, D. Williams and C. Hoo.
Carnegie Mellon University, Pittsburgh, PA, USA.

- 873. Detection and Grading of Acute Transplant Rejection with Magnetic Resonance Imaging using a Blood Pool Contrast Agent in the Rat**
Eva Penno, Lars Johansson, Atle Bjornerud, Cecilia Johnsson, Hakan Ahlstrom .
Uppsala University Hospital, Dept of Radiology, Uppsala, Sweden
- 874. Contrast-Enhanced High Resolution MRI of atherosclerotic plaque in Watanabe rabbits**
Linda Chaabane, Philippe Douek, Francis Contard, Claire Corot 4 ,Daniel Guerrier, André Briguet and Emmanuelle Canet
Lab RMN,CNRS UMR 5012, Bât.308 -Univ.Lyon 1, Villeurbanne, France and Laboratoire Guerbet, Paris, France.
- 875. Influence of Tangential Plasma Flow on Fibrinolysis of Non-occlusive Thrombi: Study by MR Microscopy**
Igor Sersa, Mitja Strukelj, Ales Blinc
Jozef Stefan Institute, Ljubljana, Slovenia and University of Ljubljana Medical Center, Ljubljana, Slovenia.
- 876. T1-weighted Dynamic MRI for Blood Volume Quantification in Rat Liver Tumors Using Sinerem and Resovist**
Christiane Poeckler-Schoeniger, Julian Koepke, Olaf Gunnar Schueler, Wolfgang Guenther Schreiber, Peter Bannasch, Christoph Dueber.
Klinikum Mannheim g GmbH, Mannheim,Germany; University of Heidelberg, Munich, Bavaria Germany; Johannes Gutenberg-University, Mainz, Germany and German Cancer Research Center Heidelberg, Heidelberg, Germany.
- 877. High Field Transverse Relaxivity of Dy-complexes: An Example of Limited Transverse Relaxivity by the Water Exchange Rate.**
L. L. Vender Elst, S. Zhang, A. Sherry and R. Muller.
University of Mons-Hainaut, Mons, Hainaut Belgium and University of Texas, Dallas TX, USA.
- 878. The Use of Starburst Dendrimers as pH Contrast Agents.**
P. C. Van Zijl, N. Goffeney, J. Duyn, L. H. Bryant, Jr., and J. Bulte.
Johns Hopkins University, Baltimore, MD, USA and National Institutes of Health, Bethesda, MD, USA.
- 879. Tissue Distribution of ¹⁵³Gd-Labeled Gadoversetamide in Mice.**
P. Wedeking, S. Eaton, K.E. Linder, J. Johnstone, M.F. Tweedle.
BRACCO Research, Princeton, NJ, USA.
- 880. Quantitative Analysis of SPIO and USPIO Uptake Rate by Macrophages: Effects of Particle Size, Concentration, and Labeling Time**
Xiaowei Zhang, Chris V.Bowen, Paula Gareau, Brian K. Rutt.
Imaging Research Labs, The John P. Robarts Research Institute, London, Ontario Canada.
- 881. Synthesis and Relaxometric Analysis of P760, a new macromolecular contrast agent with high relaxivity and particular pharmacokinetic properties.**
Marc Port, Isabelle Raynal, LuceL.Vanderelst, Olivier Rousseaux, Christian Simonot, Alexandra Metois, Robert Muller.
GUERBET, BP 50400, Roissy CdG, France France and University of Mons-Hainaut, Mons, Belgium.
- 882. Synthesis, Kinetic Stability, Relaxometry and X-ray Crystal Structures of Cu(II), Mn(II), and Gd(III) 18-Membered Hexaazamacrocyclic Complexes as Potential MR Contrast Agents**
L. Henry Bryant, Jr.1 , E.Dadachova, Martin W.Brechbiel and Joseph Frank.
Laboratory of Diagnostic Radiology Research Bethesda, MD USA.

- 883. Synthesis, Thermodynamic, Water-exchange, Electronic Relaxation and Relaxivity Studies for the Complexation of Gd³⁺ by TTDA, TTDA-PY, TTDA-HP, TTDA-H1P and TTDA-H2P as Contrast Agents for MRI**
Yun-Ming Wang, Tsann Hwang Cheng Stude, Gin Chung Liu, Reu Sheng Sheu, Twei Shiun Jaw
University, Kaohsiung, Taiwan, R.O.C.
- 884. Novel intravascular macromolecular MR contrast agents with generation-4 polyamidoamine dendrimer core: Accelerated renal excretion of with co-injection of lysine**
Noriko Sato, Hisataka Kobayashi, Satomi Kawamoto, Tsuneo Saga, Akira Hiraga and Takayoshi Ishimori, Kaori Togashi, Junji Konishi, Martin W Brechbiel.
Kyoto Univ.Grad.School of Med.,Kyoto Japan; Otsu Municipal Hosp., Otsu, Shiga Japan and NCI, NIH, Radioimmune & Inorganic Chemistry Section, Bethesda, MD, USA.
- 885. Positive effects of polyethylene glycol conjugation to generation-4 polyamidoamine dendrimers employed as macromolecular MR contrast agents**
Hisataka Kobayashi, Satomi Kawamoto, Tsuneo Saga, Noriko Sato, Akira Hiraga, Takayoshi Ishimori, Tabassum Laz Haque, Junji Konishi, Kaori Togashi, Martin W. Brechbiel.
Kyoto University, Kyoto, Japan; Otsu Municipal Hospital, Shiga Japan and NCI, NIH, Bethesda, MD USA.
- 886. Enumeration of Diamagnetic and Paramagnetic Liposomes by Multinuclear NMR and Photon Correlation Spectroscopy.**
L. L. Vander Elst, C. Pirart, S. Fossheim, J.C. Raux, A. Roch, R. Muller.
Univeristy of Mons-Hainaut, Mons, Belgium and School of Pharmacy, Oslo, Norway.
- 887. Comparison of Vascular Permeability Between Ischemic Tissue and Tissue Over Expressing VEGF Using High Relaxivity Polymerized Vesicles as MR Contrast Agents.**
S. Guccione, Y.-S. Yang, M. L. Springer, H. M. Blau, K.C. Lill, and M. Bednarski.
Stanford University, Stanford, CA, USA.
- 888. Safety assessment of gadobenate dimeglumine (MultiHance®): extended clinical experience from phase II studies to post-marketing surveillance**
Miles Andrew Kirchin, Pirovano Gianpaolo.
Medical & Regulatory Affairs, Milan, Italy and Bracco Diagnostics Inc., Princeton, NJ USA.
- 889. Approval Status of MR Contrast Media World-Wide**
Val M. Runge, Michael V. Knopp
University of Kentucky, Lexington, KY, USA and The German Cancer Research Center (DKFZ), Heidelberg, Germany.

Relaxometry and Applications

- 890. Measurements of the relaxivity of gadolinium chelates in tissues in vivo**
Dilin Xie, Richard P Kennan, John C.Gore
Medical Science Research Institute of Fujian Province, Peoples Republic of China and Yale University School of Medicine, New Haven, Connecticut USA.
- 891. Theory of MR Relaxation Caused by Mesoscopic Impurities: a Possibility to Monitor the Red Blood Cell Shape**
V.G. Kiselev and D.S. Novikov.
Freiburg University Hospital, Freiburg, Germany and Massachusetts Institute of Technology, Cambridge, MA, USA.

- 892. T₂ Relaxation of Muscle In Vivo After Saline Injection**
G. Gambarota, B.E Cairns, C.B. Berde and R.V. Mulkern.
Boston College, Boston, MA, USA.
- 893. MRI Based Observations of Osmotic Response Within In Vivo Muscle**
G. Gambarota, Brian E Cairns, Charles B. Berde, R.V. Mulkern.
Boston College, MA, USA.
- 894. The Effect of Glycogen Storage Diseases on Multi-Component T₂ Relaxation of In Vivo Skeletal Muscle**
C. Devine, G. Saab, P.A.Picot, T. Doherty, M. Tarnopolsky, R.T. Thompson
Lawson Health Research Institute, University of Western Ontario, London, Ontario Canada
and University Medical Centre, Hamilton, Ontario Canada.
- 895. Multi-component Transverse Relaxation of Nerve at 11.7 and 18.8 Tesla.**
K. Wachowicz, S. Gagne, R. E. Snyder, B. D. Sykes, and C. Beaulieu.
University of Alberta, Edmonton, Alberta, Canada.
- 896. Shortening the Acquisition Time of a 48 Echo T₂ Relaxation Pulse Sequence by Varying TR Across K-Space.**
C. Laule, K. Whittall, and A. Mackay.
University of British Columbia, Vancouver, BC, Canada.
- 897. Fast Multi-Slice T1 Mapping Using Multiple Echoes**
Maxim Zaitsev, Sven Steinhoff, Karl Zilles and N. Jon Shah.
Institute of Medicine, Jülich, Germany.
- 898. Rapid 3D T1 Mapping**
Paul S. Morgan, Alan R Moody, Chris R Tench, Lalitha Vaithianathar.
University of Nottingham, Academic Radiology, University Hospital, Nottingham, England.
- 899. Increasing the Repetition Time TR Does Not Necessarily Improve the Precision of Inversion-Recovery T1 Measurements**
Peter B. Kingsley and W.Gordon Monahan.
North Shore University Hospital, Manhasset, NY, USA and New York University School of Medicine,
New York, NY, USA.
- 900. A Novel Method To Measure Emulsification**
L Marciiani, C Ramanathan, D Tyler, P Manoj, P Young, M Wickham, A Fillery-Travis
and R Spiller, P Gowland.
Nottingham University, Nottingham, UK.
- 901. Radiation dosimetry using MRI of normoxic polymer gels**
Peter M. Fong, Derek C.Keil, John C.Gore
Yale University, School of Medicine, New Haven,CT USA.
- 902. Verification of Stereotactic Radiosurgery Procedure with the Use of 3D Polymer Gel Dosimeter Evaluated by NMR**
Josef Novotny Jr., Josef Vymazal, Pavel Dvorak, Vaclav Spevacek, Jaroslav Tintera, Josef Novotny
and Tomas Cechak.
Hospital Na Homolce, Prague; Technical University of Prague, Czech Republic and University of Mainz,
Mainz, Germany.

- 903. MRI and MRS of Radiation Distributions using a Polymer-Gel Dosimeter**
Gary Paul Liney, David John Manton, James Hutton, Andy Beavis and Lindsay W Turnbull.
University of Hull, Hull, England.

Other MRI Sequences

- 904. Effect of Variable Echo Spacing in Multi-Echo Sequences for Resolving Long T2 Components in Multiple Sclerosis p.**
M. Skinner, K. Whittall, and A. MacKay.
University of British Columbia, Vancouver, BC, Canada.
- 905. Detection of Tissue Oxygen Changes using Interleaved T2 and T2* Non-CPMG SSFSE Imaging.**
P. Calier, A. Darquie, V. Lebon, A. Andrade, R. J. Gilles, and P. Le roux.
None Given, Sur-Sambre, Belgium, CEA-SHFJ, Orsay, France, Yale University, New Haven CN, USA and GE Medical Systems, Buc, Buc, France.
- 906. Mixed-Bandwidth Acquisitions: SNR and Noise Texture.**
P. Jakob, R.L. Ffler, C. Hillenbrand, A. Haase and P. Kreisler
University of Wurzburg, Wurzburg, Germany, Siemens Medical Systems, MRIA Seq, Erlangen, Germany, Am Hubland, Wurzburg, Germany, Siemens Medical Engineering Group, Erlangen, Erlangen, Germany.
- 907. Multiple Spin Echoes as a tool to probe microstructures: Application on phantoms**
Francesco Maria Alessandri, Silvia Capuani, Bruno Maraviglia, Angelo Bifone
Istituto Nazionale Fisica della Materia (INFM)UdR Roma1, Rome, Italy and CRC Clinical Magnetic Resonance Research Group, The Institute of Cancer Research, Surrey UK;
- 908. Choosing the Best Arterial Spin Labeling Perfusion Sequence: FAIR vs. FAIRER vs. EST**
Sheila D Keilholz-George, Stuart Scott Berr
University of Virginia, Charlottesville,VA, USA.
- 909. A New Method for Obtaining Quantitative ASL Perfusion Maps: A Comparison with the FAIR Method**
Sheila D Keilholz-George, Stuart Scott Berr.
University of Virginia, Charlottesville, VA, USA.
- 910. A Theoretical Analysis of the Effect of Imperfect Slice Profiles on Tagging Schemes for Pulsed Arterial Spin Labeling MRI**
Sheila Dawn Keilholz-George, Jack Knight-Scott, Stuart Scott Berr
University of Virginia, Charlottesville,VA, USA.
- 911. Spin-oscillatory coupling effect in parabolic magnetic field. Diagnostic aspects**
Lewa Czeslaw, Ryszard Horodecki, Pawel Horodecki, M.Horodecki.
University of Gdansk, Gdansk, Poland.
- 912. Co-evolution of MR Pulse Sequence Elements by Genetic Programming**
H.F. Gray and R.J. Maxwell
City University, London,UK;
Mount Vernon Hospital, Middlesex England, UK;
- 913. Frequency Selective RF Pulses for Multi-Slice MRI with Modest Immunity to B1 Inhomogeneity.**
G. Matson
University of California, San Francisco, CA, USA.

- 914. Pulse Sequence for Elimination of RF Receiver Coil Ring Down**
Mirko I. Hrovat and Samuel Patz.
Mirtech, Inc., Brockton, MA USA and Harvard Medical School, Boston, MA.
- 915. Spectral Spatial RF Pulses for 3.0T: Increased Slice Offsets with a Normal/Coarse Mode**
C. Lin, M. Bernstein, J. Huston, N. Hattes
Mayo Clinic, Rochester, MN USA and GE Medical Systems, Milwaukee, WI, USA.
- 916. Application of spectro-spatial pulses for contrast in cartilage imaging**
Srinka Ghosh, Sharmila Majumdar
BioEngineering Graduate Group, UC San Francisco—UC Berkeley, 1 Irving Street AC 109, San Francisco, CA USA.
- 917. Fat Suppression at 0.2T: Selecting the Best Approach**
C. Flask, B. Dale, D. Purdy, J. L.Duerk, J. Lewin
Case Western Reserve University /University Hospitals of Cleveland, Cleveland, OH, USA
and Siemens Medical Systems, Iselin, NJ USA.
- 918. Optimized RF Pulse with both effects of Magnetization Transfer and Fat Suppression**
A. Ishikawa and N. Iijima
Shimadzu Corporation, Medical Systems Division, Kyoto, Japan
- 919. Impedance Magnetic Resonance Imaging with an External AC Magnetic Field Added to the Main Static Field**
Masaki Sekino, Yasuhiro Yukawa, Norio Iriguchi and Shoogo Ueno
University of Tokyo, Bunkyo-ku, Tokyo, Japan
- 920. T1 Reduction by Applying a Small Amount of Electrical Currents**
Masaki Sekino, Kikuo Yamaguchi, Norio Iriguchi and Shoogo Ueno
University of Tokyo, Bunkyo-ku, Tokyo, Japan
- 921. The Forward Problem of EEG Source Localization using Current Density Imaging**
Leili Torab and Michael Joy
University of Toronto, Toronto, Canada
- 922. Intermolecular Double-Quantum Coherence Imaging of Brain Tumours at 1.5 T**
G. D C.-Edwards, G.S Payne, M. O Leach, A. Bifone
CRC Clinical Magnetic Resonance Research Group, The Institute of Cancer Research and The Royal Marsden NHS Trust, Sutton, Surrey UK.
- 923. Magnetic Field Inhomogeneity Effects on Intermolecular Multiple Quantum Coherences**
R. Bowtell, S. Gutteridge and C. Ramanathan
University of Nottingham, Nottingham, England, UK

Microscopy and ESR

- 924. MR microimaging of silicon artificial microstructure at 14.1 T**
Seung-Cheol Lee, Kiseong Kim, Junghyun Kim, Soonchil Lee, Jeong Han Yi, Chaejoon Cheong
Korea Advanced Institute of Science and Technology,
Kusong-dong, Yusong-gu, Taejon, Korea;

- 925. MR-microscopy at 35 μm on a whole body MR-system: quality control by modulation transfer function and applications**
A. Berg, H. Wanzenboeck, T. Hesjedal and E. Moser.
University of Vienna, Vienna, Austria and Stanford University, CA USA.
- 926. Morphologic Phenotyping of a Uricase Knockout using MR Microscopy of Fixed/Stained Whole Specimens**
L.W. Hedlund, B. Fubara, G.P.Cofer, S.J.Kelly, S.L.Gewalt, M.S.Hershfield, G. A. Johnson
Duke University, Center for In Vivo Microscopy, Durham, NC, USA
- 927. Visualization of Individual Axons in Larval Lamprey Spinal Cord by MR Microscopy.**
A.C. Wright, S. L. Wehrli, M. Takahashi, G. Zhang, S. Hackney, M. E. Selzer, and F. Wehrli.
Univeristy of Pennsylvania Medical Center, Philadelphia, PA, USA, and Children's Hospital of Philadelphia, Philadelphia, PA, USA.
- 928. In vivo high-resolution MRI of the finger bone at 7 T**
Genevieve Guillot, David Last, Luc Darrasse, Michael Szimtenings, Titus Lanz, Axel Haase
U2R2M (CNRS ESA 8081), UPS Bât. 220, Orsay, France and
Physikalisches Institut, Universität Würzburg, Am Hubland, Würzburg, Germany;
- 929. MRI, a new method for morphological insect classification**
Stefan Wecker, Thomas Hörschemeyer, Mathias Hoehn
Max-Planck-Institut for Neurological Research, Köln, Germany and University of Göttingen, Göttingen, Germany;
- 930. Image-based EKG gating for 4D-velocity microscopy in embryonic models.**
J.C. Wood, J.M. Tyszka, R.E. Jacobs
Childrens Hospital of Los Angeles, University of Southern California, Los Angeles, CA USA and
California Institute of Technology, Pasadena, CA USA
- 931. Water and Lipid MR Imaging of the Xenopus Oocyte**
Jonathan V. Sehy, Joseph J.H. Ackerman PhD, Jeffrey J. Neil.
Washington University, St. Louis, MO USA
- 932. Electron Paramagnetic Resonance Measurement and Imaging of the Effects of Topical Antioxidants on Nitroxide Free Radical Penetration, Metabolism and Distribution in Human Skin**
G. He, A. Samouilov, M.M. Fallouh, P. Kuppusamy, J. L. Zweier
Johns Hopkins University, School of Medicine, Baltimore, MD, USA.
- 933. Coating of oxygen sensitive paramagnetic particles for EPR oximetry**
J. He, N. Beghein, B. Gallez
Université catholique de Louvain, Laboratory of Biomedical Magnetic Resonance, Brussels, Belgium;
- 934. Mapping Tissue Perfusion, Ischemic Risk Region and Redox State in the Rat Heart Using EPR Imaging**
Murugesan Velayutham, Haiquan Li, Periannan Kuppusamy, Jay L. Zweier
Johns Hopkins University, School of Medicine, Baltimore, MD, USA.
- 935. Measurement of Longitudinal Relaxation Times of Free Radicals by Low Field Pulsed Dynamic Nuclear Polarization.**
Marcello Alecci, David J. Lurie, Antonello Sotgiu.
Istituto Nazionale Fisica della Materia, Universita' dell'Aquila, Coppito, L'Aquila, Italy and University of Aberdeen, Aberdeen, Scotland.

- 936. In vivo stable spin probes for EPR and DNP Imaging.**
Thierry Guiberteau, Lucien Marx, Robert Chiarelli, Daniel Grucker, André Rassat
Institut de Physique Biologique, UPRESA 7004 CNRS—Université Louis Pasteur, Strasbourg, France
and Ecole Normale Supérieure, Paris, France;
- 937. Comparative Sensitivity of a pH-sensitive Spin Probe in Natural and Isotopically-Substituted States**
M.A. Foster, I.A. Grigor'ev, J.M.S. Hutchison, V.V. Khramtsov, D.J.Lurie, I. Nicholson
University of Aberdeen, Foresterhill, Aberdeen, Scotland, UK and Institute of Organic Chemistry,
Novosibirsk, Novosibirsk, Russia.
- 938. Application of PEDRI to Measure the In vivo Distribution and Clearance of a Triaryl Methyl Radical in Mice**
Jay L. Zweier, Haihong Li, Yuanmu Deng, Periannan Kuppusamy, D. J.Lurie
Johns Hopkins University, School of Medicine, Baltimore, MD USA and University of Aberdeen,
Biomedical Physics, Aberdeen, Scotland, UK.
- 939. A Dual-Purpose 20 mT Pedri and 0.38 T MR Imager based on a Resistive-Magnet Clinical MRI System.**
J.L. Zweier, H. Li, Y. Deng, P. Kuppusamy, D.J. Lurie
Biomedical Physics, Aberdeen, Scotland, UK.
- 940. Rapid Imaging of Free Radicals In Vivo using Hybrid Fast Field Cycled PEDRI**
Wiwat Youngdee, David J. Lurie, Margaret A. Foster
University of Aberdeen, Dept. of Bio-Medical Physics, Foresterhill, Aberdeen, Scotland, UK;
- 941. T1e *and T2e * Maps Derived from Longitudinally Detected Electron Paramagnetic Resonance Phase Imaging with Application in Oxygen Mapping**
I. Panagiotelis, I. Nicholson, J.M.S. Hutchison, M.A.Foster
University of Aberdeen, Aberdeen, Scotland, UK.

Hyperpolarized Gases and Non-proton MRI

- 942. Whole-Lung Hyperpolarized ³He Diffusion MR Imaging using Interleaved-Spiral Trajectories**
M. Salerno, J.R. Brookeman and J.P. Mugler III
University of Virginia, School of Medicine, Department of Radiology, Charlottesville, VA, USA.
- 943. High-Resolution Volumetric Imaging of the Lung Air Spaces using Hyperpolarized ³He and Spiral-Trajectory Pulse Sequences**
M. Salerno, J.R. Brookeman and J.P. Mugler III
University of Virginia, School of Medicine, Department of Radiology, Charlottesville, VA, USA.
- 944. Regional Lung Compliance by Hyperpolarized ³Helium Magnetic Resonance Imaging**
R. Rizi, J. E. Baumgardner, P. K. Saha, M. Aranda, A. Asaii, M. Frazer, D.A. Roberts, M. Schnall and J. Leigh, Jr.
University of Pennsylvania Medical Center, Philadelphia, PA, USA and MMRRCC, B1, Steller-Chance Labs, Philadelphia, PA, USA
- 945. 3D Hyperpolarized ³He MR Imaging of the Lung using an Interleaved-Cylindrical k-Space Trajectory**
Kai Ruppert, John P. Mugler III
University of Virginia, School of Medicine, Department of Radiology, Charlottesville, VA, USA.

- 946. Functional Nonspecificity of T1-Weighted MRI of Laser-Polarized Helium-3 Gas.**
D. Roberts, R. Rizi, D. A. Lipson, J. Hansen-Flaschen, A. Yammomoto, W. Gefter, J. Leigh and Mitchell Schnell.
University of Pennsylvania, Center, Philadelphia, PA, USA.
- 947. Low Field Lung Imaging Using Hyperpolarized 3 He**
C. McGloin, A. Benattayallah, R.W. Bowtell, S. FICHELE, A. Moody, P. Morgan, J. R. Owers-Bradley
University of Nottingham, Nottingham, England, UK.
- 948. ³He-MRI in lung transplant recipients: a comparison with CT**
Klaus Kurt Gast, Hans-Ulrich Kauczor, Magali Viallon, Klaus Markstaller, Balthasar Eberle, Jana Lill, E Mayer, Michael Ulrich Puderbach, Alexander Thomas Hanke, Holger Finkemeier, Wolfgang Schreiber, Manfred Thelen
Klinikum Johannes-Gutenberg-Universität, Mainz, Germany;
- 949. Positional Dependence of Small Inferior Ventilation Defects Seen on Hyperpolarized Helium-3 MR of the Lung**
Jaime Mata, Talissa Altes, John Christopher, John Mugler, James Brookeman, Eduard De Lange
University of Virginia, Charlottesville, VA USA
- 950. Time-Dependent Hyperpolarized 3 He Diffusion MR Imaging: Initial Experience in Healthy and Emphysematous Lungs**
Michael Salerno, James R. Brookeman, John P. Mugler III
University of Virginia, School of Medicine, Charlottesville, VA, USA.
- 951. Using dynamic hyperpolarized xenon MR to measure brain perfusion**
A.K Venkatesh, K.S Hong, L. Kubatina, Y. Sun, R. Mulkern, F.A. Jolesz , M.S. Albert.
Boston University, Boston, MA, USA
- 952. Rib Susceptibility Artifact on Gradient-Echo Helium-3MRI.**
D. A. Roberts, R. Rizi, D. Liopson, A. Yamomoto, A. Asaii, A. Hansen-Flaschen, W. Gefter, J. Leigh and M. Schnell.
University of Pennsylvania, Departments of Radiology and Pulmonary Medicine, MMRRCC, B1, Stellar-Chance Labs and Medical Center, Philadelphia, PA, USA.
- 953. Effects of Dilution and Oxygenation on T1 of Hyperpolarized 129 Xe in Perfluorocarbon Emulsions**
A. Cross, D. McPhee, G.E. Santy, R, J. Wallace, James J. Cheetham, G. Cron.
Carleton University, Ottawa, Ontario Canada.
- 954. Direct Observation of the Transport of 129 Xe from the Lung-Gas to the Tissue and the Blood**
A.K. Venkatesh, K.S. Hong, L. Kubatina, Y. Sun, R.V. Mulkern, F.A. Jolesz, M.S. Albert
Boston University, Boston, MA USA
- 955. New Method for Large Scale Production of Hyperpolarized Xenon**
Jeannette Carberry, Michael Briggs, Stephen Ketel, Elizabeth Negandhi, MarkB.Leuschner, Bill Hersman
University of New Hampshire, Department of Physics, Durham, NH USA.
- 956. Morphologic 19F-MRI of Perflubron in Pig Lung during Partial Liquid Ventilation**
Simone Laukemper-Ostendorf, Wolfgang Schreiber, Claus Peter Heussel, Alexander Scholz, Klaus Markstaller,
Balthasar Eberle, Norbert Weiler, Michael Quintel, Manfred Thelen, Hans-Ulrich Kauczor
Johannes Gutenberg-University, Mainz, Germany and University Hospitals Mannheim, Mannheim, Germany.

- 957. Sodium Imaging of the Brain at 4T Using a Short TE 3D Gradient Echo Acquisition.**
D. Clayton and R. Lenkinski.
University of Pennsylvania, Philadelphia, PA, USA and Harvard University, Boston, MA, USA.
- 958. Evidence of Apoptosis in a Region of Decreased ²³Na MR Signal after Acute Focal Cerebral Ischemia**
R. Bartha, M. Hogan, N. Rajakumar, S. Henderson, R.S Menon
The John P. Robarts Research Institute, London, ON Canada; Neuroscience Research Institute, University of Ottawa, Ottawa, ON Canada and University of Western Ontario, London, ON Canada.
- Basic Science Focus Session (with posters): GABA Measurements in Humans and Animals**
- 959. Topiramate increases human brain GABA within thirty minutes**
Ognen A.C. Petroff, Fahmeed Hyder, Richard H. Mattson, Douglas L. Rothman.
Yale University, New Haven, CT, USA.
- 960. A J-resolved, Two Dimensional MRS Study of Brain GABA and NAA Levels in Cocaine Dependent Subjects-Before and After Treatment**
Yong Ke, Chris C Streeter, Debby A Yurgelun-Todd, O Sarid-Segal, Leanne Nassar, LA Awad, S Gruber, CA
Nason, C Duffy, P.F Renshaw
Harvard Medical School, Boston, MA USA.
- 961. Direct in vivo measurement of cerebral GABA in humans using MEGA-editing at 7 Tesla**
Melissa Terpstra, Kamil Ugurbil, Rolf Gruetter
University of Minnesota, CMRR, Minneapolis, MN USA.
- 962. In vivo GABA measurement using a PRESS-localized double quantum filter in patients with malformations of cortical development and epilepsy**
Mary McLean, Robert Simister, Friedrich Woermann, Lawrence Wald, Stephen Williams 5, John Duncan
National Society for Epilepsy, Gerrards Cross, Bucks UK; Harvard University, Charlestown, MA;
University of Manchester, Manchester, England, UK and University College London, Queen Square, London, UK.
- 963. GABA Detection in the Human Brain Using a 3D Localized Selective Double Quantum Filter**
Hidehiro Watanabe, Masaaki Umeda, Kazuya Okamoto, Masanori Oda, Tomoyuki Kanamatsu, Yasuzou Tsukada, Akiko Matsumoto, Taisuke Otsuki
Toshiba Medical Systems R&D Ctr., Tochigi Japan; Institute of Life Science, Soka Univ., Hachioji, Tokyo Japan and National Ctr. of Neurology and Psychiatry, Kodaira, Tokyo Japan.
- 964. In Vivo GABA Editing with Complete Metabolite Suppression and Reduced Macromolecule Contamination at Low B₀ Field Strengths.**
J. Shen and D. L. Rothman.
Nathan Kline Institute, Orangeburg, NY, USA and Yale University, New Haven, CN, USA.
- 965. Effects of Endogenous and Exogenous Modulators of GABA Receptor Function on GABA Levels: The Menstrual Cycle**
Cynthia Neill Epperson M.D.1, Kristin Haga, Graeme F. Mason, Michael Appel, Edward Sellers, Gerard Sanacora,
D.L. Rothman, J.H. Krystal
Yale University, New Haven, CT USA.

- 966. Alternations in the Relationships Between Cortical Amino Acids in PMDD**
K. Haga, C. Neill Epperson, D. Rothman, J. Krystal, G. Mason
Yale University School of Medicine, CT USA.
- 967. The Effect of Vigabatrin on Rat Brain Metabolite Levels: An in-vivo 2D Spectroscopy Study.**
J. Welch, K. K. Bhakoo, N. Sibson, A. Blamire, R. Dixon and P. Styles.
University of Oxford, Oxford, England and John Radcliffe Hospital, Oxford, England.
- 968. Cerebral GABA Accumulation Following Acute GABA-Transaminase Inhibition**
R.A de Graaf, B. Wang, J. E Wall, D.L Rothman, K.L Behar
Yale University School of Medicine, New Haven, CT USA
- 969. Glutamine is the Major Precursor for GABA Synthesis in Rat Neocortex In Vivo following Acute GABA-Transaminase Inhibition**
Anant B. Patel, Douglas L. Rothman, Bei Wang, Gary W Cline, KevinL.Behar
Yale School of Medicine, New Haven, CT, USA
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- Human Brain MRS: Epilepsy, Ischemia, and Stroke**
- 970. Hippocampal and Temporal Lobe 1H-MRS in Mesio-temporal Lobe Epilepsy with Proven Gliosis.**
Francois Lazeyras, Jacqueline Delavelle, Olaf Blanke, Gianpaolo Pizzolato and Margitta Seeck.
University Hospital of Geneva, Geneva, Switzerland.
- 971. Detection of frontal lobe abnormalities in non-lesional TLE by MRS**
R Mark Wellard, Regula S Briellmann, Graeme D Jackson
Brain Research Institute, Austin & Repatriation Medical Centre, Heidelberg West, Vic Australia.
- 972. Utility of Single Voxel 1H MRS in Presurgical Evaluation of Temporal Lobe Epilepsy**
Kejal Kantarci, Clifford R.Jack Jr., ElsonL.So, Jeffrey W.Britton, Cheolsu Shin, Terrence D.Lagerlund,
Gregory D. Cascino
Mayo Clinic, Rochester, MN, USA
- 973. Investigation of Biochemical Variation in Patients with Chronic Cerebral Hemodynamic Impairment: 1H MRS and PWI Studies**
Chang-Shin Lee, Cheng-Yu Chen
Tri-Service General Hospital and National Defense Medical Center, Taipei, Taiwan R. O. C..
- 974. Evaluation of Metabolite Concentrations in patients with chronically occlusive cerebro-vascular disease using Quantitative Proton MRS;A Correlative Study with PET data**
Hirotugu Kado, Hirohiko Kimura, Tatsuro Tsuchida, Yoshio Koshimoto, Yoshiharu Yonekura, Harumi Itoh
Matsuoka, Yoshida-gun, Fukui, Fukui Japan.
- 975. Can Chemical Shift Imaging be used to aid Selection and Treatment Evaluation in Carotid Endarterectomy Patients?**
K.E.Davies, G.Riding, S.R.Williams, C.McCollum
University of Manchester, Imaging Science and Biomedical Engineering, Manchester, UK.
- 976. Value-Added of Combined Proton MR Spectroscopic Imaging and Diffusion-Weighted MRI to Assess the Heterogeneity of Tissue Injury during Acute Ischemic Stroke.A Human Study.**
François Nicoli, Yann Le Fur, B é atrice Denis, Jean-Philippe Ranjeva, Sylviane Confort-Gouny, Patrick J Cozzone
CRMBM-UMR Marseille, France.

- 977. Magnetic resonance spectroscopy in sleep apnea.**
C. Rae, Delwyn Bartlett, C. Thompson, J. Linklater, D. Joffe, S.A Enright and R.R Grunstein
University of Sydney, Sydney, Australia.
- 978. Effect Of Oxygen Supplementation On Intracellular Brain pH In Patients With Hypoxia Due To Chronic Obstructive Pulmonary Disease:A Phosphorus-31 MR Spectroscopy Study**
J. Allsop G. Hamilton, D. M. Forton, G.A. Coutts, Rory James Shaw Profe,
Simon David Taylor-Robinson Dr 4 ,Rajat Mathur Dr 5
Imperial College School of Medicine, Hammersmith Hospital Campus, London, England, UK.
- MRS of White Matter and Degenerative Diseases**
- 979. Reference concentrations of choline, creatine and NAA in human cerebral white matter.**
D. Rutgers and J. Van der Grond
University Medical Center, Utrecht, Netherlands
- 980. Age-Related Elevations in Cerebral Metabolites in the Hippocampus: A Short Echo Time Proton Magnetic Resonance Spectroscopy Study**
Andreana Petrova Haley, Jack Knight-Scott, Virginia I. Simnad, Carol Anne Manning.
University of Virginia, Charlottesville, VA USA;
- 981. Regional and Tissue Specific Changes of Metabolite Concentration with Age using Short TE Multislice 1 H-MRSI**
Dirk Wiedermann, Norbert Schuff, Joyce Suhy, Dieter J. Meyerhoff, Judith Licht, Michael W. Weiner
University of California, San Francisco, San Francisco, CA USA.
- 982. Correlating Magnetization Transfer (MT) with Single Voxel Protons (1H) Magnetic Resonance Spectroscopy (MRS) in Multiple Sclerosis (MS)**
Maria Concepcion Garcia Otaduy, Dagoerto Callegaro, Luiz Alberto Bacheschi, Giovanni Guido Cerri, Claudia Costa Leite
University of Sao Paulo, Medical School, São Paulo, Brazil.
- 983. Metabolite T1 in Multiple Sclerosis Lesions Differs from Normal**
Elana Brief, Kenneth P Whittall, David Li, Alex Mackay.
University of British Columbia, Vancouver, BC Canada;
- 984. Correlation of 1H MR spectroscopy of chronic multiple sclerosis lesions with intermediary T2-component and T1-hypointensity**
Gunther Helms, Leszek Stawiarz, Hans Link
Karolinska Institute, Stockholm, Sweden.
- 985. Regional Comparison of Axonal Damage in Multiple Sclerosis using Whole Supratentorial Brain 3D Spectroscopy Imaging**
Daniel Pelletier, Denis Grenier, Ying LU, Sarah J. Nelson, Donald E. Goodkin
Department of Neurology/University of California, San Francisco, San Francisco, CA USA.
- 986. Differentiating Alzheimer's disease and vascular dementia with regional metabolites comparison by quantitative proton MR Spectroscopy**
Weimin An, Youquan Cai, Hongchuan Tang and Jian-Ming Zhu.
Naval General Hospital, Beijing, China and G. E. Medical Systems, Milwaukee, WI, USA.

- 987. Relations between Regional Metabolic Patterns and Specific Cognitive Dysfunctions in Alzheimer's Disease : A 1 H MRS Study**
Sophie Chantal, Martin Labelle, Abdesslem Khat, Yvan Boulanger, Rémi W. Bouchard, Claude M.J. Braun
Hôpital de l'Enfant-Jésus du CHA, Montréal, QC Canada.
- 988. Correlation of MR-based Hippocampal Volume and Proton Magnetic Resonance Spectroscopic Findings in Patients with Alzheimer's Disease**
Seong Yoon Kim M.D.1 , Jung Hee Lee Ph.D.2 , Kang Uk Lee M.D.3 , Jae Kong Shin M.D.4 , Jong Inn Woo M.D..
Asan Medical Center, Univ. of Ulsan, Med. College, Seoul, Korea.
- 989. Efficacy of Magnetic Resonance Spectroscopy (MRS) for Clinical Diagnosis of Alzheimer's Disease**
Cat-Huong NGUY, Mya ZAPATA, Frederick SHIC, Alexander LIN, David Shieh, Norman CHIEN, Brian ROSS
Huntington Memorial Hospital, Pasadena, California USA.
- 990. Applications of Neural Network Analyses to in vivo 1 H MR Spectroscopy of Parkinson's Disease Patients**
Ingrid Susann Gribbestad, Inger Johanne Bakken, David Axelson, Gunnar Nilsen, Benny Ehrnholm, Jan Aasly.
University Hospital, Trondheim, Norway;
- 991. Monitoring the DL-b -Hydroxybutyrate Treatment of a Patient with Hyperinsulinism**
Vladimir Mlynarik, Stephan Gruber, Sylvia Stoeckler, Barbara Plecko, Hans Silgoner, Ewald Moser
University of Vienna, Vienna, Austria;
- 992. Longitudinal Corticospinal Tract Changes in ALS by 1H MRSI**
Joyce Suhy, Robert G. Miller, Norbert Schuff, Ria C Lopez, Andrew A. Maudsley, Michael W. Weiner
University of California, San Francisco, San Francisco, CA USA.
- 993. Functional Correlates of Neuronal Loss in Gulf War Syndrome**
Robert Ware Haley, F Petty, J Kramer, PS Roland, James L Fleckenstein
University of Texas Southwestern Medical Center at Dallas, Dallas, TX, USA.
- 994. Metabolic abnormalities in the brain of subjects with Gulf War Illness**
D.J Meyerhoff, J. Lindgren, D. Hardin, J.M. Griffis, M.W Weiner
University of California, San Francisco, San Francisco, California USA.
- 995. Changes in High Energy Phosphate Metabolism in White and Grey Matter in Normal Pressure Hydrocephalus: A Phosphorus Spectroscopy Study.**
R. Corkill, M. R. Garnett, A. Blamire, B. Rajagopalan, R. Cadoux-Hudson, P. Styles.
University of Oxford, John Radcliffe Hospital, Oxford, England, UK and Department of Radiological Sciences, Oklahoma City, OK, USA.
- 996. Chronic Alcohol Consumption and HIV Infection: Effects on Brain Structure and Metabolites**
Dieter J Meyerhoff, Valerie A Cardenas, Michael W Weiner
University of California, San Francisco, Medicine, VA Medical Center Magnetic Resonance Unit, San Francisco, California USA.
- 997. ¹H MRS Suggests Derangement in Glial and Myelin Support to Neurons in Encephalopathy due to Occupational Exposure to Organic Solvents**
Kim Vuori, Sainio Markku, Jesper Lundbom, Tapio Vehmas, Anna-Maija Häkkinen, Kiti Müller, Nina Lundbom
Helsinki University Central Hospital, Helsinki, Finland;

998. Role of Phospholipase A2 in the Modulation of Membrane Markers Observed by 1 H and 31 P MRS in Brain Diseases

Yvan Boulanger, Abdesslem Khiat, Martin Labelle
Hôpital Saint-Luc du CHUM, Département de radiologie, Montréal, QC Canada;

MRS of Human Neurological Disorders**999. Quantitative Magnetic Resonance Imaging (MRI) and Proton Magnetic Resonance Spectroscopic Imaging (MRSI) of Dorsolateral Prefrontal Cortex in Children with Fetal Alcohol Syndrome.**

Bernadette M Cortese, John H Hannigan and Gregory J. Moore
Wayne State University, Detroit, Michigan USA.

1000. Evaluation of Changes in Brain Metabolite Levels in Acute Disseminated Encephalomyelitis: An In vivo 1H MRS Study.

W. Huang, L. Gabis, M. Savatic, T. M. Button and N. J. Lenn.
State University of New York, Stony Brook, NY, USA.

1001. ¹H MRS of Blood and Brain in a case of Rhizomelic Chondrodysplasia Punctata

Angèle Viola, Brigitte Chabrol, Francisca Vintila, Sylviane Confort-Gouny, Patrick Viout, Jean-Philippe Ranjeva, Farid Boubred and Patrick Cozzone.
CRMBM, UMR CNRS and Hôpital la Timone, Marseille, France

1002. Entire Hemispheric Proton In Vivo MRS Examination of Sturge-Weber Syndrome at 3 T

Hee-Won Kim, Angela P. Bruner, Bernard L. Maria, Katherine N. Scott.
University of Florida, Gainesville, FL, USA.

1003. Proton Spectroscopy in Tuberous Sclerosis Complex

I.D Wilkinson, W. Mukonoweshuro and P.D Griffiths.
University of Sheffield, Royal Hallamshire Hospital, Sheffield, England.

1004. Intracellular pH Measurements of the Whole Head and the Basal Ganglia in Chronic Hepatic Encephalopathy: A Phosphorus-31 MR Spectroscopy Study

Nayna Patel Mrs, Daniel Forton, Gavin Hamilton, Glyn A Coutts, Howard Christopher, Thomas Simon and David Taylor-Robinson.
Hammersmith Hospital Campus, Imperial College School of Medicine, London, England, UK.

1005. Proton-Decoupled ³¹P MR Spectroscopic Imaging of Radiation-Induced Temporal Lobe Necrosis

David Yeung, Yu-Leung Chan, Heinz-Peter Schlemmer, Sing-Fai Leung, Peter Bachert
Prince of Wales Hospital; Chinese University of Hong Kong, Shatin, Hong Kong, China and German Cancer Research Centre, Heidelberg, Germany.

1006. MR-spectroscopy of the spinal cord of professional cyclists and controls

Martin Büchert and Carsten Althoefer.
University of Freiburg, Freiburg, Germany.

1007. Abnormal ¹³C Glucose Metabolism in patients with Chronic Hepatic Encephalopathy

Stefan Bluml, Angel Moreno-Torres and Brian Ross
Rudi Schulte Research Institute, Santa Barbara, CA, USA and Huntingtn Medical Research Institutes, Pasadena, CA, USA.

- 1008. Long-term Brain Metabolic Alterations in Exogenous Cushing's Syndrome as Monitored by Proton Magnetic Resonance Spectroscopy**
Abdesslem Khiat, Céline Bard, André LaCroix, Martin LaBelle, Yvan Boulanger.
Hôpital Saint-Luc du Chum, Montréal, Québec Canada.
- 1009. Proton Magnetic Resonance Chemical Shift Imaging(1H CSI)-directed Stereotactic Biopsy**
Hyeon-Man Baik, Byung-Chul Son, Bo-Young Choe, Tae-Suk Suh, Hyoung-Koo Lee, Kyung-Sub Shinn.
Catholic University of Korea, Seoul, Korea.
- 1010. Choline Imaging with PET and 2D-CSI in a Human Brain Astrocytoma**
Medhi Adinehzadeh, Raymond Poelstra, Martin Jakob, Joseph Mantil, Jogeshwar Mukherje, Brad Christian, Bingshi Zhi, Michael Kent, Bilal Ezzeddine
Wallace-Kettering Neuroscience Institute, Kettering, Ohio USA.

MRS of Human Psychiatric Disorders

- 1011. Detection of Cerebral Gamma-aminobutyric Acid (GABA) in Bipolar Disorder Patients and Healthy Volunteers at 3T.**
N. Sailasuta, P. Leroux, R. Hurd, P. Wang, N. Sachs and T. Ketter
G.E. Medical Systems Group, Fremont, CA, USA, None Given, Don Mills, Ontario Canada and Stanford University, Stanford, CA, USA
- 1012. No significant change of brain myo-inositol is observed in bipolar affective disorder after sodium valproate medication by in vivo proton MR spectroscopy**
Ren Hua Wu and Peter H Silverstone
University of Alberta, University of Alberta Hospital, Edmonton, Alberta Canada
- 1013. Neurochemical Correlates of late-life Major Depression**
Anand Kumar, Albert Michael Thomas, Helen Lavretsky, Arthur Toga, Michael Mega, Daniel Pham, Kenneth Yue, Amir Huda, Talaignair and Nagaraj Venkatraman.
University of California, Los Angeles, Medical, Los Angeles, CA, USA.
- 1014. Follow-up Investigation of hippocampal choline in depression after ECT**
Gabriele Ende, Thomas S Obergriesser, Wolfgang Weber-Fahr, Fritz A Henn.
Central Institute of Mental Health, Mannheim, Germany.
- 1015. 4.0 Tesla Measurements of N-acetylaspartate, Glutamate and Glutamine in the Anterior Cingulate and Thalamus of Schizophrenic Patients Pre and Post Treatment**
J. Théberge, D. J. Drost, P. C. Williamson, R. Bartha. A. K. Malla, Y. Al-Semaan, R. Wjneufeld and R.S Menon.
University of Western Ontario, Medical Biophysics, London, Ontario Canada.
- 1016. Membrane Phospholipid Metabolite Alterations in Prefrontal and Basal Ganglia Regions in Schizophrenia: An In Vivo 31 P and 1 H MRSI Study**
Jeffrey A. Stanley, Matcheri S. Keshavan, Kanagasabai Panchalingam, Richard J. McClure and Jay W. Pettegrew.
University of Pittsburgh, School of Medicine, Western Psychiatric Institute & Clinic, Pittsburgh, Pennsylvania, USA.

- 1017. Focal and Generalized Membrane Phospholipid Metabolite Alterations in Child and Adolescent Offspring of Schizophrenia and Schizoaffective Disorder Subjects: An In Vivo 31 P MRSI Study**
Jeffrey A. Stanley, Jay W. Pettegrew, Kanagasabai Panchalingam, Richard J. McClure, Keith Harenski, Debra M. Montrose, Matcheri S. Keshavan.
1 University of Pittsburgh, School of Medicine, Western Psychiatric Institute & Clinic, Pittsburgh, Pennsylvania, USA.
- 1018. ¹H MRSI of the cerebellum and pons: Metabolite distribution in controls and schizophrenics**
Gabriele Ende, Petra Hubrich-Ungureanu, Nina Kämmerer and Fritz A Henn
Central Institute of Mental Health, Mannheim, Germany
- 1019. Acute Fire-related Posttraumatic Stress Disorder : MR Imaging and 1H MR Spectroscopic Findings**
Myung Kwan Lim , Jeong Seop Lee and Chang Hae Suh
Inha University College of Medicine, Incheon, South Korea and Shinheung-Dong, Choong-Gu, Incheon, South Korea
- 1020. Study of Systemic Lupus Erythematosus: Correlation of Clinical Findings with MRI, MRS and SPECT.**
P. Sahota, M. Kumar, R. Handa, C.S. Bal, M. Gulati, B. M. tripathi, N.R. Jagannathan, and J.P. Wali.
All India Institute of Medical Sciences, Ansari Nagar, New Delhi, India.
- 1021. Metabolic changes in the brain of depressive patients**
Stephan Gruber, Richard Frey, Vladimir Mlynarik, Angela Heiden, Siegfried Kasper and Ewald Moser.
University of Vienna, Vienna, Austria;

MRS of Animal Brain

- 1022. PRESS sequences with very short echo times using asymmetric RF pulses. Application to the rat brain in vivo.**
Christian Geppert, Wolfgang Dreher and Dieter Leibfritz.
University of Bremen, Bremen, Germany.
- 1023. High Resolution Fast Spectroscopic Imaging of Water 1 H Resonance in Rat Brain**
Weiliang Du, Xiaobing Fan, Marta Zamora, Gregory Karczmar.
University of Chicago, Chicago, Illinois USA.
- 1024. Rapid Estimation of Cerebral Glucose Metabolism in the Rat**
David Marshall Cohen, Michael Quast, Jingna Wei, Xiaolian Gao, E.O'BrianSmith and Louis Sokoloff.
Baylor College of Medicine and University of Houston, Houston, Houston, Texas USA; University of Texas Medical Branch at Galveston, Galveston, TX USA and National Institute of Mental Health, National Institutes of Health, Bethesda, MD, USA.
- 1025. 17O Relaxation Time and NMR Sensitivity of Cerebral Water and Their Field Dependence.**
X.-H. Zhu, H. Merkle, J. Kwag, K. Ugurbil and W. Chen.
University of Minnesota, Minneapolis, MN, USA.
- 1026. Choline Transport and Metabolism in the Aging Rat Brain**
Rachel Katz-Brull, Alexei R. Koudinov and Hadassa Degani
Weizmann Institute of Science, Rehovot, Israel

- 1027. Longitudinal Proton MRS Study of the Metabolic Changes During Lesion Progression in Experimental Allergic Encephalomyelitis.**
M. Degaoonkar, R. Jayasundar and N.R. Jagannathan .
All India Institute of Medical Sciences, New Delhi and Ansari Nagar, Delhi, India.
- 1028. Brain and Immune Changes in Response to Psychosocial Stress are Reversed by Tianeptine.**
T. Michaelis, G. de Biurrun, T. Watanabe, J. Frahm, M. van Kampen, E. Fuchs, C. Heimke, B. van't Hart, H. Brok, A. Bartolumuci and C. Mu oz.
Biomedisinsische NMR Forchungs GmbH, G ttingen, Germany, Tokyo University of Fisheries, Tokyo, Japan, University Mainz, Germany, BPRC, Rijswijk, The Netherlands, University Parma, Italy and I.R.I. Servier, Courbevoie, France.
- 1029. In vivo 2D ¹H-MRS of metabolic changes following transient focal cerebral ischemia in the rat**
Florence Delmas, Wouter B. Veldhuis, Boudewijn Van der Sanden, Brigitte Gillet and Jean-Claude Beloeil and Klaas Nicolay.
CNRS, Avenue de la Terrasse, Gif-sur-Yvette, France; Image Sciences Institute, Utrecht, Netherlands; Image Sciences Institute, University medical center Utrecht, Utrecht, The Netherlands and University Utrecht, Utrecht, Netherlands;
- 1030. Effects of a glutamate transport inhibitor on brain metabolism**
Caroline Rae, Charbel E-H Moussa, William A Bubbe and Vladimir Balcar.
University of Sydney, Sydney, NSWAustralia.
- 1031. GABAergic and Glutamatergic Neurotransmitter Cycling in the Rat Cortex**
Anant B. Patel, Robin A. de Graaf, Graeme F. Mason, GaryW.Cline, Vincent Lebon, Gerald I. Shulman, Robert G. Shulman, Douglas L. Rothman, Kevin L.Behar.
Yale University School of Medicine, New Haven, CT USA.
- 1032. ¹³C Spectroscopic Evidence for Regionally Specific Alterations in Neuronal Activity under General Anesthesia**
P. N. Venkatasubramanian and Alice M. Wyrwicz.
Evanston Northwestern Healthcare, Center for M.R. Research, Evanston, IL, USA.
- 1033. From metabolic neurotoxicity to hypoxic neuroprotection: an MRS study of cyclosporine role in rat brain.**
Natalie Serkova, Paul Donohoe, Sven Gottschalk, Carsten Hainz, Uwe Christians, Dieter Leibfritz.
University of Bremen, Bremen, Germany and University of California, San Francicso, CA USA.
- 1034. Development of High Field Proton Spectroscopic Imaging for the Mouse Brain.**
G. B. Matson, T. C. Hill and V. Govindaraju.
University of California, San Francisco, CA, USA.
- 1035. Temporal and Regional Changes in NAA in the Pathogenesis of Spongiform Encephalopathy**
Y-L Chung*1 , J Barr, J R Fraser, J D Bell
Imperial College School of Medicine, Hammersmith Hospital, London, U.K. and Institute for Animal Health, Edinburgh, U.K.;

MRS: Animal and Cell Studies

- 1036. Effect of Fasting on 2 H-Enrichment Levels of Rat Plasma Glucose as measured by 2 H NMR Spectroscopy Following Infusion of 2 H₂ O.**
JG Jones, Dean Sherry and Craig R. Malloy
University of Texas Southwestern Medical Center at Dallas, Dallas, Texas USA.
- 1037. The Effects of Intestinal Ischaemia and Reperfusion on Neonatal Liver Metabolites: In Vitro 1H Magnetic Resonance Spectroscopic Study.**
S. B. Williams, S. R. Williams and A. Pierro.
University College London, London, England, UK and University of Manchester, Manchester, England, UK.
- 1038. Value of MR and 31P MRS in the Evaluation of Experimental Testicular Trauma.**
M. Srinivas, M. Degaonkar, V. V. S. S. Chandrasekharam, N. R. Jagannathan, D.K. Gupta and D.K. Mitra.
All India Institute of Medical Sciences, New Delhi and Ansari Nagar, Delhi, India.
- 1039. Rosiglitazone Reduces Liver Lipid in Zucker Rat: a 1H MRS Study**
P.D Hockings, K. K Changani, A. White, D Reid, C Nigel Toseland, J.M Birmingham, J.A Osborne, D. Templeton and R.E Buckingham.
SmithKline Beecham Pharmaceuticals, The Frythe, Welwyn, UK
- 1040. Metabolic Perturbations in Glucose Perfused Rat Hearts and without Insulin: A 13C-NMR Study of Aspartate /Synthesis Induced by a Sudden Suppression of Insulin.**
S. Tran-dinh, J. A. Hoerter, P. Mateod and M. Herve.
SBPM/ CEN-Saclay, Gid-sur-Yvette, France and Universite Paris Sud, Paris, France.
- 1041. Ethanol Perfusion Increases Efficiency of Oxidative Phophorylation in Isolated Liver of Fed Rats.**
P. Tissier, M. C. Delmas-Beauvieux, P. Couzigou, H. Gin, P. Canioni and J.L. Gallis.
RMSB UMR, Bordeaux, France and Hopital Haut-Leveque, Pessac, France.
- 1042. 31P and 23Na NMR Spectroscopy Demonstrate Glyburide Effects on Bioenergetics and Na+ Transport in Pancreatic Beta-HC9 Cells**
Nicolai Doliba, Marko Vatamaniuk, Carol Buettger, Heather Collins, Wei Qin, Suzanne Wehrli, Franz Matschinsky
University of Pennsylvania, Philadelphia, PA, USA.
- 1043. WITHDRAWN**
- 1044. High Glucose Levels do not Stimulate TCA Cycle Flux in β HC9 Insulinomas Detected with 13 C NMR**
Anthony Mancuso, Christophe Desbarats, Susanne Wehrli, Franz M Matschinsky, Jerry Glickson
University of Pennsylvania, Philadelphia, PA, USA.
- 1045. A comparison of 87 Rb + and 133 Cs + transport in perfused rat heart**
Paul A. Schornack, Joseph J.H. Ackerman
University of Arizona, Tucson, AZ, USA and Washington University, St. Louis, MO, USA.

MRS: Human Body and Other

- 1046. Proton Magnetic Resonance Spectroscopy for Assessment of Human Body Composition**
Masayuki Kamba, Wei Chen, Koji Kimura, Masahiko Koda and Toshihide Ogawa
University of Minnesota, Minneapolis, MN, USA and Tottori University Faculty of Medicine, Nishimachi, Yonago, Japan
- 1047. Short Acquisition Time 2D COSY Localised in Human Bone Marrow**
Andrew P Prescott, David J Collins, Andrzej Dzik-Jurasz, Martin O Leach
Royal Marsden Hospital, Surrey, England, UK;
- 1048. The Use of in vivo ³¹P Magnetic Resonance Spectroscopy for the Evaluation of Age Related Effects in Human Skin**
F. Vial, S. Savard, L. Declercq, F. Perin, P. Beau and D. Maes
Inserm-France, Tours, France;
- 1049. Effect of oral D-tagatose on liver volume and hepatic glycogen accumulation in healthy male volunteers**
Chris Boesch, Michael Ith, Bruno Jung, Karin Bruegger, Sidona Erban, Ioannis Diamantis, Roland Kreis, Albert Bär
University & Inselspital, Bern, Switzerland and Bioresco Ltd., Basel, Switzerland.
- 1050. ³¹P-MR Spectroscopy of the Human Kidney Graft by 2D-CSI sequence. Preliminary Clinical Results.**
Pavlina Harantova, Monika Dezortova, Zdenek Tosner, Jiri Lacha, Petr Taborsky, Milan Hajek.
Institut of Clinical and Experimental medicine, Prague, Czech Republic;
- 1051. Heterogeneity of Normal Breast Investigated by In-vivo MR Spectroscopy: Determination of W/F Ratios and T1 Relaxation Times.**
M. Kumar and N.R. Jagannathan.
All India Institute of Medical Sciences, New Dehli and Ansari Nagar, Delhi, India.
- 1052. High Resolution ¹H NMR Study of Hepatic Bile from Donors and Recipients in Human Liver Transplantation.**
H. G. Parkes, H. V. Melendez, M. Rela, G. M. Murphy and N. D. Heaton.
Institute of Child Health, University College, London, England, UK, King's College Hospital, London, England, UK and St. Thomas's School of Medicine, London, England, UK.
- 1053. Measurement of the Astrocytic TCA Cycle Flux in Humans Using ¹³C Labeled Acetate**
V. Lebon, K.F. Petersen, G.W. Cline, J. Shen, G.F. Mason, S. Dufour, K.L. Behar, G.I. Shulman, D.L. Rothman
Yale University, School of Medicine, New Haven, CT USA and Nathan S. Kline Institute, Orangeburg, NY, USA.
- 1054. Assessment of Cerebral Acetate Oxidation and Glial Metabolism in Human Brain by ¹³C MRS**
Stefan Bluml, Angel Moreno-Torres, Brian Ross
Rudi Schulte Research Institute, Santa Barbara, CA USA and Huntington Medical Research Institutes, Pasadena, CA USA.

1055. The Effects of Moderate Hypothermia on Intestinal Ischaemia-Reperfusion: High Resolution 1H and 31P Magnetic Resonance Spectroscopy Study

Paisarn Vejchapipat, Stephen R. Williams, Edward Proctor, Lewis Spitz and Agostino Pierro.
RCS Unit of Biophysics, Institute of Child Health, University College University College London,
London, UK;

Cardiovascular MRS**1056. NMR and Biomechanical Characteristics of Normal and Aneurysm Aortas: In Vitro Study**

Simeon Ivanov Petkov, Philippe Vinee
Technical University of Gabrovo, Bulgaria, Gabrovo, Bulgaria and Centre d'Imagerie Médicale Selestat
France, Selestat, France;

1057. Singlet Oxygen Energy effect in a hamster to rat heart xenotransplantation model, measured by in vivo 31P NMR spectroscopy

Ann Lindgård, Olivier Rakotonirainy, Jacob Wilton, Andreas Lundgren, Daniel Lukes, M Olausson,
Bassam Soussi.
Wallenberg Laboratory, Sahlgrenska Hospital, Gothenburg, Sweden.

1058. Cellular Glucose Uptake in the Isolated Rat Heart is not Altered in Heart Failure due to chronic Coronary Ligation

Jens Höning, Lisa Bauer, Michael Horn.
Medizinische Universitaetsklinik, Wuerzburg, Germany;

1059. Susceptibility to Ischemia/Reperfusion Injury is not Increased in Rat Hearts post Myocardial Infarction

Michael Horn, Stephanie Hügel, Kai Hu, Stefan Neubauer
Medizinische Universitaetsklinik, Germany and John Radcliffe Hospital, Oxford, United Kingdom.

1060. Influence of Ischemic Preconditioning on Intracellular Sodium and pH in Isolated Perfused Heart

Andriy Babsky, Shahryar K.Hekmatyar, Suzanne Wehrli, Mary Osbakken 4 ,Navin Bansal
University of Pennsylvania, Philadelphia, PA USA and Aventis, NJ, USA.

1061. Ischemic blockade of the cardiac Na⁺/H⁺ -exchanger: a simultaneous 23 Na and 31 P study

Michiel Ten Hove, Jan G. Van Emous, Cees J. A. Van Echteld.
ICIN and University Medical Center, Utrecht, The Netherlands.

1062. Intracellular Na concentration in a rodent heart during multiple dose cardioplegia. Effects of oxygen and carbon dioxide

Victor D. Schepkin, William M. DeCampi, Isaac O. Choy
University of Illinois at Urbana-Champaign, Urbana, IL, USA; Children's Hospital of New Jersey,
Newark, NJ, USA and University of California at San Francisco, San-Francisco, CA, USA.

1063. Effects of Energy Deprivation on Sarcolemmal and Mitochondrial Potassium Fluxes in Rat Hearts: 87 Rb and 31 P NMR study.

Olga Jilkina, Bozena Kuzio, Valerie Kupriyanov
U. of Manitoba, Winnipeg, MB, Canada;

1064. Myocardial Substrate Oxidation During Cardioplegic Arrest With Potassium Chloride or Tetrodotoxin

Timothy T. Hamilton, Paul E. Meyer, M. Peter Tauriainen, Robert Y. Chao and Michael E. Jessen
University of Texas Southwestern Medical Center, Dallas, TX, USA.

- 1065. Effects of Magnesium on Myocardial Energy Metabolism: Assessment in Dahl Salt- Sensitive Rats by ³¹P NMR**
Kunio Tanaka, Nobuyuki Akita, Mitsutosi Kusakabe, Takashi Haneda, Kenjiro Kikuchi
Asahikawa Medical College, Asahikawa, Japan.
- 1066. The Effects of NHE Inhibition in a Canine Cardiac Ischemia/Reperfusion Model: A MRI/MRS Study**
Kerry Thompson, R.Terry Thompson, Jane Sykes and Gerald Wisenberg
Lawson Health Research Institute, University of Western Ontario, London, ON Canada
- 1067. Variability and Reproducibility of Quantitative 31P NMR Spectroscopy of the Human Heart**
Michael Bunse, Oliver Schmidt, Otto Lutz, G nther J.Dietze, Wulf-Ingo Jung
Physikalisches Institut der Universit t T bingen, T bingen, Germany.
- 1068. Increased Phosphocreatine Depletion in Early Exercise in the Marfan Syndrome: A Clinical Model of Endothelial Dysfunction.**
J. Crilley, E. A. Boehim, D. Benddahan, B. Rajagopalan, P. Styles, P. Wordworth and K. Clarke.
University of Oxford, Oxford, England, and John Radcliffe Hospital, Oxford, England, UK.

Musculoskeletal MRS

- 1069. Intramyocellular Lipids (IMCL), Plasma Leptin System and Glucose Uptake in Women with a History of Gestational Diabetes (GDM).**
M. Krssak, A. Kautzky-W.G. Pacini, H. Stingl, G. Brabant, O.F. Wagner, W. Waldhäusl and M. Roden.
University of Vienna, Wien, Austria.
- 1070. Orientation dependent splitting of the intra-myocellular lipid resonance in rat muscle: A MRS study at 7T**
C. Franke, U. Belz, J. Kuhlmann, A. W. Herling, H.-P. Juretschke
Aventis Pharma Deutschland GmbH, Frankfurt, Germany.
- 1071. Higher fatty acids oxidation prevents intramyocellular lipid (IMCL) accretion and insulin resistance in humans with moderate increment of body fat mass.**
Paola Scifo, Emanuela Pagliato, Stefano Benedini, Marianna Caloni, Francesco De Cobelli, Alessandro Del Maschio, Livio Luzi, Gianluca Perseghin.
Scientific Institute H San Raffaele, Milan, Milan, Italy.
- 1072. Dietary Manipulation of Insulin Sensitivity Does Not Affect Muscle Triglycerides**
Louise Goff, Gary S Frost, Timothy J Aitman, E Louise Thomas, Jimmy D Bell
Hammersmith Hospital, London, UK.
- 1073. Regional Differences of the Magnetic Field Distribution of IMCL and EMCL Signals from Human Calf Muscles**
G. Steidle , J. Machann, K. Brechtel, C. D. Claussen and F. Schick.
University of Tuebingen, Tuebingen, Germany.
- 1074. Intramyocellular lipid (IMCL) stores before and after a fat rich diet**
Klaus Brechtel, Dominik B Dahl, Juergen Machann, Oliver P Bachmann, Stephan Jacob, Hans U Haering, Claus D Claussen and Fritz Schick
University of Tuebingen, Tuebingen, Germany

- 1075. Relationships Between Carnitine and Intramyocellular Lipids in Three Human Muscles Observed by ^1H Spectroscopic Imaging at 4T.**
J.-H. Hwang, J. W. Pan, J. H. Lee, B. Balent, H. Hetherington and S.T. Stein.
Albert Einstein College of Medicine, Bronx, NY, USA, Brookhaven National Laboratory, Upton, NY, USA and Yeshiva University.
- 1076. Monitoring the Changes of Intramyocellular Lipids in Response to the Suppression of Substrate Availability Using ^1H Spectroscopic Imaging at 4T.**
D. T. Stein, J.-H. Hwang, J.-H. Lee, B. Balent, H. Hetherington and J. W. Pan.
Albert Einstein College of Medicine, Bronx, NY, USA and Yeshiva University.
- 1077. ^1H MRS of the intra-myocellular lipid content in the m. vastus lateralis.**
Marianne Eline Kooi, Patrick Schrauwen, Marco Mensink, Anton J.M. Wagenmakers, Gerrit J. Kemerink, Ellen E. Blaak
University Hospital of Maastricht, Maastricht, The Netherlands.
- 1078. Efficacy of Fish-oil Cardio-preventive Diet as a Modulator of Human Lipid Composition: ^{13}C MRS In Vivo**
Jung-Hee Hwang, Stefan Bluml, Alexander Leaf, Brian Ross
Rudi Schulte Research Institute, Santa Barbara, CA USA; Massachusetts General Hospital, Charlestown, MA USA and Huntington Medical Research Institutes, Pasadena, CA USA.
- 1079. Local Perfusion and Metabolic Demand During Exercise: A Non-Invasive MRI Method of Assessment**
Russell S Richardson, Luke J Haseler, Stephan Bluml and Lawrence Frank.
UC, San Diego, La Jolla, CA, USA.
- 1080. Additional phases in PCr use during a sustained isometric exercise of the tibial anterior muscle, studied by ^{31}P NMRS**
Caroline J. Houtman, Arend Heerschap, Machiel J. Zwarts, Dick F. Stegeman.
University Medical Centre, Nijmegen, The Netherlands.
- 1081. Comparison of Magnesium ($\text{Mg } 2+$) and ATP Abnormalities in Muscle Disorders: Fibromyalgia, Dermatomyositis and Scleroderma**
Kenneth J. Niermann, Jane H. Park, Rebecca J. Meyer, David A. Gilpin, Lloyd E. King and Nancy J. Olsen
Vanderbilt University, Nashville, TN, USA.
- 1082. Calculating metabolite concentrations in resting muscle using ^{31}P PMRS**
David Manners, Peter Styles, Doris Taylor
John Radcliffe Hospital, Oxford, England, UK and University of Oxford, Oxford, England, UK.
- 1083. PCr resynthesis during muscle stimulation is affected by oxygen availability. An in vivo ^{31}P -MRS study in rat gastrocnemius muscle.**
Benoit Giannesini, David Bendahan, Marguerite Izquierdo, Patrick J. Cozzone
Centre de Résonance Magnétique Biologique et Médicale (CRMBM), UMR CNRS Marseille, France.
- 1084. ^1H MR Spectral Features Correlate with measures of Tissue Vascularity in the Synovial Joints of Rheumatoid Arthritis Patients.**
T. Bezabeh, C. Hitchon, J. Canvin, R. Patel and H. El-Gabalawy,
National Research Council of Canada, Institute of Biodiagnostics, Winnipeg, MB, Canada and Health Sciences Centre, Winnipeg, MB, Canada.

- 1085. Skeletal Muscle High-Energy Phosphates and Oxygen Metabolism during Voluntary and Electrically-Stimulated Isometric Contractions: Comparison using Interleaved $^1\text{H}/^{31}\text{P}$ -NMRS.**
S. Duteil, M. Vanderthommen, J.S. Raynaud, C. Wary, A. Leroy-Willig, J. M. Crielaard and P. Carlier.
Pitie-Salpetriere University Hospital, Institute of Myology, Paris, France, Sart-Tilman University Hospital, Liege, Liege, BelgiumAFM, CEA and INSERM U494, Paris, France and Non Given, Jemeppe-Sur-Sambre, Belgium.
- 1086. The impaired oxidative energy metabolism in the calf muscle of immobilised healthy subjects and patients with Friedreich's ataxia and Huntington's disease**
Jochen Zange, Klaus Mueller, Carsten Saft, Ludger Schoels, Matthias Vorgerd.
Ruhr-University-Bochum, Bochum, Germany.
- 1087. Investigation of fluoroquinolone-induced myalgia using ^{31}P magnetic resonance spectroscopy and in vitro contracture tests**
Sandrine Guis, David Bendahan, Genevieve Kozak-Ribbens, Jean-Pierre Mattei, Yann Le Fur, Dominique Figarella-Branger, Jacqueline Jouglard, Patrick J. Cozzone.
Centre de Resonance Magnetique Biologique et Medicale, Marseille, France.
- 1088. Creatine Magnetization Transfer effect studied by CW off resonance irradiation in human skeletal muscle**
Adrianus Van Den Bergh, Klaas Jan Renema, Dennis Klomp, Arend Heerschap.
University Hospital Nijmegen, Nijmegen, Netherlands.

Basic Science Focus Session (with posters): RF Coils and Analysis
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- 1089. A Multi-nuclear Body Coil Incorporating a Standard Proton Body Coil**
D. J. Herlihy, Joseph Hajnal.
Hammersmith Hospital, The Robert Steiner MR Unit, London, England, UK;
- 1090. A Comparison of 1, 4 and 8 Channel Phased Array Head Coils at 1.5T.**
S. King, G. R. Duensing, D. Peterson, S. Varosi, D. Molyneaux.
MRI Devices Corporation, Gainesville, FL, USA.
- 1091. Theoretical and Experimental Evaluation of Detached Endcaps for Birdcage Coils**
M. Alecci, J. L. Wilson, P. Jezzard, W. Liu, C.M.Collins, M.B. Smith
University of Oxford, Oxford, United Kingdom and Pennsylvania State University, Hershey, USA.
- 1092. A Low-Pass Trombone Birdcage Coil with Broad Tuning Range**
Mary P McDougall, David G. Brown, Dan Spence, Steven M. Wright.
Texas A&M University, College Station, TX USA.
- 1093. Actively Tuned Dual RF Resonator System for Functional MRI of Small Animals**
Gene Bogdanov, Gerd Kueppers, Jean A. King, Craig F. Ferris.
Worcester Polytechnic Institute, Department of Electrical and Computer Engineering,
Worcester, MA USA.
- 1094. In-vivo Mapping of B1 Uniformity Produced by a Whole Body 3T RF Coil**
David Alsop, Ronald Dean Watkins, Robert Greenman, John Schenck, Robert Lenkinski
Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA USA and G.E. Corporate R & D Center, Niskayuna, NY, USA.

- 1095. A shielded single element TEM Resonator: A simple extremity RF coil for UHFMRI**
P.-M. L. Robitaille, A. Abduljalil, T. Ibrahim, B. Beeeaertlein, R. Lee and C. J. Ashman.
Ohio State University, Columbus, OH, USA.
- 1096. Manipulation of Signal Intensity Distribution with Dielectric Loading at 7.0T**
Qing X. Yang, Michael B. Smith, Haiying Liu, Xiaoliang Zhang, Jinghua Wang, Kamil Ugurbil and Wei Chen.
Pennsylvania State University, Hershey, PA.
- 1097. A Half-Volume Transmit/ Receive Coil Combination for 7 Tesla Applications**
Gregor Adriany, Josef Pfeuffer, Essa Yacoub, Pierre-Francois Van De Moortele, Amir Shmuel, Peter Andersen, Xiaoping HU, John Thomas Vaughan, Kamil Ugurbil
University of Minnesota, CMRR, Minneapolis, MN, USA.
- 1098. A 3T Four Channel Preamplifier Decoupled Occipital Brain Array**
Patrick Ledden, Lawrence Wald
Nova Medical, Inc., Wakefield, MA USA and Massachusetts General Hospital, Charlestown, MA.
- 1099. A Verification of Reciprocity for High-Field Systems: Agreement between Theory and Experiment in a Head-sized Spherical Phantom Excited with a Surface Coil at 300 MHz**
Christopher Collins, Qing Yang, Jinghua Wang, X. Zhang, Haiying Liu, S. Michaeli, Xiao-Hong Zhu, Gregor Adriany, J. Thomas Vaughan, Peter Anderson, Hellmut Merkle, Kamil Ugurbil, Michael Smith and Wei Chen.
Pennsylvania State University, Hershey, PA, USA; University of Minnesota, Minneapolis, MN, USA.
- 1100. Preliminary Evaluation of the Application of High Permeability Microstructured Material (μ SM) in MRI**
Michael CK Wiltshire, John B Pendry, Ian R Young, David J Larkman, David J Gilderdale, Joseph V Hajnal
Marconi Materials Technology, Caswell, Towcester, Northamptonshire England, UK
and Imperial College, Hammersmith Hospital, London, England, UK;

RF Coils

- 1101. Automatic Tuned MRI RF Coil for Multinuclear Imaging at 3T**
Gultekin Gulsen, Lutfi Muftuler, Kumsal Sezen, Orhan Nalcioğlu
Health Sciences, Research Imaging Center, Irvine, California, USA.
- 1102. Elliptical ^{23}Na body resonator.**
F. Odoj, A. Weisser and A. Haase.
University of Wurzburg, Wurzburg, Germany, Rapid Biomedical, Wurzburg, Germany and GmbH and Am Hubland, Wurzburg, Germany .
- 1103. A New RF Volume Coil for Human MR Imaging and Spectroscopy at 4 Tesla**
Xiaoliang Zhang, Kamil Ugurbil, Wei Chen.
Center for Magnetic Resonance Research, University of Minnesota, Minneapolis, MN, USA.
- 1104. Microstrip RF Surface Coils for Human MRI Studies at 7 Tesla.**
X. Zhang, K. Ugurbil and W. Chen.
University of Minnesota Medical School, Minneapolis, MN, USA.

- 1105. Optimized Coil Design for Localized 19F MRS of 5FU in Liver Metastases at 1.5T Tesla.**
D Klomp, H. Van Laarhoven, Y. J. Kamm, A. VanDen Bergh, D. Wagner and A. Heerschap.
University Medical Center, Nijmegen, Netherlands, Non Given, Rhene, Netherlands and University Hospital, Nijmegen, Netherlands.
- 1106. Double Tuned Coil for Interleaved 31P/19F MRS of Mouse Tumors at 7 Telsa.**
G. Muda, H. Van Laarhoven, D. Klomp, J. Pikkemaat, J. van Asten, U.J. Kamm and A. Heerschap.
University Medical Center, Nijmegen, Netherlands, University Hospital Nijmegen, Nijmegenm, Netherlands, Non Given, Rhenen, Netherlands.
- 1107. An Optimized Toroid-Coil for Cooled-Copper-Applications.**
M. Blaimer, T. Lanx, A. Haasse and M. Griswold.
Universit t Wurzburg, Wurzburg, Germany.
- 1108. Multiple-Mouse MRI**
N. A. Bock, N. Konyer and R. M. Henkelman.
University of Toronto, Toronto, Ontario. Canada.
- 1109. A Hybrid Half-Volume Coil for Rabbit Brain Imaging**
Huiming ZHANG, Alice WYRWICZ
Center for MR Research, ENH Research Institute, Evanston, IL, USA.
- 1110. A Cosine Wire Coil Based on Litz Concept**
Baiyu Tang, Linda Ann Jelicks
Yeshiva University, Albert Einstein College of Medicine, Bronx, New York USA.
- 1111. Phased Array Imaging on Small Animal Research Systems**
Barbara L. Beck*1 , Benjamin A. Inglis, Stephen J. Blackband*1.
University of Florida, Gainesville, FL, USA.
- 1112. Petal Resonator Surface Coil**
S Hidalgo, A O Rodriguez, R Rojas, J Sanchez, G Reynoso, F Barrios.
IF-UNAM, Ciudad Universitaria, Queretaro, Queretaro Mexico.
- 1113. Superconducting MR Helmholtz Coil pair for Human Imaging with Improved Penetration**
Erzhen Gao, K. C. Chan, MS Chow, K. K. Wong, B Yan, J Fang, Ex Wu, D Kacher, G Young, F A Jolesz, QY Ma, ES Yang.
The University of Hong Kong, Hong Kong, China;
Brigham and Women's Hospital, Harvard Medical School, Boston, MA.
- 1114. Transeive Quadrature Breast Coils and Applications at 4 Tesla**
Hellmut Merkle, Lance DelaBarre, Patrick J. Bolan, Eva H. Baker, LenoreI.Everson, Douglas Yee, Michael Garwood
University of Minnesota, Minneapolis, MN USA.
- 1115. Asymmetric MRI RF Coil**
Desmond Yau Mr, Ben Gerard Lawrence, Stuart Crozier
University of Queensland, Queensland Australia
- 1116. A Whole Body Transmit Coil and Head Receive Coil Configuration for fMRI at 3T**
A. J. Freeman, M. Burl, A. M. Howseman.
Marconi Medical Systems, Farnham, Surrey, UK and Marconi Medical Systems, Cleveland, Ohio, USA.

RF Coil Evaluation and Comparison

- 1117. Four Channel Preamplifier Decoupled Phased Array for Brain Imaging at 1.5T.**
P. Ledden and S. Inati.
Nova Medical, Inc., Wakefield, MA, USA and Dartmouth College, Hanover, NH, USA.
- 1118. Hybrid Phased Array Receiver Coil for 3.0T MR Imaging of Internal Auditory Canal**
Armen Kocharian, Joel P. Felmlee, John I. Lane, Matt A. Bernstein.
Mayo Clinic, Rochester, MN, USA.
- 1119. Direct Comparison of Transmit Efficiency in Bird-Cage and TEM Resonators.**
J. Tropp and P. Calderon.
G.E. Medical Systems, Fremont, CA, USA.
- 1120. Constructions and Tests of Seven Small Bore Coil Cores for NMRI at 9.4T**
Baiyu Tang, Linda Ann Jelicks
Yeshiva University, Albert Einstein College of Medicine, Bronx, New York USA.
- 1121. Efficiency and Dielectric Resonance Effects of a Body Resonator at 175MHz**
Jan den Hollander, Edward G Walsh, Michael Vaughn, Steven Buchthal, Gerald M Pohost.
University of Alabama at Birmingham, AL, USA.
- 1122. Gaining Space with an Embedded Rf Body Coil Shield**
Ed B. Boskamp, Richard A. Mallozzi, Qin Liu, William A. Edelstein
GE Medical Systems, Milwaukee, WI USA and GE Corporate R&D, Schenectady, NY, USA.
- 1123. Whole Body RF Coil for 3 Tesla MRI System**
Ronald D Watkins, John F Schenck, Kenneth W. Rohling, Joseph Piel, Daniel Rosenfeld, Douglas Kelley, Robert Lenkinski, Herbert Kressel and Avram Montag.
G.E. Research & Development, Niskayuna, NY USA; G. E. Medical Systems, Tirat Carmel, Israel; Harvard University, Wilmington, MA and Beth Israel Deaconess Medical Center, Boston, MA, USA.
- 1124. High Temperature Superconducting Surface Coils for 2 Tesla Magnetic Resonance Imaging of Spinal Cord; Comparison with Implanted Coils**
Jaroslaw Wosik, Lei-Ming Xie, Feinian Wang, Krzysztof Nesteruk, Mehmet Bilgen, Ponnada Aswadha Narayana.
Texas Center for Superconductivity and Electrical and Computer Engineering Houston, TX USA; Institute of Physics of Polish Academy of Sciences, Warsaw, Poland and University of Texas - Houston Houston, TX, USA.
- 1125. An Evaluation of SNR Profiles along the Coil Axis of Shaped Circular and Square Surface Coils**
Thomas Prock, David Collins, Andreas Degenhard, Martin Leach
1 Royal Marsden Hospital, CRC Clinical MR Research Group, Sutton, Surrey England, UK;
- 1126. Resonance Mode Selection for Inductively-Coupled Implanted Coils.**
T. H. Mareci, X. Silver and B. Beck
University of Florida, Gainesville, FL, USA.

RF Circuits

- 1127. Switchable Field of View RF Body Coil.**
E. Boskamp and D. Weyers
G. E. Medical Systems, Milwaukee, WI, USA.
- 1128. Field Analysis in Crossed Birdcage Coils.**
A. Weisser, T. Lanz and A. Haase.
Rapid Biomedical GmbH, Würzburg, Germany, Universität Würzburg, Germany.
- 1129. A Model for Image Shading in Multi-mode Resonators.**
J. Tropp.
G. E. Medical Systems, Fremont, CA, USA.
- 1130. Simulation of a “Spiral” Volume Coil at High Static Magnetic Field Strength**
Wanzhan Liu, Christopher M. Collins, Michael B. Smith.
Penn State College of Medicine, Hershey, PA, USA.
- 1131. A Transmission Line Model for TEM Resonators and its Comparison with Standard Electric Equivalent Circuit Models**
Gene Bogdanov, Gerd Kueppers, Reinhold Ludwig, Jean A. King
Worcester Polytechnic Institute, Worcester, MA, USA and University of Massachusetts Medical School (Worcester), North, Worcester, MA, USA.
- 1132. Interactions and SNR in Medial-Lateral Breast Arrays.**
E. Ramsay, J. Bishop and D. Plewes.
University of Toronto, Toronto, ON, Canada and Medical Biophysics, Toronto, ON, Canada.

RF Modeling

- 1133. New Decoupling Method for Spiral Phased Array HTS coil**
Jing Fang, G G Shen, KC Chan, E Gao, QYMa, E S Yang.
Jockey Club MRI Engineering Center, the University of Hong Kong, Hong Kong, HKSAR
- 1134. Characterisation and Reduction of Eddy Currents in a TEM Resonator**
Marcello ALECCI, Peter JEZZARD
University of Oxford, John Radcliffe Hospital, Oxford, United Kingdom.
- 1135. Circuit Resistance and Rational Matching for the TEM Resonator.**
J. Tropp.
G. F. Medical Systems, Berkeley, CA, USA.
- 1136. A New High Field RF Resonator-Design and Simulations.**
T. Lanz, M. Griswold and A. Haase.
Universität Würzburg, Germany.
- 1137. The Use of Circularly Polarized Coils with a Low Input Impedance Preamplicifier.**
U. Gotshal and G. R. Duensing
MRI Devices Corporation, Gainesville, FL, USA.

Gradient Coils

- 1138. Distributed Gradient Coil Design Using Linear Programming**
Wenyan He and Patrick N. Morgan
Texas A&M University, College Station, TX USA
- 1139. A Variation on Variational Methods: Disk Gradient Example**
Sh. Shvartsman, R. Brown, Y.-C. Cheng, T. Eagan, J. Willig
Marconi Medical Systems, Inc., Highland Hts, OH USA and Case Western Reserve University, Cleveland, OH
- 1140. New Type of Head-Only Gradient Coil with Strong and Linear Gradient Field for Head MR Imaging**
Y. J. Yang, C. H. Oh, K. K. Park, J.H. Hyun, D.R. Lee.
Korea University, Seoul, South Korea.
- 1141. Asymmetrical-Gradient Coil for Head Imaging**
Dardo Tomasi, Elisabeth Caparelli, Bernd Foester, Horacio Panepucci, Alberto Tannus, Edson Vidoto, Rogério Xavier
Universidad Nacional de General San Martín, Buenos Aires Argentina and Universidade de Sao Paulo, Instituto de Fisica de Sao Carlos, Sao Paulo, Brazil;
- 1142. Development of Multi-channel Gradient Probe for Super-Parallel MR Microscope**
Yoshimasa Matsuda, Tomoyuki Haishi, Yukako Yamazaki, Katsumi Kose, Izumi Anno
1 University of Tsukuba, Institute of Applied Physics, Tsukuba, Ibaraki Japan;
- 1143. Limits on Shielding for MRI Coils**
T. Eagan, R. Brown, H. Mathur, R. Petschek, Shmaryu Shvartsman, J. Willig
Dept. of Physics, Case Western Reserve University, Cleveland, OH USA and MR Division, Marconi Medical Systems, Inc., Cleveland, OH, USA.

New Scanner Designs

- 1144. Open Vertical Mobile 0.22T MRI System for Veterinary/Human Extremities Imaging**
K. C. Chan, SM Yeung, K. K. Wong, C.T. Leung, Ex Wu, Qy Ma, G. X. Shen, Z.R. Dong, K.H. Lam, K. L. Watkins and E.S. Yang.
The University of Hong Kong, Hong Kong, China; Columbia University, NY; Institute of Electrical Engineering, Chinese Academic of Science, China and The Hong Kong Jockey Club, Hong Kong, China;
- 1145. Development of Desktop MR Microscopes Using 1.0 T Dipole-Ring Permanent Magnets**
Tomoyuki Haishi, Yoshimasa Matsuda, Yukako Yamazaki, Katsumi KOSE, Shin UTSUZAWA, Akio Nakanishi, Shigemasu Okada, Tsuyoshi Tsuzaki; University of Tsukuba, Tsukuba, Japan; MR Technology, Inc., Tsukuba, Japan and Sumitomo Special Metals Co., Shimamoto-cho, Mishima, Osaka Japan.
- 1146. Blueprint for a 21st Century MR Research Console—Integration of Simulation with software-based Pulse Programming**
Jonathan C. Sharp, Donghui Yin, Peter Latta, Vladimir Jellus and John Rendell.
National Research Council, Institute for Biodiagnostics, Winnipeg, Manitoba Canada and Institute of Measurement Science, Bratislava, Slovakia.

- 1147. An Inexpensive 0.2T Desktop MR Scanner**
David G. Brown, David C. Spence, Steven M. Wright, Jay R. Porter
Texas A&M University, College Station, TX USA

B0 Magnet Design

- 1148. Novel Short Whole Body MRI Magnet Design using Genetic Algorithms**
Nicholas. R. Shaw, R. E. Ansorge, Moray. B. Grieve, T. Adrian. Carpenter, Laurie. D. Hall.
University of Cambridge, Cavendish Laboratory, Cambridge, Cambs UK;
- 1149. Short Magnets for Whole-Body Magnetic Resonance Imaging**
Frank Davies, Gordon Demeester, David Melotte, Michael Morich, Adrian Thomas.
Oxford Magnet Technology Ltd, Oxford, Oxon England and Marconi Medical Systems, Highland Heights, OH USA
- 1150. High Efficiency Open Mono-Planar Quadru-Ferro-Refraction MRI Magnet**
Yuly M. Pulyer, Mirko I. Hrovat
Brigham and Women's Hospital, Harvard Medical School, Boston, MA USA

System Electronics

- 1151. Engineering Design of Phased Array EPI using TDM**
G.X. Shen.
University of Hong Kong, Pokfulam, Hong Kong.
- 1152. A Fast Recovery Pulsed Readout Power Supply for Prepolarized MRI**
Nathaniel Matter, Steven Conolly, Albert Macovski, Greig Scott
Stanford University, Electrical Engineering CA, USA.
- 1153. A coil independent two-way visualisation device for patient anxiety reduction and presentation of visual stimuli**
Maarten van der Kamp, Elizabeth van Vorstenbosch-Lynn, Hans Vrijheid
Philips Medical Systems Nederland B.V., Best, Netherlands;
- 1154. Hardware for Performing Hyperpolarized Helium Imaging on a Clinical MR Imager**
Angela Tooker, Adelaide Zhang, Arvind Venkatesh, Kwan Soo Hong, Mitchell Albert
Massachusetts Institute of Technology, Cambridge, MA USA;
Brigham & Women's Hospital, and 3 Boston University, Boston, MA.
- 1155. Development and building of a simple, accurate and low cost RF Noise Figure Meter.**
S. A. Cenzano.
National Research Council, Winnipeg, Manitoba, Canada.

Shims

- 1156. Linear Programming-Based Shim Design for Prepolarized MRI.**
S. E. Ungersma, A. Macovski, G. C. Scott and S. Conolly.
Stanford University, Stanford, CA, USA.
- 1157. Improved Shim by Subject Head Positioning.**
Keith Heberlein, Xiaoping HU
University of Minnesota, Graduate School, CMRR, Minneapolis, MN, USA.

System Calibration

- 1158. The Significance of the Signal-to-Noise Ratio in Type Testing for 26 MRI Scanners.**
J. De Wilde, D. Price, A. Papadaki, J. Curran and R.I. Kitney.
Imperial College London, England, UK.
- 1159. A Method for Calibrating Inter-subsystem Hardware Delays on an MRI Machine.**
M. Thompson and W. Dannels
Marconi Medical Systems, Cleveland, OH, USA.
- 1160. Interactive Adjustment of Gradient Shims and Saturation Parameters Using Real-time Imaging.**
M.A. Guttman, E.R. McVeigh.
National Institutes of Health, Laboratory of Cardiac Energetics, Bethesda, MD, USA.

Basic Science Focus Session (with posters): fMRI: Signal Modeling and New Techniques

- 1161. Does the Early-Negative BOLD Arise from a Delayed CBF Response?**
T. Duong, N. Harel and S.-G. Kim.
University of Minnesota, Minneapolis, MN, USA.
- 1162. Close Tag, Short TR Continuous ASL for Functional Brain Mapping: High Temporal Resolution ASL with a BOLD Sized Signal at 1.5T**
Eric Wong, Thomas Liu, Lawrence Frank, Richard Buxton.
University of California, San Diego, CA, USA.
- 1163. Event-related Perfusion Measurement using TILT and Balloon-Model Description of the Hemodynamic Response to Short Stimuli**
Conny F. Schmidt, Gerard Crelier, Ulrike Dydak and Peter Boesiger.
University and ETH Zurich, Zurich, Switzerland.
- 1164. Nonlinearity of the Hemodynamic Response: Modeling the Neural and BOLD Contributions.**
R. Buxton, T. Liu and E. Wong.
University of California, San Diego, CA, USA and Thornton Hospital, La Jolla, CA, USA.
- 1165. Linearity of the BOLD response to varying durations of stimulus "OFF" periods.**
R. Birn and P. Bandettini.
National Institute of Mental Health, Bethesda, MD, USA.
- 1166. MRI Functional Connectivity To Distinguish Primary and Secondary Pathways**
Victoria Morgan and Ronald R. Price
Vanderbilt University, Nashville, TN USA;
- 1167. Detection of Latency of Neural Activity Between Visual Areas: An Event-Related fMRI Study.**
J. Zhuang, S. He and X. Hu.
University of Minnesota, Minneapolis, MD, USA.
- 1168. Correlating BOLD Contrast with Simultaneous NIRS using the Valsalva Maneuver**
Bradley J. Macintosh, Ravi S. Menon
University of Western Ontario, London, Ontario Canada and
The John P. Robarts Research Institute, Advanced Imaging Group, London, ON Canada.

- 1169. Flow-sensitive Alternating Diffusion-weighting Effect (FADE): a direct method to distinguish vascular and parenchymal contributions to brain fMRI signal.**
W. Song, M. Woldorff, H. Fichtenholtz, G. R. Mangun and G. McCarthy.
Duke University, Durham, NC, USA.
- 1170. IRIS: A Novel Technique for Multi-Contrast fMRI**
Song Lai, J.J. Wang, G.H. Jahng, R. Benson, G.R. Ramsby
University of Connecticut School of Medicine, Farmington, CT, USA.
- 1171. Combined Single Shot Perfusion and BOLD imaging.**
P. Van Gelderen, M. Yongbi and J. Duyn.
National Institutes of Health, Bethesda, MD, USA.
- 1172. Contrast Enhancements in MRI and fMRI by Sensitivity-Improved Detection of Intermolecular Zero- and Double-Quantum Coherences**
Y.-Y. Lin, H.H.C. Chang, W.S. Warren
Princeton University, Princeton, NJ, USA.

FMRI: Numerical Modeling

- 1173. Field Strength Dependence of Extravascular Contribution of BOLD Signal Changes: A Simulation with a Vascular Network Model**
N. Fujita
Osaka University Medical School, Suita, Japan.
- 1174. The Effect of Finite Length of Blood Vessels on the MR Signal in BOLD Imaging.**
D. Yablonskiy and A. Sukstanskii.
Washington University, St. Louis, MO, USA.
- 1175. Additional Gradients and Large Vessel Contributions in fMRI : a Modeling Approach**
Vincent Denolin and Thierry Metens
Universite Libre de Bruxelles, Brussels, Belgium.
- 1176. Heterogeneity of TE Response Curves using Cubic mm Voxels.**
B. Biswal, A. Jesmanowicz and J. Hyde.
Medical College of Wisconsin, Milwaukee, WI, USA.
- 1177. An Analytic Solution of the Density of States of a Magnetic Sphere.**
Y.-C. Cheng and E. M. Haacke.
Case Western Reserve University, St. Louis, MO, USA and The MRI Institute for Biomedical Research, St. Louis, MO, USA.
- 1178. Influence of Haemoglobin and Haematocrit on BOLD fMRI Signal Intensity at 3 Tesla**
Sharon Gustard, Emma J. Williams, Laurance D. Hall, T. Adrian Carpenter
University of Cambridge, Cambridge, England, UK;
- 1179. Comparison of the BOLD Signal Change in Event-Related fMRI with Computer Simulations Using the Balloon Model**
Ching-Mei Feng, Ho-Ling Liu, Jia-Hong Gao
Research Imaging Center, University of Texas Health Science Center at San Antonio, San Antonio, TX USA and Chang Gung Univ., Chang Gung Medical Center, Taoyuan, Taiwan;

1180. Coupling Between the Overshoots in BOLD Signal and Blood Flow Changes: A Computer Simulation Based on Balloon Model

Ching-Mei Feng, Ho-Ling Liu, Jia-Hong Gao

Research Imaging Center, University of Texas Health Science Center at San Antonio, San Antonio, TX USA and Chang Gung Univ., Chang Gung Medical Center, Taoyuan, Taiwan;

FMRI: Signal Characteristics**1181. Relationship between S/N and fMRI Sensitivity.**

N. Petridou, F. Ye, A. McLaughlin and P. A. Bandettini.

National Institutes of Health, Bethesda, MD, USA.

1182. The Intercept Value in the Linear Relationship Between Fractional Signal Changes and Echo Time in fMRI

Patrick Stroman, Vicky Krause, Uta Frankenstein, Krisztina Malisza and Boguslaw Tomanek.

Institute for Biodiagnostics, Winnipeg, MB Canada;

1183. T2 Weighted fMRI in Humans at High Magnetic Fields.

E. Yacoub, T. Duong, G. Adriany, S.-G. Kim, K. Ugurbil and X. Hu.

University of Minnesota, Minneapolis, MN, USA.

1184. Identification of T1 Values for Brain Activated Pixels from Transient fMRI Data Sets.

Y. Mazaheri, B. Biswal, A. Jesmanowicz and J. Hyde.

Medical College of Wisconsin, Madison, WI, USA.

1185. T2* Variability Across Brain Regions is Similar at 3.0T and 1.5T: Implications for BOLD fMRI.

M. Lipton, G. Pell, C. Branch, J. Hrage, D. P. Lewis and J. A. Helpert.

Nathan Kline Institute, Orangeburg, NY, USA, Yeshiva University, Albert Einstein College of Medicine, Bronx, NY, USA and New York University, New York, NY, USA.

1186. Differential fMRI BOLD Response to Breathhold in Humans and Anesthetized Rats.

S. Kannurpatti and B. Biswal.

Medical College of Wisconsin, Milwaukee, WI, USA

1187. Separation of BOLD Contribution Related to Dynamic Dephasing Regime in Water and Metabolites of Human Visual Cortex at 7T: A Comparison Study Using Carr-Purcell and Hahn Spin Echo MRS.

S. Michaeli, M. Garwood, X.-H. Zhu, L. Delabarre, K. Ugurbil and W. Chen.

University of Minnesota School of Medicine, Minneapolis, MN, USA.

1188. Probing of Static and Dynamic BOLD Effect and Non-BOLD Effect of Cerebral Metabolites by Functional MRS in Human Visual Cortex at 4T and 7T.

S. Michaeli, X.-H. Zhu, M. Barwood, K. Ugurbil and W. Chen.

University of Minnesota, Minneapolis, MS, USA.

1189. Examination of the Linearity of BOLD FMRI Responses in a Higher Level Cognitive System

Kaundinya Gopinath, Richard W. Briggs, Nathan Himes

University of Florida, Gainesville, FL USA.

1190. Estimation of Relative Oxidative Metabolic Changes during Motor Activity using Graded Hypercapnic Calibration at 4 Tesla

Eric Ray Cohen, Kamil Ugurbil, Seong-Gi Kim

SUNY Upstate Medical University, Syracuse, NY and Center for Magnetic Resonance Research, University of Minnesota, Minneapolis, MN

- 1191. Transient Decrease in Water Diffusion Observed in Human Occipital Cortex During Visual Stimulations.**
A. Darquié, J.-B. Poline, H. Saint-Jalmes and D. Le Bihan.
CEA-SHFJ, Orsay, France, Université Claude Bernard-Lyon1, Laboratoire de RMS, Villeurbanne, CDX, France and Service Hospitalier, Orsay CDX, France.
- 1192. Why does MTR change with neuronal depolarization?**
Greg J. Stanisz, Richard Yoon, Michael Joy, R. Mark Henkelman
University of Toronto, Toronto, ON Canada
- 1193. Does Age influence the BOLD Response?**
Gregory S Harrington, Traci H Downs, Dennis R Proffitt, Carol A Manning, J Hunter Downs III 5
University of California at Davis, Sacramento, CA USA and University of Virginia
- 1194. Dependence of Functional Connectivity on Functional State of the Brain**
Victoria Morgan, Ronald R. Price
Vanderbilt University, Nashville, TN USA;
- 1195. Comparison of the Intravascular Dependence of R2 and R2* in Blood on Oxygenation at 1.5 T.**
M.J. Silvennoinen, C. Clingman, X. Golay, R. Kauppinen, and P.C. Van Zijl.
University of Kuopio, Kuopio, Finland; Johns Hopkins University, Baltimore, MD, USA.
- 1196. Magnetic Susceptibility of Human Blood.**
D. Yablonskiy, W.M. Spees, and J.J.H. Ackerman.
Washington University, St. Louis, MO, USA.
- 1197. Hyperventilation Strongly Reduces BOLD Contrast in Motor, Visual and Auditory Cortices**
Navid Seraji-Bozorgzad, Gregory J. Moore, Manuel E. Tancer, Stephen R. Dager, Stefan Posse
Wayne State University, University Health Center, Detroit, MI USA and University of Washington School of Medicine, Seattle, WA
- 1198. Predicting BOLD Signal Changes as a Function of Resolution.**
Y.C. Cheng, E.M. Haacke, and G. Herigault.
Case Western Reserve University, St. Louis, MO, USA; The MRI Institute for Biomedical Research, St. Louis, MO, USA.

FMRI: Signal Instabilities

- 1199. A Quantitative Comparison of Motion Detection Algorithms in fMRI.**
B. Ardekani, A.H. Bachman and J.A. Halpern.
The Nathan S. Kline Institute, New York University Medical School, Orangeburg, NY, USA.
- 1200. Motion Parameters in fMRI time series data as determined by retrospective motion correction using map-slice-to-volume approach**
Boklye Kim, Thomas L. Chenevert, Charles R. Meyer
University of Michigan, Ann Arbor, MI USA
- 1201. Feature Based Image Registration for fMRI Images**
Kaundinya Gopinath, Yunmei Chen, Richard W. Briggs, Feng Huang, T Sheshadri
University of Florida, Gainesville, FL, USA.

- 1202. Resampling Methods to Test Reliability of Motion-Corrected fMRI Data.**
Ranjan Maitra, Steven R Roys, Joel Greenspan, Rao P Gullapalli
University of Maryland Baltimore County, and University of Maryland, Baltimore,
Baltimore, Maryland USA
- 1203. Experimental Determination of Accuracy in Image-Based Motion Detection for fMRI.**
Stefan Thesen, Lothar R. Schad, André Bongers, Edgar Mueller
Siemens Medical Systems, Erlangen, Germany and Deutsches Krebsforschungszentrum,
Abtl. Biophysik und med. Strahlenphysik, Heidelberg, Germany.
- 1204. Coupling Effect of Cardiac Pulsation with Hemodynamic Changes.**
Toru Yamamoto, Shing-Chung Ngan, Yoshifumi Yamada and Mamoru Tamura.
Hokkaido University, Sapporo, Japan and Univ. of Minnesota, Minneapolis, Minnesota USA
- 1205. Estimation of the Physiological to System Noise Ratio in the Human Brain.**
K. Arfanakis, D. Cordes, V.M. Haughton, and M.E. Meyerand.
University of Wisconsin, Madison, WI, USA.
- 1206. Stimulus-induced ventilation artifact in fMRI: a case report.**
C. Nangini, W.R. Staines, S.E. Black, W.E. McIlroy, and S. Graham.
University of Toronto, Toronto, ON, Canada.
- 1207. The Interplay between Motion correction and Slice Timing Correction in fMRI Data Processing.**
W-K.W. Chau, S. Graham, and A.R. McIntosh.
University of Toronto, Toronto, ON, Canada.
- 1208. Adaptive Signal-Preserving Denoising of ER-fMRI Data Using Spectrum Subtraction.**
Yasser Kadah
Cairo University, Biomedical Engineering Dept., Giza, Egypt;
- 1209. Increased detection sensitivity in fMRI by adaptive filtering**
Ola Friman, Peter Lundberg, Magnus Borga, Jonny Cedefamn, Hans Knutsson
Linköping University, Linköping, Sweden;
- 1210. Estimation and Correction for 0.1 Hz Fluctuations in fMRI Based on Frequency Selective Phase Correlated Spatial Averaging.**
S. Sarkar, P-F. Van De Moortele, S-C. Ngan, E. Yacoub, and X. Hu.
University of Minnesota Medical School, Minneapolis, MN, USA.

FMRI: Acquisition Techniques

- 1211. Measuring Regional Cerebral Blood Flow Changes in Brain Activation by Suppressing Stationary Signal Using Triple Inversion Recovery**
P. Sharma, W.T. Dixon
Georgia Institute of Technology, Atlanta, GA USA
- 1212. Event-Related Perfusion fMRI with Randomized Designs.**
T. Liu, W. Wong, K. Sidaros, L. Frank and R. Buxton.
University of California, La Jolla, CA, USA; Danish Research Center of MR, Hvidovre, Denmark.

- 1213. Detection of the brain response during a cognitive task using perfusion-based event-related functional MRI**
Seong-Hwan Yee, Ho-Ling Liu, Jinwen Hou, Yonglin Pu, Peter T. Fox, Jia-Hong Gao.
University of Texas Health Science Center at San Antonio, TX USA; Chang Gung University, Taoyuan, Taiwan and Shandong Medical University Hospital, Jinan China.
- 1214. Simultaneous BOLD/Perfusion fMRI with FAIR and UNFAIR at 1.5T and 3.0T: Optimization and Comparison.**
M. Yongbi, F. Fera, J.A. Frank and J. Duyn.
National Institutes of Health, Bethesda, MD, USA.
- 1215. Measurement of BOLD, rCBV, and Blood Oxygen Saturation in a Single Shot.**
Oliver Speck, Valerij Kiselev and Jürgen Hennig
University Medical Center, Diagnostic Radiology/Medical Physics, Freiburg, Germany.
- 1216. Hypercapnia normalization of BOLD fMRI response during cognitive tasks.**
Richard P Kennan and R. Todd Constable.
Yale University, New Haven, CT, USA
- 1217. On the Potential of Sensitivity Encoded EPI for BOLD Functional Brain Imaging.**
J. De Zwart, P. Kellman, P. Van Gelderen, and J. Duyn.
National Institutes of Health, Bethesda, MD, USA.
- 1218. Repetition Time in Echo Planar Functional MR Imaging.**
R. Todd Constable, Dennis D. Spencer
Yale University, New Haven, CT, USA
- 1219. The efficacy of cardiac gating with variable TR correction in fMRI**
Rasmus M. Birn, Jerzy Bodurka and Peter A. Bandettini.
National Institute of Mental Health, Bethesda, MD, USA.
- 1220. Single-shot Multislice U-FLARE Imaging. Application to Functional MRI.**
Wolfgang Dreher, Elmar Busch, Kurt Bockhorst, Martin Meier, Dieter Leibfritz
University of Bremen, Germany and University of Essen, Essen, Germany.
- 1221. T2-Prepared BOLD fMRI.**
Vincent Denolin and Thierry Metens
Universite Libre de Bruxelles, Brussels, Belgium.
- 1222. Measuring CBF and T2* changes in activated primary visual cortex using saturation recovery with multi-echo EPI.**
S. Francis, P. Gowland and R.W. Bowtell.
Magnetic Resonance Centre, University of Nottingham, Nottingham, UK.
- 1223. Measuring Blood Oxygenation using Variable Echo Spacing CPMG: Use of the Luz-Meiboom Equation.**
Chris V. Bowen and Brian K. Rutt.
The John P. Robarts Research Institute, London, ON Canada.
- 1224. Measuring the Timings of Motor Events in fMRI using High Speed Multi-Slice PRESTO-EPI.**
Andrew M. Gibson, Andrew M. Peters, Peter G. Morris, Richard W. Bowtell
University of Nottingham, Nottingham, United Kingdom.

- 1225. The effects of a change in blood flow when using 3D-PRESTO for fMRI.**
Hans Hoogduin and Nick Ramsey
University Medical Center Utrecht, Utrecht, Netherlands.
- 1226. Speech Recording During fMRI.**
E. Featherstone, and O. Josephs.
Institute of Neurology, London, UK.
- 1227. A New Vibrotactile Stimulation Device for fMRI**
Richard W. Briggs, Iona Dy-Liacco, Kaundinya S. Gopinath, Nathan C.Himes 4 , David A. Soltysik, Paul Browne 5 ,Roger Tran-Son-Tay
University of Florida, Gainesville, FL USA and Steadfast Technologies, Seffner, FL, USA.
- 1228. New Devices to Deliver Somatosensory Stimuli During fMRI.**
S.J. Graham, W.R. Staines, A. Nelson, D. Plewes, and W.E. McIlroy.
University of Toronto, Toronto, ON, Canada.

FMRI: Artifacts

- 1229. The Effects of Physiological Noise Correction on fMRI Time-Series**
William Auffermann, Shing-Chung Ngan, Shantanu Sarkar, Essa Yacoub, Xiaoping Hu.
University of Minnesota, Medical School, CMRR, Minneapolis, MN, USA.
- 1230. Fast, Fully Automated Global and Local Shimming of the Human Brain**
James Wilson and Peter Jezzard
FMRI Centre, University of Oxford, John Radcliffe Hospital, Oxford, U.K.;
- 1231. Whole Brain fMRI with Steady State Z-Shimming At Selected Slices**
Yiping P. Du
Brain Research Imaging Center, University of Chicago, Chicago, IL, USA.
- 1232. Image Blurring in fMRI with Z-Shim**
Yiping P. Du
Brain Research Imaging Center, University of Chicago, Chicago, IL, USA.
- 1233. Reduction of Susceptibility Artifact in Human Brain with MESBAC Sequence.**
Z. Li, G. Wu, X. Zhao, F. Luo, and S-J. Li.
Medical College of Wisconsin, Milwaukee, WI, USA.
- 1234. Compensation of susceptibility induced BOLD sensitivity losses in Echo-Planar fMRI imaging.**
R. Deichmann, and R. Turner.
Institute of Neurology, London, UK and University College London, London, UK.
- 1235. Reduction of Motion Artefacts using Prospective Acquisition Correction for fMRI**
Stefan Thesen, Edgar Mueller, Lothar R. Schad
Siemens Medical Systems, Erlangen, Germany and Deutsches Krebsforschungszentrum, Abtl. Biophysik und med. Strahlenphysik, Heidelberg, Germany.
- 1236. Do different MRI scanners produce different fMRI results?**
Cristina Lavini, Erik-Jan Vlieger, Charles B. Majoie, Gerard J. Den Heeten
Department of Radiology, Academic Medical Center, Amsterdam, The Netherlands.
- 1237. Match-Warped EPI Anatomic Images and the Amygdala: Imaging in Hard Places**
M.L. Rohan, W.D.S. Killgore, J.G. Eskesen, P.F. Renshaw and D.A. Yurgelun-Todd.
Harvard Medical School, Belmont, MA, USA.

FMRI: Localization and Spatio-temporal Aspects

- 1238. Rapid Motor Preparation Revealed by FMRI**
W.H. Backes, J.J. Adam
University Hospital Maastricht, Maastricht, Netherlands
- 1239. Functional Magnetic Resonance Imaging of Automatic and Controlled Hand Writing**
Peter Erhard, Alexander Peinemann, Claus Baumgart, Claudia Mentschel, Bastian Conrad, Markus Schwaiger, Hartwig R. Siebner.
Technische Universität, München, Germany;
- 1240. Spatiotemporal Characteristics of Cerebellar BOLD Responses to a Precision Grip Task**
Gérard R. Crelier, Thomas Järmann, Hatem Alkadhi, Xavier Golay, Marie-Claude Hepp-Reymond and Spyros S. Kollias
University Hospital Zurich, Institute of Neuroradiology, Zurich, Switzerland.
- 1241. Brain Activation during Precision versus Casual Handgrip Tasks**
Jing Z. Liu, Yasuaki Harasaki, Guang H. Yue
Cleveland Clinic Foundation, Lerner Research Institute, Cleveland, OH, USA.
- 1242. Fine-Scale Finger Somatopy in the Human Primary Motor Cortex as Revealed by High-Resolution Functional MRI.**
P. Dechent and J. Frahm.
Biomedizinische NMR Forschungs GmbH am MPI für biophysikalische Chemie, Göttingen, Germany.
- 1243. Event-Related Functional Magnetic Resonance Imaging of Sensory System by Using Cold and Touch Stimulation in Normal Volunteers**
In Chan Song, Kee Hyun Chang, In Kyu Yu, Sang Hyun Lee, Moon Hee Han
Seoul National University College of Medicine and Institute of Radiation Medicine,
Chongno-Gu, Seoul, Korea.
- 1244. The somatosensory and visual cortex roles during a tactual mental imagery: An fMRI study**
Severine Lambert, Eliana Sampaio, Christian Scheiber, Yves Mauss.
Université Louis Pasteur, Faculté de Psychologie et des Sciences de l'Éducation, Strasbourg, France.
- 1245. Somatosensory cortical activation in the absence of sensory stimulation**
Sami Martinkauppi, Hannu Aronen, Antti Korvenoja, Antti Pertovaara, Synnöve Carlson.
Helsinki University, Helsinki, Finland;
- 1246. Primary sensorimotor cortex is activated by virtual movements: a fMRI study in 3 cases of amputated patients**
Danielle Ibarrola, Franck-Emmanuel Roux, Yves Lazorthes, Isabelle Berry.
Hôpital Purpan & Rangueil, Neuroradiology, Toulouse, France;
- 1247. Evaluation of Cerebral Cortices Associated with Sexual Arousal in Healthy Male Using BOLD-based Functional MRI.**
Gwang-Woo Jeong, Heoung-Keun Kang, Jeong-Jin Seo, Hyung-Joong Kim, Kwang-Sung Park
Chonnam University Medical School, Kwang-Ju, S. Korea.
- 1248. Functional MRI of the Human Amygdala?**
Klaus -Dietmar Merboldt, Peter Fransson, Harald Bruhn, Jens Frahm
Biomedizinische NMR Forschungs GmbH am Max-Planck-Institut für biophysikalische Chemie, Göttingen, Germany and Karolinska Institutet, Stockholm, Sweden.

- 1249. Nasotemporal Asymmetries of the Ocular Dominance Regions in Human Visual Cortex Demonstrated by Functional MRI.**
A. Toosy, D. Werring, G.T. Plant, E. Bullmore, D.H. Miller, and A.J. Thompson.
Institute of Neurology, London, UK; Institute of Neurology, London, England, UK; Addenbrookes Hospital, Cambridge.
- 1250. The activated areas in binaural and monaural listening comprehension: an fMRI study.**
Fukujiro Ozawa, Toshiharu Nakai, Kayako Matsuo, Chikako Kato, Haruo Isoda, Yasuo Takehara and Harumi Sakahara.
Hamamatsu University School of Medicine, Shizuoka Japan;
Medical Vision Lab, LERC, AIST / Kobe AMC, Ikeda, Osaka Japan; Toyohashi Sozo College, Toyohashi, Japan and Hamamatsu Univ. School of Medicine, Hamamatsu, Japan.
- 1251. Reproducibility of BOLD Response in the Human Brain as Measured at High-Resolution at 7 Tesla.**
Amir Shmuel, Essa Yacoub, Josef Pfeuffer, Pierre-Francois Van De Moortele, Gregor Adriany, Kamil Ugurbil, Xiaoping Hu
University of Minnesota, Minneapolis, MN, USA.
- 1252. Optimal Voxel Size for Detection of fMRI Activation of Visual Cortex.**
Chia-Shang Jason Liu, Atsushi Miki, Grant Liu, John Haselgrove
University of Pennsylvania, Philadelphia, PA USA.
- 1253. Diffusion-Weighted BOLD fMRI at 4 and 7 Tesla: Evaluation of Micro- versus Macrovascular Contributions.**
T. Duong, E. Yacoub, X. Hu, G. Adriany, H. Merkle, P. Andersen, J.T. Vaughan, K. Ugurbil, and S-G. Kim.
University of Minnesota, Minneapolis, MN, USA.
- 1254. fMRI with High Spectral and Spatial Resolution Echo-Planar Spectroscopic Imaging at 1.5 T**
Yiping P. DU, Weiliang DU, Stephen J. Uftring, Xiaobing Fan, Gregory S. Karczmar
University of Chicago, Chicago, IL, USA.
- 1255. Spin-Echo BOLD Signal Yields Improved Spatial Specificity and Resolving Power**
Timothy Q Duong, Noam Harel, Seong-Gi Kim
University of Minnesota, Minneapolis, MN, USA.
- 1256. Correlation between Functional Δ SNR and Activation Area Size**
Anja-Carina Schulte, Oliver Speck, Jürgen Hennig
University Freiburg, Freiburg, Germany.
- 1257. Sub-Millimeter Event-Related fMRI at High Temporal Resolution**
Josef Pfeuffer, Pierre-Francois Van de Moortele, Gregor Adriany, Xiaoping Hu, Kamil Ugurbil
University of Minnesota, Minneapolis, MN, USA.
- 1258. Point Spread of CBF and Early-Negative BOLD fMRI Signals at Sub-Millimeter Columnar Resolution.**
T. Duong, D-S. Kim, and S-G. Kim.
University of Minnesota, Minneapolis, MN, USA.
- 1259. Spatiotemporal Imaging of I0 and T2 * during Visual Stimulation Using Single-Shot Multi-Echo fMRI**
Nikolaus Weiskopf, Uwe Klose, Klaus Mathiak.
University of Tuebingen, Tuebingen, Germany.

- 1260. A General Approach of Characterizing Temporal Properties of Single-Trial fMRI Response.**
Y. Chen, S. Sarka, S-C. Ngan, S. Laconte, and X. Hu.
University of Minnesota, Minneapolis, MN, USA.
- 1261. Dynamics of the BOLD Response at Ultrahigh Fields Revealed at High Spatial and Temporal Resolutions.**
E. Yacoub, A. Shmuel, J. Pfeuffer, P-F. Van de Moortele, G. Adriany, K. Ugurbil, and X. Hu.
University of Minnesota, Minneapolis, MN, USA.
- 1262. Primary Visual Cortex Activated by Visual Attention During Ultra-Short Stimulation at 1.5 T**
Yue Cao, Jie Huang
Michigan State University, Lansing, MI USA.
- 1263. Assessment of the ability to detect timing differences between brain regions using fMRI**
Devesh Raj, Alex A Stevens, John C Gore
Yale University, New Haven, CT USA;

Novel Contrast fMRI

- 1264. WITHDRAWN.**
- 1265. Novel contrast in fMRI of auditory stimulation with intermolecular double-quantum coherences (iDQCs)**
Jianhui Zhong, Wing-chi Edmund Kwok, Zhong Chen
University of Rochester, Rochester, NY USA.
- 1266. Investigating the potential of simultaneous DT-fMRI**
Cam Wheeler-Kingshott, G. J. M. Parker, P. Boulby, M. R. Symms, D.K. Jones, G.J. Barker
University College London, Queen Square, London, England, UK; National Society for Epilepsy, Gerrards Cross, London, England, UK and Institute of Psychiatry, Park, London, England, UK;
- 1267. MRI based method of detection of weak and transient magnetic field changes.**
J. Bodurka, N. Petridou, and P.A. Bandettini.
National Institutes of Health, Bethesda, MD, USA.
- 1268. Functional MRI with a T1 Contrast Agent.**
B. Ellen Scanley, Richard P Kennan, Mark Does, John C. Gore
Yale University, New Haven, CT, USA.

fMRI: Physiological Conditions

- 1269. Correspondence Between fMRI and EEG Signal Changes as a Function of Stimulus Frequency during Visual Stimulation.**
Manbir Singh, Sunghoon Kim, Tae-Seong Kim, Jeong-Won Jeong
University of Southern California, Los Angeles, CA, USA.
- 1270. Event-related fMRI with Continuous EEG: Initial Experience at 1.5T**
Afraim Salek-Haddadi, Louis Lemieux, Philip Allen, Mark Symms, Gareth Barker and David R. Fish.
University College London, London, United Kingdom.

- 1271. Combined Spatial and Temporal Imaging of Form Discrimination in Humans—A fMRI+ERP Study.**
Hengyi Rao, Tiangang Zhou, Yan Zhuo, Silu Fan, Lin Chen
University of Science and Technology of China, Beijing, China.
- 1272. Quantitative Measurements of Cerebral Metabolic Rate of Oxygen (CMRO₂) Using MRI: A Volunteer Study.**
Hongyu An, Weili Lin, Azimcelik, Yueh Z.Lee.
Washington University, Chapel Hill, NC USA.
- 1273. Olfactory fMRI using a Control Apparatus of Odorous Stimuli and Its Topological Map of EEG.**
Chi Woong MUN, Won Seok Kang, Moon Young Paik, Hyeon Yong Lee, Choong Ki EUN, Soon Cheol Chung, Byung Chan Min, Woon Jae Shin, Soo Yeol Lee and Min Hyoung Cho.
Inje University, Kyongnam Korea; Inje University, Pusan, Korea and Korea Research Institute of Standards & Science, Taejon, Korea.
- 1274. Randomized gradient switching during functional magnetic resonance imaging (fMRI) elicits hemodynamic analogues of P50 suppression and mismatch negativity in whole-head magnetencephalography (MEG).**
Klaus Mathiak, A. Rapp, Tilo Kircher, Wolfgang Grodd, Werner Lutzenberger, Ingo Hertrich and H. Ackermann.
University of Tübingen, Tübingen, Germany.
- 1275. Transcranial Direct Current Stimulation Modulates BOLD MRI Responses in Humans.**
J. Baudewig, M.A. Nitsche, W. Paulus, J. Frahm.
University of Göttingen, Göttingen, Germany.
- 1276. Transition Screen Strongly Enhances Activation in Occipital Ventral Cortex During Perception of Colored Stimuli**
Loys Piettre, Michel Dojat, Peggy Gérardin, Christoph Segebarth, Kenneth Knoblauch
Institut national de la santé et de la recherche médicale, Grenoble, France;
- 1277. BOLD fMRI of the Visual Cortex: Quantitative Responses measured with a Graded Stimulus at 1.5T.**
F. B. Mohamed, S.H. Faro, J. I. Tracy, A.B. Pinus, and D. Patel.
MCP Hahnemann University, Philadelphia, PA, USA and Thomas Jefferson University, Philadelphia, PA, USA.
- 1278. When the load gets too heavy: non-monotonic load-response characteristics of a fronto-parietal working memory network**
Cynthia H.Y. Fu, Mick J. Brammer, Steve C.R. Williams, Jieun Kim, Chris Andrew, Anthony Cleare, Nicholas D. Walsh, PaulineM.Williams, Liqun Wang, Edward Bullmore.
Institute of Psychiatry, UK; Glaxo Wellcome Research and Development, Greenford, Middlesex UK and University of Cambridge, Cambridge, UK.
- 1279. Quantitative Evaluation of Activity in the Motor Cortex during a Force-Related Grasping-Task**
Christina Maria Grimm, Gerard Crelier, Hatem Alkadhi, Marie-Claude Hepp-Reymond and Spyros Kollias.
University Hospital of Zürich, Zürich, Switzerland.
- 1280. Faster performance on a visuomotor task correlates with decreased fMRI activation.**
Michael Lee, William Bradley, Dar-Yeong Chen, Peter Brotchie
Long Beach Memorial MRI, Long Beach, CA, USA and Brain Imaging Research Institute, Heidelberg Weste, Victoria Australia.

- 1281. Quantitative relationship between BOLD signals and neural activity**
Sang-Pil Lee, Ping Wang, Seiji Ogawa, Seong-Gi Kim
University of Minnesota, Minneapolis, MN, USA; Bell Laboratories, Murray Hill, NJ, USA.
- 1282. Following the Trail(s): neural correlates of visuomotor tracking and sequencing**
Cynthia H.Y. Fu, Nicholas D. Walsh, Jieun Kim, Mick J. Brammer, Edward Bullmore, Anthony Cleare, Chris Andrew, Annabella DI Giorgio, Pauline M. Williams, Liqun Wang, Steve C.R. Williams
Institute of Psychiatry, London, UK; University of Cambridge, Cambridge, UK and GlaxoWellcome Research and Development, Middlesex UK.
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- fMRI: Cognitive Neuroscience**
- 1283. Distinguishing executive operations from content representation during working memory function**
Kathryn Moores, Richard Clark, Gregory Brown, James Taylor, Andrew Lewis, Aina Puce, Alexander McFarlane.
Flinders University of South Australia; Royal Adelaide Hospital and Adelaide, Australia; Queen Elizabeth Hospital, Adelaide, Australia and Swinburne University of Technology, Victoria, Australia;
- 1284. Metamemory as the source of right frontal activation during recognition ?**
Jack Rene Foucher, Marc-Etienne Meyer, Delphine Pins, Jean-Marie Danion.
Université Louis Pasteur de Strasbourg, 4 rue Kirschleger, Strasbourg, France and Institute of Psychiatry, Denmark Hill, London, UK.
- 1285. Quantitative Imaging of Hippocampal Perfusion During A Memory Encoding Task.**
T. Liu, C.E.L. Stark, E. Wong, and R. Buxton.
University of California, La Jolla, CA, USA.
- 1286. Age related changes in fronto-striatal activation during paired-associate learning.**
Fernando Zelaya, Christopher Long, Edward Bullmore, Steven C R Williams, Emma Ouldred, Christopher Andrew, John Suckling, Virginia NG, Laurence Reed, Stephen Jackson, James Semple and Carol Routledge.
1 Institute of Psychiatry, London, England, UK; University of Cambridge, Cambridge, UK; Institute of Psychiatry, Denmark Hill, London, UK and King's College and Maudsley Hospital, London, UK;
- 1287. Brain Activation during extraction of forms from complex figures studied by fMRI.**
Chikako Kato, Kayako Matsuo, Toshiharu Nakai, Fukujiro Ozawa, Yasuo Takehara, Haruo Isoda, Satoshi Isogai, Tetsuo Moriya and Harumi Sakahara
Toyohashi Sozo College, 20-1, Matsushita, Toyohashi, Aichi Japan; Medical Vision Lab, Osaka, Japan; Hamamatsu University School of Medicine, Shizuoka Japan; ETL Supermolecular Division, Ibaraki Japan.
- 1288. Cortical Regions Involved in Navigation.**
Arthur Wunderlich, Georg Groen, Matthias Riepe, Reinhard Tomczak and Hans-Juergen Brambs.
Universitaet Ulm - Klinikum, Abt. Roentgendiagnostik, Ulm, Germany;
- 1289. An event-related fMRI study of delayed nonmatching-to-sample performance.**
Greig De Zubicaray, Katie Louise McMahon, Stephen Wilson, Santhi Muthiah.
University of Queensland, QLD Australia.
- 1290. Mathematical Ability in Children of Very Low Birthweight: A Neural Correlate.**
E.B. Isaacs, C.J. Edmonds, A. Lucas, and D. Gadian.
University College of London, London, UK.

- 1291. Interaction of cognitive processing and emotional stimulation in fMRI.**
Arthur Wunderlich, Henrik Walter, Manfred Spitzer, Hans-Jürgen Brambs, Susanne Erk
Universitaet Ulm - Klinikum, Abt. Roentgendiagnostik, Ulm, Germany.
- 1292. Body-centered spatial representation in parietal eye fields**
Peter Brotchie, Michael Lee, Dar-Yeong Chen, William Bradley.
Brain Imaging Research Institute, Victoria Australia and Amherst College, Long Beach Memorial MRI,
Long Beach, CA, USA.
- 1293. Functional MRI studies of visual short-term memory tasks with different delay intervals**
Sunao Iwaki, Toshiharu Nakai, Shigeki Tanaka, Mitsuo Tonoike, Yukio Miki, Kaori Togashi and Junji
Konishi.
Electrotechnical Laboratory, Life Electronics Research Center, Osaka Japan and Hospital of Kyoto
University, Kyoto Japan.
- 1294. Hybrid Block/Event-Related Paradigm for fMRI of a Go/No-Go Task**
M.C. Goldberg, S. Courtney, S.H. Mostofsky, M.T. Abrams, S. Arnold, W. E. Kaufmann, M. B. Denckla,
J. J. Pekar.
Kennedy Krieger Institute & Johns Hopkins University, Baltimore, MD USA;
- 1295. Lie Detection using Functional MRI**
Ho-Ling Liu, Tatia M.C. Lee, Li Hai Tan, Chetwyn C.H. Chan, Ching-Mei Feng, Jinwen Hou, Srikanth
Mahankali, Peter T. Fox and Jia-Hong Gao.
Chang Gung Univ., Taoyuan, Taiwan and Texas Health Science Center, San Antonio, TX, USA
- 1296. Event-related fMRI study of the reading of words and of pseudowords**
Monica Baciú, Olivier David, Mathilde Pachot-Clouard, Serge Carbonnel, Bernard Ans, Christoph
Segebarth
Université Pierre Mendès-France, Grenoble Cedex 9, France;
- 1297. Differential Activation in the Left and Right DLPFC during Word and Face Recognition Memory
Tasks**
Dirk T. Leube, Michael Erb, Irina Mader, Mathias Bartels, Wolfgang Grodd, Tilo T. J. Kircher
University Hospital of Psychiatry, Tuebingen University, Tuebingen, Germany.
- 1298. Neural Pathways for Copying Ideographic Characters and Copying Syllabic Characters in the Left
Hemisphere – An fMRI Study**
Kayako Matsuo, Chikako Kato, Fukujiro Ozawa, Yasuo Takehara, Haruo Isoda, Satoshi Isogai,
Tetsuo Moriya, Harumi Sakahara and Toshiharu Nakai
Medical Vision Lab, Osaka Japan and Hamamatsu Univ. School of Medicine, Hamamatsu, Japan.
- 1299. fMRI Responses of Reading in Developmental Dyslexia**
W. Backes, E. Vuurman, M. Wennekes, P. Spronk, M. Wuisman, R. Kleijnen, J. Jolles, J. van
Engelshoven.
University Hospital Maastricht, Maastricht, Netherlands;
- 1300. Functional MRI of Fingerspelling in Deaf Subjects**
Ed Auer, Lynne Bernstein, Jean Moore, Jeong-Won Jeong, Yongxia Zhou, Witya Sungkarat, Manbir
Singh
House Ear Institute, Los Angeles, CA USA and University of Southern California,
Los Angeles, CA, USA.

- 1301. Perception of fingerspelled and printed alphabet in deaf signers : an fMRI study**
 Andre Dufour, Christel Robert, Christian Scheiber
 Universite Louis Pasteur, Strasbourg, France and Laboratoire de Psychologie Experimentale, Grenoble, France.
- 1302. Participation of the Posterior Inferior Temporal Cortex in Retrieval and Memory Encoding of Chinese Words**
 David Yeung, Agnes Chan, Yu-Leung Chan, Wu Jing He, M-K Lam, Mei-chun Cheung, C-B Chung
 Prince of Wales Hospital and Chinese University of Hong Kong, Hong Kong, China.
- 1303. Mapping cortical areas associated with Chinese word processing with functional magnetic resonance imaging**
 Lin Ma, Yiyuan Tang, Xuchu Weng, Dejun Li, Yan Wang and Xiaoping Hu.
 PLA General Hospital, Beijing, PR China; Dalian University of Technology, Dalian, Liaoning PR China and University of Minnesota, Minneapolis, MN, USA.
- 1304. WITHDRAWN**

FMRI: Clinical Aspects

- 1305. Functional Magnetic resonance Imaging of Pronation-Supination Movements**
 Peter Erhard, Florian Castrop, Markus Schwaiger, Hans Förstl and Thomas Jahn.
 Neurological Department Technische Universität München, Ismaninger München, Germany.
- 1306. Encoding of Mechanical Pain Intensity within Multiple Regions of the Posterior Parietal Operculum**
 Eric A. Moulton, Rao P Gullapalli, Darren K. Emge, Karen L. Gibbs, Joel D. Greenspan.
 University of Maryland, Baltimore, Neuroscience Program, Baltimore, MD, USA.
- 1307. Direct evidence of functional activation of Double Cortex detected by fMRI**
 Michela Tosetti, Domenico Montanaro, Paolo Bonanni, Marco Giannelli, Alberto Spalice, Raffaello Canapicchi and Renzo Guerrini.
 Stella Maris Scientific Institute, Calambrone, Pisa, Italy; University La Sapienza, Rome, Italy and Academic Neuroscience Centre King's College Hospital, London, UK;
- 1308. FMRI in Amblyopia: Initial Findings**
 Antonio Algaze, Cynthia Roberts, Lawrence E. Leguire, Petra Schmalbrock and Gary L. Rogers
 The Ohio State University, Columbus, OH, USA
- 1309. Simultaneous EEG and functional MRI of epileptic activity: A case report**
 J. Baudewig, H.-J. Bittermann, W. Paulus, J. Frahm.
 Biomedizinische NMR Forschungs GmbH am MPI für biophysikalische Chemie, Am Fassberg 11, Göttingen, Germany and University of Göttingen, Göttingen, Germany.
- 1310. Vagus Nerve Stimulation in patients: a BOLD fMRI study**
 Wen-Ching Liu, Kristine Mosier, Andrew Kalnin, David Marks.
 University of Medicine and Dentistry of New Jersey, New Jersey Medical School, Department of Radiology, Newark, NJ, USA;
- 1311. Vagus Nerve Stimulation (VNS) Synchronized fMRI**
 Daryl E. Bohning, Mikhail P. Lomarev, Stewart Denslow, Ziad Nahas, Ananda Shastri, Mark Stork George.
 Medical University of South Carolina, Charleston, SC, USA.

- 1312. High Signal-Intensity Changes with EEG-Triggered fMRI after Interictal Activity**
Alexander Hoffmann, Lorenz Jäger, Konrad J Werhahn, S Noachtar, Maximilian Reiser
University of Munich, München, Germany,
- 1313. Benign Epilepsy with Centro-Temporal Spikes: spike triggered fMRI evidence of a cortical circuit**
John S. Archer, Ari Syngeniotis, David F. Abbott, Regula S. Briellmann, R Mark Wellard, Graeme D. Jackson
Brain Research Institute, Austin and Repatriation Medical Centre, Heidelberg West, Victoria Australia;
- 1314. Extensive Bilateral Motor Network Activation in Congenital Hemiparesis with Good Hand Function: a fMRI Study**
Martin Staudt, Wolfgang Grodd, Gerhard Niemann, Christian Gerloff, Inge Kraegeloh-Mann
University Children's Hospital, Tuebingen, Germany
- 1315. Functional MRI of Mirror Movements in Congenital Hemiparesis**
Martin Staudt, Wolfgang Grodd, Gerhard Niemann, Christian Gerloff, Inge Kraegeloh-Mann
University Children's Hospital, Tuebingen, Germany
- 1316. Functional MRI used for presurgical mapping of eloquent brain of brain tumor patients and combined with minimal invasive brain surgery**
Olav Haraldseth, Geir Torheim, Abdel Wahad Bidar, Richard Jones, Frank Lindset, Gunnar Myhr, Geirmund Unsgård and Kjell Arne Kvistad.
Norwegian University of Science and Technology, Trondheim, Norway;
- 1317. Functional MRI Investigation of Voluntary Activation of Ineffective Cerebral Motor Areas in Short- and Long-Term Spinal Cord Injury**
Hui Mao, Donald R. Humphrey, Emily Schaeffer.
Emory University, Atlanta, GA, USA.
- 1318. Reorganization of brain activation after spinal cord injury**
Hatem Alkadhi, Armin Curt, Gerard R Crelier, Marie-Claude Hepp-Reymond and Spyros S Kollias
University Hospital Zurich, Zurich, Switzerland;
- 1319. Association Between Visual Distortion and Activity in Migraine Patients**
Jie Huang, Thomas G. Cooper, Banu Satana, David I. Kaufman, Yue Cao
Michigan State University, East Lansing, MI USA.
- 1320. Brain Functional MR Imaging During Processing of Language-related Gestures in Deaf and Hearing Subjects**
Norihiro Sadato, Hiroki Yamada, Tomohisa Okada, Harumi Itoh, Ken-ichi Matsuki and Yoshiharu Yonekura.
National Institute for Physiological Sciences, Fukui Japan.
- 1321. Event-Related Design for Suppression of Speech-Related Artifacts: Application to fMRI in Stuttering Patients**
Christine M. Preibisch, Peter Raab, Katrin Neumann, Harald A. Euler, Heinrich Lanfermann, Friedhelm Zanella
University Frankfurt, Frankfurt, Germany.
- 1322. A Novel BOLD fMRI Assay of Human Central Nervous System Dopamine Function: The Effects of D-Amphetamine on Photic Activation to Blue Light**
Ronald L Cowan, Blaise deBonneval Frederick, Jonathan M Levin, Michael L Rohan, Rosamond A Villafuerte, Leanne E. Nassar, Scott E Lukas, Perry F. Renshaw
McLean Hospital, Belmont, MA, USA.

- 1323. Event-related fMRI of Single Joystick Movements in Parkinson's Disease**
Peter Erhard, Bernhard Haslinger, Nina Kaempfe, Henning Boecker, Markus Schwaiger, Bastian Conrad and Andres O. Ceballos-Baumann
Technische Universität, München, Germany.
- 1324. Dedicated MR and optical spectroscopy on the neonatal ward**
Martyn Paley, Elspeth Whitby, John Martindale Mr, Jason Berwick Dr, John Mayhew, Mike Smith and Paul Griffiths.
University of Sheffield, Academic Radiology, Sheffield, Yorkshire England;
- 1325. Technique to study fMRI changes induced by acupuncture over a thirty-minute period: a feasibility study**
Wen-Ching Liu, Dung-Liang Hung, Andrew Kalnin, Andrei I Holodny, Barry R. Komisaruk.
University of Medicine and Dentistry of New Jersey, Newark, New Jersey USA.
- 1326. Use of Functional MRI to Evaluate correlation Between Acupoints and the Somatic Sensory Cortex Activities**
G LI, KK Wong, L Huang, SR Liu, G Cao, GGShen, ES Yang, QY Ma
The University of Hong Kong, Hong Kong, HKSAR;
- 1327. Cortical Effects of Acupuncture Using FMRI: Results of a Randomized Double-Blinded Study.**
I. Gareus, A-C. Schulte, K.M. Hu, M. Lacour, and J. Hennig.
University of Freiburg, Freiburg, Germany.

FMRI: Animal Models

- 1328. Pharmacological fMRI Method for Animal Brain Based on Mn²⁺-induced Activity Specific Contrast.**
F. Mitumori, and M. Kumagai.
National Institute for Environmental Studies, Onogawa, Tsukuba, Japan and University of Tsukuba, Tsukuba, Japan.
- 1329. Contribution of Resting and Activation-Induced Cerebral Blood Volume Changes to BOLD Signal Changes in the Rat Whisker Barrel Model**
Kathleen (Donahue) Schmainda, Andrew S. Greene, Anthony G. Hudetz, Thomas J. Ross and Elliot A. Stein.
Medical College of Wisconsin (MCW), Milwaukee, WI, USA.
- 1330. Temporal Dynamics of Cerebral Blood Volume and BOLD Responses**
Noam Harel, Sang-Pil Lee, Timothy Duong, Dae-Shik Kim, Tsukasa Nagaoka, Muthiah Thiyagarajan, Seong-Gi KIM
University of Minnesota Medical School, Minneapolis, MN, USA.
- 1331. fMRI in Mouse at 11.7 Tesla**
Eric T Ahrens, David Dubowitz and David Laidlaw
Carnegie Mellon University, Pittsburgh, PA, USA; California Institute of Technology, Pasadena, CA and Brown University, Providence, RI.
- 1332. In-vivo fMRI study of hypothalamus activation during thermoregulation in the rat**
G. Vanhoutte, M. Verhoye, E. Raman and A. Van der Linden
University of Antwerp, Antwerp, Belgium;

- 1333. BOLD and NC100150 Contrast Enhanced fMRI of the cortex and cerebellum of the rat during electrical stimulation of the paw.**
R. R. Peeters, N. Van Camp, A. Van der Linden
Bio-Imaging Lab RUCA, Antwerp, Belgium.
- 1334. Enhanced fMRI using Iron Oxide Contrast Agent in Awake, Behaving Primates**
Joseph B Mandeville, Wim Vanduffel, Denis Fize, Koen Nelissen, Bruce R Rosen, Roger B Tootell, Paul Van Hecke and Guy A Orban
Massachusetts General Hospital NMR Center, Charlestown, MA USA and Katholieke Universiteit Leuven, Leuven, Belgium.
- 1335. Imaging Brain Activity in Fully Conscious Monkeys in Response to Sexually Relevant Olfactory Cues**
Craig F. Ferris, Charles T. Snowdon, Jean A. King, Timothy Q. Duong, Toni E. Ziegler, David P. Olson, Reinhold Ludwig, Nancy Schultz-Darken, Zigi Wu, Pamela Tannenbaum, John Sullivan, Seong-Gi Kim, and John Thomas Vaughan Jr.
University of Massachusetts Medical School Worcester MA, USA; University of Wisconsin-Madison, Madison, WI, USA; University of Minnesota, MN USA and Worcester Polytechnic Institute, Worcester, MA, USA.
- 1336. fMRI Studies of Eyeblink Conditioning in Conscious Rabbits**
Nan-kuei Chen, Limin Li, Craig Weiss, John F. Disterhoft, Alice M. Wyrwicz.
Northwestern University, Evanston, IL, USA.
- 1337. A New MRI-Method for the Estimation of CMRO₂-Changes during Functional Activation in Rats**
Michael Burke, Wolfram Schwindt, Mathias Hoehn
Max-Planck-Institut für neurologische Forschung, Köln, Germany.
- 1338. Mismatch between Activated Areas found by BOLD, CBF and Changes in CMRO₂ during Somatosensory Stimulation in the Rat Cortex**
Michael Burke, Wolfram Schwindt, Mathias Hoehn
Max-Planck-Institut für neurologische Forschung, Köln, Germany;
- 1339. Bicuculline-induced Brain Activation in Mice Detected By Functional Magnetic Resonance Imaging**
Thomas Mueggler, Diana Baumann, Andre Sauter, Markus Rudin
Novartis Pharma Ltd, Core Technology Area, Basel, Switzerland
- 1340. Effect of Dopamine D1 Agonist and Antagonist on the Rat Brain as determined using BOLD fMRI**
Aisling Lisa Dixon, Malcolm Prior Dr, Yasmene Banu Shah, Peter Gordon Morris Prof, Andrew Young, Michael Joseph
University of Leicester, United Kingdom and University of Nottingham, UK.
- 1341. Effects of Repeated Amphetamine Administration on the Dopaminergic System as Detected by pHMRI**
Aisling Lisa Dixon, Malcolm Prior, Yasmene Shah, Peter Gordon Morris, Andrew Young and Michael H. Joseph.
University of Leicester, United Kingdom and University of Nottingham, UK.
- 1342. Cocaine Methiodide-Induced Peripheral Vascular Effect on fMRI BOLD Signal in Rat Brain.**
F. Luo, G. Wu, Z. Li, X. Zhao, and S-J. Li.
Medical College of Wisconsin, Milwaukee, WI, USA.

- 1343. Blood pressure changes induced by arterial blood withdrawal influence BOLD signal in anesthetized rats at 7Tesla: implications for pharmacologic MRI (phMRI)**
R. Kalisch, G.-K. Elbel, C. Gössl, M. Czisch, D.P. Auer
Max Planck Institute of Psychiatry, Munich, Germany.
- 1344. Functional Imaging of the Early and Late Response to Noxious Formalin**
U.I. Tuor
University of Manitoba, Winnipeg, Manitoba, Canada
- 1345. Effects of the cannabinoid agonist HU210 on BOLD response in rat brain as determined by fMRI**
Yasmene Banu Shah, Malcolm Prior, Aisling Lisa Dixon, Charles Alexander Marsden and Peter Gordon Morris.
University of Leicester, United Kingdom and University of Nottingham, UK.

High Field Neuro MR Imaging

- 1346. Fast Mapping of T₁ Relaxation Times in the Human Brain Gray and White Matters at 7 Tesla.**
J-H. Kwag, X. Zhang, X-H. Zhu, P. Andersen, K. Ugurbil, and W. Chen.
University of Minnesota, Minneapolis, MN, USA.
- 1347. Optimization of Gradient-Recalled Echo MRI of the Brain at 3.0 T.**
Z. Taher, J. Korzan, D.J. Emery, and C. Beaulieu.
University of Alberta, Edmonton, AB, Canada.
- 1348. Basic Studies of 3D Fast Real IR**
Takashi Ishimori, Satoru Nakano MD, Yasutane Mori MD, Toshiaki Kusuhara, Motoomi Ohkawa MD, Yuichi Yamashita and Satoshi Sugiura.
Kagawa Medical University, Kagawa Japan and Toshiba Medical Systems Co., Japan.
- 1349. Routine Clinical Head MRI at 3.0 T with Optimized RF Power Management**
James W. Hugg, Matthew A. Bernstein, Saul Stokar, Chen Lin, Daniel Rosenfeld, Joel P.Felmlee, Avram Montag, John Huston III, Benjamin Assif, H. Glenn Reynolds
G. E. Medical Systems, Tirat Carmel, Haifa, Israel; G. E. Medical Systems, Milwaukee, WI, USA and Mayo Clinic and Foundation, Rochester, MN USA.
- 1350. Dependence of Magnetization Transfer and Direct Saturation on Flip Angle of Binomial Saturation Pulses: Investigation in White Matter and Deep Gray Matter In Vivo at 3.0 T**
Neil Gelman, James R. Ewing, JayM.Gorell, EricM.Spickler, Enez G. Solomon.
Lawson Research Institute, London, Ontario, Canada and Henry Ford Hospital and Health Sciences Center, Detroit, MI, USA.
- 1351. MDEFT Turbo Spin Echo (TSE) – Clinical T1 imaging at 3.0 T**
Rolf Lamerichs, Matthias Stuber, Paul Folkers, Paul Harvey, Peter Boesiger
Philips Medical Systems, Best, Netherlands and University and ETH Zurich, Zurich, Switzerland.
- 1352. The measured T2* of human brain with macroscopic field inhomogeneity compensation at 7 Tesla**
Haiying Liu, Xiaoliang Zhang, Qing X Yang, Michael B Smith, Kamil Ugurbil, Wei Chen
University of Minnesota, MN USA and Pennsylvania State University, Hershey, PA, USA.

Pediatric Neuro MR Imaging

- 1353. Age at Hypoxia and the Pattern of Neuropathology in Children with Developmental Amnesia**
C.H. Salmond, F. Vargha-Khadem, K.J.Friston, M. Mishkin, D.G. Gadian
University College London, London, UK and National Institute of Mental Health, Bethesda, MD, USA.
- 1354. Low Field Strength Magnetic Resonance Imaging on the Neonatal Intensive Care Unit.**
Elspeth Helen Whitby, Martyn Paley, Michael F Smith, Alan Sprigg, Sharon Rothwell
and Paul David Griffiths.
University of Sheffield, Sheffield, S Yorks UK.
- 1355. Quantitative MR assessment of changes in white matter of children treated for ALL with high-dose methotrexate**
Wilburn E. Reddick, John O. Glass, James W. Langston, Kathleen J. Helton
St. Jude Children's Research Hospital, Memphis, TN US.
- 1356. LC-Model Analysis of Anterior Cingulate 1H MRS in Juvenile Bipolar Disorder**
Pablo A Davanzo, Kenneth Yue, Amir Huda, T.N Venkatraman, Albert Thomas.
University of California, Los Angeles, Los Angeles, CA, USA.

Neuro MRI Imaging: Miscellaneous

- 1357. Serial MR Imaging of Magnetodendrimer-Tagged Oligosphere Brain Transplant.**
J.W.M. Bulte, B. Witwer, S-C. Zhang, B.K. Lewis, P. van Gelderen, R. Douglas, I.D. Duncan, and J.A. Frank.
Laboratory of Diagnostic Radiology Research (CC), Bethesda, MD, USA; University of Wisconsin, Madison, WI, USA and Temple University, Philadelphia, PA, USA.
- 1358. A Preliminary Study of the Short T2 Component of White Matter Hyperintensities.**
B. Ardekani, S-S. Choi, G. Johnson, and K. Lim.
The Nathan S. Kline Institute, Orangeburg, NY, USA; Dong-A University Hospital, Pusan, Korea; New York University, New York, NY, USA; NKI Medical Physics, Orangeburg, NY, USA.
- 1359. Detection of Ultra Short T2 species in Human White Matter by MAS NMR and Multiexponential T2 Analysis.**
A. Ramani, A.E. Aliev, G. Barker, and P.S. Tofts.
University College London, London, UK.
- 1360. Assessment of Vascular Related Brain Lesions Using High-Resolution MR BOLD Venography**
Jürgen R. Reichenbach, Clemens Fitzek, Lars Jonetz-Mentzel, E. Mark Haacke, and Werner A. Kaiser.
Friedrich-Schiller-Universität Jena, Jena, Germany; Institut für Bildgebende Diagnostik, Klinikum Erfurt, Erfurt, Germany and The Magnetic Resonance Imaging Institute for Biomedical Research, St. Louis, MO USA.
- 1361. Lesion detection using KRISP FLAIR**
Amy H Herlihy, Joseph V Hajnal, Angela Oatridge, Walter L Curati, Basant K Puri, Graeme M Bydder
Hammersmith Hospital Campus, Imperial College School of Medicine, London, England, UK.

- 1362. Brain magnetic resonance imaging artifacts in patients with mechanical heart valve defects**
Maarten J. van Gorp, Jan-Henry Seppenwoolde, Bas A.J.M. de Mol, Yolanda van der Graaf, Chris J.G. Bakker, Theo D. Witkamp, Lino M. P. Ramos, Willem P. Th. M. Mali
University Medical Center Utrecht, Utrecht, The Netherlands and Academic Medical Center, Amsterdam, The Netherlands.
- 1363. Optimized High Resolution Fixed Cadaver Brain Imaging.**
V. Petre, M. Petrides, J.G. Sled, S. Mackey, N. Kabani, L.D. Collins, G.B. Pike.
McGill University, Montreal, PG, Canada and Montreal Neurological Institute, Montreal, Quebec, Canada.
- 1364. Analysis of Tissue Contrast in CE-FI AIR Images by Computer Simulation Map**
Teruhiko Shimizu, Hitoshi Miki, Keiichi Kikuchi, Junpei Ikezoe, Kenya Murase.
Ehime University School of Medicine, Onsegun, Ehime, Japan.
- 1365. Model for Interecho Time Dependence of the CPMG Relaxation Rate in Iron-Rich Brain Tissue**
Jens H. Jensen, Ramesh Chandra
New York University School of Medicine, New York, NY, USA.
- 1366. Multiparametric quantitation of perilesional region in patients with healed/healing solitary cysticercus granuloma**
Rajesh Kumar, Rakesh K Gupta, Ram KS Rathore, Sajja B Rao, Sanjeev Chawla, Sunil Pradhan
Sanjay Gandhi Postgraduate Institute of Medical Sciences, SGP GIMS, Lucknow and Indian Institute of Technology, Kanpur, UP, India.
- 1367. Multi-component T2 relaxation as a probe of demyelination and inflammation in rat sciatic nerve following trauma**
Stephanie Webb, Catherine A Munro, Rajiv Midha, Greg J. Stanisz.
Sunnybrook & Women's College Health Sciences Toronto, ON Canada.
- 1368. Temperature Dependence of the T2 Spectrum of Peripheral Nerve**
Keith Wachowicz, Richard E. Snyder.
University of Alberta, Edmonton, AB Canada;
- 1369. Changes in brain size in Hyper- and Hypo-thyroidism**
Angela Oatridge, Maria Barnard, Basant K. Puri, Joseph V.Hajnal, Nadeem Saeed, Graeme M. Bydder
The Robert Steiner MRI Unit, Imperial College School of Medicine, London, England, UK
- 1370. Evaluation of Cerebellar Atrophy and Severity of Alzheimer's Disease by Automated Magnetic Resonance Brain Segmentation and Volumetry**
Mieko Matsui, Setsu Sakamoto, Kazunari Ishii, Yutaka Hata, Etsuro Mori.
Hyogo Inst for Aging Brain & Cog. Dis., Himeji, Japan;
- 1371. Age-Related MT and DT MRI Changes in Normal Subjects**
Giuseppe Iannucci, Mara Cercignani, Maria Pia Sormani, Massimo Filippi
Neuroimaging Research Unit, Milan, Italy.
- 1372. Cerebral flow and volumetric MTR parameters in the elderly.**
Aart SPILT, Mark Van Buchem
Leiden University Medical Center, Leiden, The Netherlands.

- 1373. Gender differences in brain morphology: Voxel Based Morphometry in 102 healthy young women and men**
Christian Kaufmann, Marko Wilke, Benno Pütz, Dorothee P. Auer.
Max Planck Institute of Psychiatry, Munich, Germany.
- 1374. Cerebral asymmetry: A voxel based morphometry study of 465 normal adult brains**
Catriona Diana Good, Ingrid Johnsrude, John Ashburner, Karl J. Friston and Richard S. Frackowiak.
Wellcome Dept of Cognitive Neurology, London, London, UK;
University College London, Institute of Neurology, London, United Kingdom.
- 1375. Brain Volume Variability in Healthy Humans: Possible implication to clinical trials**
H Petropoulos, W L Sibbitt Jr, E J Bedrick, M ABarlow, B. L. Hart, F. Wrupp, William M Brooks
University of New Mexico Health Sciences Center, Albuquerque, NM, USA.
- 1376. Comparison of Methods to Quantify Longitudinal MRI Change in Dementia**
Valerie A Cardenas, Antao Du, Dawn Hardin, Frank Ezekiel, Patrice Weber, William J. Jagust,
Helena C. Chui, Norbert Schuff, Michael Weiner
University of California, San Francisco, San Francisco, California USA and University of Southern
California, Downey, California.
- 1377. Age and Gender Effects on Brain Grey and White Matter Volumes in Normal Controls: The Reproducibility and Sensitivity of an SPM Based Segmentation Methodology.**
D.T. Chard, G. Parker, C.M. Griffin, A.J. Thompson, and D.H. Miller.
University College London, London, UK.
- 1378. Automated MRI Voluming of Hippocampus in Alzheimer Disease**
Yuan-Yu Hsu, Norbert Schuff, Antao Du, Xiaoping Zhu, Dawn Hardin, Michael W. Weiner
Chang Gung Memorial Hospital, Taipei, Taiwan and University of California, San Francisco, San
Francisco, CA, USA.
- 1379. Heritability of Corpus Callosum Anisotropy in Elderly Twin Men**
Adolf Pfefferbaum, Edith V. Sullivan, Dorit Carmelli
SRI International, Menlo Park, CA, USA and Stanford University, Stanford and CA, USA.
- 1380. Matching MTR Histograms for Multi-Centre Studies.**
P.S. Tofts, S.C.A. Steens, J. Dehmeski, P. Hofman, J.H. Van Waesberghe, M. Van Buchman.
University College London, London, UK.
- 1381. Decrease in cerebral ventricular volume in end-stage Huntington's disease treated with purified eicosapentaenoic acid**
Basant K. Puri, Nadeem Saeed, Alexandra J. Richardson, Angela Oatridge, Joseph V. Hajnal and Graeme
M. Bydder.
Hammersmith Hospital, London, England, UK; Smithkline Beecham, Welwyn, Herts, England, UK and
University Laboratory of Physiology, Oxford, England, UK.
- 1382. Schizophrenia syndromes predict changes in ventricle-to-brain ratios: a serial high resolution 3D magnetic resonance imaging study using image registration and quantitation**
Basant K. Puri, Nadeem Saeed, Alexandra J. Richardson, Angela Oatridge, Joseph V. Hajnal and Graeme
M. Bydder.
Hammersmith Hospital, London, England, UK; Smithkline Beecham, SA Department, Welwyn, Herts,
England, UK and University Laboratory of Physiology, Oxford, England, UK.

1383. fMRI of ESP

D. Reamer, Fick T. Shush, Fool & Hardy.
Institute of Dreams and Imaginings of Trendy Science (IDIoTS), Buggtussle, USA.

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1384. Cerebrospinal fluid pulsation artifacts in fluid-attenuated inversion recovery images: sequential versus interleaved acquisition

Yung-Chih Hsu, Teng-Yi Huang, Chao-Ying Wang, Cheng-Yu Chen, Hsiao-Wen Chung.
National Taiwan University, Taipei, Taiwan, R.O.C.

1385. Influence of Head Posture on Diffusion Tensor Imaging (DTI)

Miyuki Takasu, Hiroshi Fukuda, Tadashi Nakanishi, Katsuhide Ito, Toshio Kajima, Hiroyuki Kabasawa.
Hiroshima University School of Medicine, Hiroshima, Japan and GEYMS, Tokyo, Japan.

1386. RF inhomogeneity compensation and artifact reduction in structural brain imaging.

R. Deichmann, C.D. Good, J. Ashburner, and R. Turner.
Institute of Neurology, London, UK.

Intracranial MR Angiography

1387. Contrast-enhanced MR Angiography for the Detection of Intracranial Aneurysms

Kai Yiu Ho, Dennis L Laurens, Jan T Wilmink
University Hospital Groningen, Groningen Netherlands and University Hospital Maastricht, Limburg The Netherlands.

1388. Evaluation of brain-tumor interface on post-embolized intracranial meningiomas using time-resolved MRA; comparison with DSA

Tae-Sub Chung, Ralph Strecker, Jürgen Hennig.
Yonsei University College of Medicine, Kang Nam-Ku, South Korea and Universität Freiburg, Freiburg, Germany.

1389. Contrast-enhanced MR Phlebography of the cerebral veins

Karl O Lovblad, Jacques Schneider, Claudio Bassetti, Luca Remonda and Gerhard Schroth.
Inselspital, C212, Bern, Bern Switzerland and Universitätsspital-Kinderklinik, Zürich, Switzerland.

1390. Post-contrast 3D TOF MRA: Possible Role in Acute Stroke?

Janice J Yang, Michael D Hill, William F Morrish, Mark E Hudon, Philip A Barber, Andrew M Demchuk, Robert J Sevick, Richard Frayne.
University of Calgary, Calgary, Alberta Canada.

1391. Measurements of T1 Relaxation times at 3.0T: Implications for clinical MRA

Chen Lin, Matt Bernstein, John Huston, Sean Fain
Mayo Clinic, Rochester, MN, USA.

1392. SENSE 3D Time of Flight Angiography Using a 4-Channel Head Coil.

K. King, H.G. Reynolds, M. Bernstein, L. Estkowski, L. Angelos, D. Feo, W. Monski and M. Wagner.
G.E. Medical Systems, Milwaukee, WI, USA; None Given, Rochester, MN, USA; Mayo Clinic, Rochester, MN, USA; Medrad, Inc., Indianola, PA, USA; None Given, Erlangen, Germany.

- 1393. Real Time Alternate Multiplanar MR-DSA: evaluation of endovascular embolization of Intracranial Arterio-Venous Malformations**
Thierry Metens, Fatima Rio, Danielle Baleriaux, Thierry Roger, Carine Neugroschl, Georges Rodesch
ULB-Erasme, MR Unit, Brussels, Belgium.
- 1394. Assessment of Vascular Malformations in the Head and Neck with Two-Dimensional MR Digital Subtraction Angiography (2D MRDSA)**
Toshiyuki Okubo, Takeharu Yoshikawa, Masaaki Hori, Keiichi Ishigame, Shigeki aoki, Osamu Abe.
Tsutomu Araki and Kuni Ohtomo.
Yamanashi Medical University, Yamanashi Japan and University of Tokyo, Tokyo, Japan
- 1395. Flow Direction of the Posterior Communicating Artery as a Risk Factor for Ischemic Borderzone Infarction.**
Jeroen Hendrikse, Jeroen Van der Grond.
UMC, Utrecht, The Netherlands
- 1396. Phase Encoding Flow Compensation in High Resolution Intracranial MRA**
Dennis Lee Parker, Andrew Alexander, John A.Roberts, K.Craig Goodrich, Gregory Katzman
and Jay Tsuruda.
University of Utah, Salt Lake City, UT, USA.

Intracranial Tumors

- 1397. Comparision of MRI and SPECT Tumour Volume Measurement Following Minimally Invasive Surgery For a Phase 1 Trial of a Genetically Modified Viral Therapy**
David Brennan, Donald Hadley, Jim Patterson, Barrie Condon
Institute of Neurological Sciences, Southern General Hospital, Glasgow, Scotland, UK.
- 1398. Peritumoral Brain Edema in Meningiomas: Relevance of White Matter Lesions in Centrum Semiovale**
Norio Hirabuki, Hisashi Tanaka, Hideaki Yoshimura, Norihiko Fujita, Hironobu Nakamura
Osaka University Medical School, Osaka Prefecture Japan.
- 1399. Comparison of two Brain Tumor-Localizing MRI Agents: GD-BOPTA and GD-DTPA. MRI and ICP Study of Rat Brain Tumor Model**
Tian Zhang
University of Tsukuba, Tsukuba, Ibaraki, Japan.
- 1400. Improved Visualization of Meningeal Enhancement by Contrast-Enhanced T1-Weighted Black-Blood Fast Spin-Echo Imaging with Short Repetition, Echo, and Inversion Times**
Yasuo Amano, Ryo Takagi, Tatsuo Kumazaki, Katsuya Takahama, Maki Amano.
Nippon Medical School, Tokyo, Japan.
- 1401. Intra-Patient Comparison Of Gadobenate Dimeglumine To Routinely Used Contrast Agents For The Detection Of Intracranial Metastases**
Roberto La Ferla, Cesare Colosimo, Jordi Rusalleda, M. Korves, Corinne Wool, Paola Pianezzola
Bracco SpA, Via Folli 50, Milan, Italy; University G. D'Annunzio, Chieti, Italy; Hospital de la Santa Cruz y San Pablo, Barcelona, Spain; Charité University, Berlin, Germany.

MR Imaging of Epilepsy

- 1402. Usefulness of Apparent Diffusion Coefficient Value for Lateralization of Epileptogenic Lesion in Patients with Hippocampal Sclerosis**
So Young Yoo, Kee-Hyun Chang, In Chan Song, Moon Hee Han, Sang Hyun Lee, In Gyu Yu, Chun-Kee Chung.
Seoul National University Hospital, Seoul, Korea.
- 1403. Magnetisation Transfer Imaging in Patients with Cerebral Dysgenesis, Cryptogenic and Acquired Partial Epilepsies**
Fergus Rugg-Gunn, Philip Boulby, Sofia Eriksson, Mark Symms, Gareth Barker, John Duncan
Institute of Neurology, Epilepsy Research Group, London, UK.
- 1404. Hippocampal T2-relaxometry and hippocampal volumes: do they measure the same pathology?**
Regula S. Briellmann, Renate M. Kalnins, Samuel F. Berkovic and Graeme D. Jackson
Brain Research Institute, Heidelberg, Victoria Australia and University of Melbourne, Heidelberg, Victoria Australia.
- 1405. Diffusion Tensor Imaging in the Hippocampus using ZOOMed EPI**
Philip Andrew Boulby, Mark Symms, Claudia Wheeler-Kingshott, Geoffrey Parker, Gareth Barker.
Institute of Neurology, London, United Kingdom and National Society for Epilepsy, Gerrards Cross, England, UK;
- 1406. A longitudinal quantitative MRI study of community-based patients with chronic epilepsy and newly diagnosed seizures: methodology and preliminary findings**
Rebecca S N Liu, Louis Lemieux, Gail S. Bell, Philippa Bartlett, Josemir Wa S. Sander, Sanjay M. Sisodiya, Simond Shorvon and John S. Duncan.
University College London, Institute of Neurology, London, UK

MR Imaging of Multiple Sclerosis

- 1407. Correlates of MS Disability Assessed In Vivo using Aggregates of MR Quantities**
Marco Rovaris, Caterina Mainero, Nicola De Stefano, Giuseppe Iannucci, Lionello Guidi, Antonio Federico, Giancarlo Comi and Massimo Filippi.
Neuroimaging Research Unit, IRCCS H San Raffaele, Milan, Italy and Institute of Neurological Science, Siena, Italy.
- 1408. Intra-Observer, Inter-Observer and Inter-Scanner Variations in Brain MRI Volume Measurements in Multiple Sclerosis**
Marco Rovaris, Claudio Gasperini, Maria Pia Sormani, Stefano Bastianello, Carlo Pozzilli, Giancarlo Comi, Massimo Filippi
Neuroimaging Research Unit, Milan, Italy; Neurology, Ospedale San Camillo-Forlanini, Rome, Italy and University La Sapienza, Rome, Italy.
- 1409. A Diffusion Tensor MRI Study of Cognitive Dysfunction in Patients with Mildly-Disabling Multiple Sclerosis**
Marco Rovaris, Giuseppe Iannucci, Monica Falautano, Francesca Possa, Vittorio Martinelli, Giancarlo Comi and Massimo Filippi.
Neuroimaging Research Unit, Milan, Italy

- 1410. Brain damage in primary-progressive MS assessed by diffusion tensor MRI**
Marco Bozzali, Giuseppe Santuccio, Marco Rovaris, Mara Cercignani, Giancarlo Comi and Massimo Filippi
Scient. Inst. HSR, Neuroimaging Research Unit, Milan, Italy
- 1411. Correlations between Measures of Multiple Sclerosis Pathology Derived from T2, T1, Magnetization Transfer and Diffusion Tensor MR Imaging**
Giuseppe Iannucci, Marco Rovaris, Laura Giacomotti, Giancarlo Comi, Massimo Filippi
Neuroimaging Research Unit, Milan, Italy and Clinical Trials Unit, Dep of Neuroscience, IRCCS H. San Raffaele
- 1412. Serial and Regional Water Content and Myelin Water Content in New Large Multiple Sclerosis Lesions.**
I. Vavasour, K. Whittall, A. Mackay, D.K.B. Li, and D.W. Paty.
University of British Columbia, Vancouver, BC, Canada.
- 1413. MS Normal Appearing White Matter has Heterogeneous, Diffusely Prolonged T₂.**
K. Whittall, A. Mackay, D.K.B. Li, I. Vavasour, C.K. Jones and D.W. Paty.
University of British Columbia, Vancouver, BC, Canada.
- 1414. Atrophy Measurements in Multiple Sclerosis**
C. Jones, D.K.B. Li, G. Zhao, D.W. Paty and PRISMS Study Group.
University of British Columbia, Vancouver, BC Canada.
- 1415. Diffusion Tensor Imaging in Multiple Sclerosis**
Matilde Inglese, Mara Cercignani, Giancarlo Comi, Massimo Filippi
Neuroimaging Research Unit, Milan, Italy;
- 1416. Gray and White Matter Involvement in Alzheimer Disease: A Diffusion Tensor and Magnetization Transfer Imaging Study In Vivo**
Marco Bozzali, Silvia Pontesilli, Massimo Franceschi, Andrea Falini, Mara Cercignani, Giuseppe Scotti, Giancarlo Comi and Massimo Filippi.
Scientific Institute H San Raffaele, Neuroimaging Research Unit, Milan, Italy
- 1417. Accurate Measurement of the Dominant T2 Time Constants in Multiple Sclerosis Lesions**
Keith S Cover, David Li, Donald W Paty
University of British Columbia, Vancouver, BC, Canada.
- 1418. Mean Diffusivity and Fractional Anisotropy Histograms in Patients with Multiple Sclerosis**
Mara Cercignani, Matilde Inglese, Elisabetta Pagani, Giancarlo Comi, Massimo Filippi.
Scientific Inst. H. San Raffaele, Milan, Italy.
- 1419. Quantitation of diffusion weighted MRI and its relationship to clinical and cognitive disability in multiple sclerosis**
Katherine Lymer, David Moriarty, Valerie F. Hillier and Alan Jackson.
University of Manchester, Manchester, England, UK;
- 1420. White matter fibre tractography in multiple sclerosis using diffusion tensor imaging.**
C R Tench, M Wilson, PS Morgan, L.D. Blumhardt
University of Nottingham, Nottingham, England,

- 1421. MTR histogram descriptives of white matter depend on the chosen segmentation: a multiplesclerosis study**
Nils Bodammer, Gareth J. Barker, Thomas Eckert, Claus Tempelmann, Hans-Jochen Heinze, Michael Sailer
O.v.G. University, Neurology II, Magdeburg, Germany; Institute of Neurology, London UK.
- 1422. Enhanced Detection of Demyelination of Multiple Sclerosis Using Independent Component Analysis**
Toshiharu Nakai, Shigeru Muraki, Kayako Matsuo, Yukio Miki.
Medical Vision Lab, Osaka Japan; Electrotechnical Lab, Tsukuba, Japan and Kyoto University Hospital, Kyoto, Japan.
- 1423. Global Analysis of Tissue Integrity and Water Shifts in the Normal Appearing White Matter of MS Patients**
Stefan Ropele, Franz Ebner, Hans-Peter Hartung, Franz Fazekas.
University of Graz, Graz, Austria;
- 1424. In vivo T2 brain histogram in multiple sclerosis**
Denis Grenier, Daniel Pelletier, David C. Newitt, Sarah J. Nelson, Donald E Goodkin, Sharmila Majumdar
University of California, San Francisco, San Francisco, CA USA.
- 1425. Analysis of SPGR Intensity Histograms for the Characterization of Brain Matter Changes in Multiple Sclerosis**
David C. Newitt, Daniel Pelletier, Kim Dao, Sarah J. Nelson
University of California, San Francisco, San Francisco, CA, USA.
- 1426. MT- and DT-MR of the Optic Radiations and Calcarine Cortex from Patients with Leber's Hereditary Optic Neuropathy**
Matilde Inglese, Marco Rovaris, Stefania Bianchi, Giancarlo Comi, Massimo Filippi
IRCCS H San Raffaele, Milan, Italy.

MR Imaging of Stroke Vascular Disorders
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- 1427. Mismatch development in acute stroke patients treated with intravenous thrombolytic therapy**
Bert Schleper, Jens Fiehler, Thomas Kucinski, Cornelius Weiller, Hermann Zeumer, Joachim Roether
University of Hamburg, Hamburg, Germany.
- 1428. The Fate of Saved "Tissue at Risk of Infarction"**
Joachim Roether, Bert Schleper MD, Jens Fiehler, Thomas Kucinski, Rene Knab, Karl H. Bohuslavizki, Hermann Zeumer and Cornelius Weiller
University Hospital Hamburg Eppendorf, Hamburg, Germany
- 1429. Combined Diffusion and Perfusion MRI in Acute Ischemic Stroke: Prediction of Outcome at Three Months**
Jari O. Karonen, Ritva L. Vanninen, Reina Roivainen, Pauli Vainio, Yawu Liu, Kaarina Partanen, Juhani Sivenius, Esko Vanninen, Jyrki T. Kuikka, Leif Østergaard and Hannu J. Aronen
Kuopio University Hospital, Kuopio University, Kuopio, Finland and Århus University Hospital, Århus, Denmark.
- 1430. Perfusion and diffusion weighted MR imaging during first 5 hours after stroke symptoms onset compared to 3 months patient outcome**
Olav Haraldseth, Per Arvid Steen, Bjørn Cederin, Gunnar Myhr, Kjell Arne Kvistad, Bent Indredavik.
Norwegian University of Science and Technology, Trondheim, Norway.

- 1431. Multiparametric MRI ISODATA of human stroke segments the ischemic lesion according to degree of ischemic injury**
M. Pasnoor, P.D. Mitsias, S.C. Patel, H. Soltanian-Zadeh, S.a Santhakumar, R. Hammoud, Nikolaos IH Papamitsakis, M. Lu, M. A. Jacobs, D. Peck and M. Chopp.
Henry Ford Health System, Detroit, MI USA and Johns Hopkins University, Reisterstown, MD.
- 1432. MRI in acute basilar artery thrombosis: a case series**
Tobias Neumann-Haefelin, Richard du Mesnil, Matthias Sitzer, Heinrich Lanfermann
1 Department of Neurology, Frankfurt, Germany.
- 1433. Microscopic Flow Heterogeneity: Its Determination by PWI and Role in Cerebral Oxygen Metabolism**
Leif Østergaard, David A Chesler, Albert Gjedde, Ona Wu, Carsten Gyldensted, Bruce R Rosen, Greg Sorensen
Department of Neuroradiology, Århus University Hospital, Århus, Denmark;
- 1434. Flow Heterogeneity Measurement May Improve Estimation of Final Infarct Size in Acute Stroke.**
Claus Z. Simonsen, Lisbeth Røhl, Peter Vestergaard-Poulsen, Carsten Gyldensted, Leif Østergaard
Århus University Hospital, Århus, Denmark.
- 1435. Prediction of Tissue Outcome in Acute Cerebral Ischemic Stroke Using Perfusion MR Imaging and SPECT**
Jae-Hyoung Kim, Eun-Ja Lee, Sun-Joo Lee, Kyeong-Hun Kang, Taemin Shin
Gyeongsang University Hospital, Jinju, Korea
- 1436. Dynamic susceptibility contrast MRI for acute cerebral ischemia and cerebral gliomas: relationship of maximum signal drop with cerebral blood flow and cerebral blood volume**
Yi-Jui LIU, Ing-Jye Huang, Fu-Nien Wang, Cheng-Yu Chen, Hsiao-Wen Chung
National Taiwan University, Taipei, Taiwan.
- 1437. Clinical Evaluation of Non-Invasive Perfusion-Weighted MRI for Cerebral Ischemic Lesions**
Miyuki Takasu, Katsuhide Ito, Tomohide Akimitsu, Kaoru Kurisu, Toshio Kajima, Hiroyuki Kabasawa.
Hiroshima University School of Medicine, Hiroshim, Japan.
- 1438. MR Perfusion Imaging Predicts Anterior Cerebral Artery Territory Infarct Following Acute Aneurismal Sub-Arachnoid Haemorrhage.**
A.D. Waldman, N. Kitchen, H.R. Jager, T.C. Cox.
National Hospital for Neurology & Neurosurgery, London, England, UK.
- 1439. Simple Method for Estimation of Cerebral Perfusion Reserve by BOLD Images**
Akihiko Shiino
Shiga University of Medical Science, Seta, Ohtsu, Shiga, Japan
- 1440. Short-term cerebral haemodynamic consequences of carotid endarterectomy**
Iain D Wilkinson, J.D Beard, N. Hoggard, P. D Griffiths, G.S Venables
University of Sheffield, Sheffield, England;
- 1441. Reliability of Cerebral Blood Volume and Mean Transit Time Measured with Perfusion MR Imaging in Assessing the Hemodynamic Disturbance of Symptomatic Carotid Occlusive Disease**
Jae-Hyoung Kim, Eun-Ja Lee, Sun-Ju Lee, Kyeong-Hun Kang, Taemin Shin.
Gyeongsang University Hospital, Jinju, Korea.

- 1442. Evaluation of corticospinal tract injury to predict functional motor outcome in cerebral vascular disease using Diffusion-weighted Echo planar Imaging**
K. Kusunoki, Y. Oka, I. Nochide, K. Igase, H. Harada, K. Sadamoto and K. Nagasawa.
Washokai Sadamoto Hospital
- 1443. Relationship Between Stroke Severity and the ADC of Water: Implications for the Use of DWI in Research and Clinical Practice.**
J.M. Wardlaw, S.L. Kier, M. Bastin, P. Armitage, and A.K. Rana.
Western General Hospital, Edinburgh, UK and University of Edinburgh, Edinburgh, UK.
- 1444. An Investigation into the Clinical Usefulness of Diffusion-Weighted Imaging in Stroke**
Sarah L. Keir, Joanna M. Wardlaw, Mark E. Bastin, Paul A. Armitage and Arnab K Rana
University of Edinburgh, Edinburgh, UK.
- 1445. Magnitude and Time-Course of “Exponential” Diffusion Weighted Image Signal Ratio in Stroke**
James D Eastwood, James M Provenzale, David M Delong, Stefan Engelter
Duke University, Durham, NC USA and University Hospital Basel, Basel, Switzerland.
- 1446. The Application of DWI and ADC Map in Cerebral Infarction**
L Huang, Xh Wong, SR Liu, G Li
Medical Imaging Centre of The First Affiliated Hospital of Medical College, Jinan University, Guang Zhou, P. R. China.
- 1447. Acute ischemia causing distal arm paresis - A diffusion-weighted MRI study**
Achim GASS, Kristina Szabo, Stefan Behrens, Jochen Hirsch, Jochen Gaa, Michael Hennerici
Universitaetsklinikum Mannheim der Universitaet Heidelberg, Mannheim, Germany.
- 1448. The Potential of Arterial Hyperintensity on Fast Fluid-attenuated Inversion-recovery Imaging in Hyperacute Stroke: A Comparison with Diffusion-weighted Imaging.**
M. Maida, H. Sakuma, K. Takeda.
Fukui Medical University—Radiology, Fukui, Japan and Mie University School of Medicine, Mie, Japan.
- 1449. Diffusion-weighted imaging of cerebral hyperperfusion injury and venous congestion in comparison with FLAIR and cerebral blood flow imaging**
Hiroaki Shimizu
Kohnan hospital, Seindai, Miyagi Japan
- 1450. Diffusion-weighted imaging of dural sinus thrombosis**
Takeharu Yoshikawa, Osamu Abe, Toshiyuki Okubo, Kazuhiro Tsuchiya, Kimiko Tobe, Tomohiko Masumoto, Naoto Hayashi, Harushi Mori, Haruyasu Yamada, Shigeki Aoki, Kuni Ohtomo
Tokyo University, Tokyo Japan.
- 1451. Diffusion-Weighted MR Imaging in MELAS (mitochondrial myopathy, encephalopathy, lactic acidosis, and stroke-like episode) Syndrome**
Myung Kwan Lim, Ji Hye Kim, Chang Hae Suh, Hee Young Hwang
Inha University Hospital, Incheon, South Korea.
- 1452. Automated assessment of brain atrophy and abnormal tissue quantitation in CADASIL patients**
Mario Quarantelli, Bruno Alfano, Sabina Pappatà, Chabriet Hugues, Michele Larobina, Enrico Tedeschi, Arturo Brunetti, Marco Salvatore.
Center for Nuclear Medicine, Naples, Italy and INSERM U334, SHFJ, CEA, Orsay France;

1453. Relationship of Leukoaraiotic Lesions and Cerebral Blood Flow In Non-Stroke Vascular Patients
David Moriarty, Alan Jackson, Graham Riding
University of Manchester, Oxford Road, Manchester, UK and Withington Hospital, Withington, Manchester, UK.

1454. Biomechanical Model of Brain Vasculature
Alberto Vazquez, Luis Hernandez and Douglas Noll.
University of Michigan, Ann Arbor, MI, USA.

Animal Models of Infarct and Hypoxia

1455. T_{1ρ} following Acute Global Cerebral Ischemia in Rats Dependence on Blood Glucose and Interrelation with Diffusion
Mikko I. Kettunen, Olli H.J.Gröhn and Risto A. Kauppinen.
University of Kuopio, Kuopio, Finland

1456. Time evolution of cytotoxic and vasogenic edema measured by DWI and T2 in a porcine stroke model
Lisbeth Røhl, Carsten Gyldensted, Masaharu Sakoh, Claus Z Simonsen, Peter Vestergaard-Poulsen, Jens C Sørensen, L. Østergaard
Aarhus University Hospital, Århus, Denmark and Ehime University Hospital, Ehime, Japan;

1457. Diffusion and T2 time course changes in a model of microsphere induced embolic stroke
Orna Mayzel-Oreg, Tsuyoshi Omae, Mark Kazemi, Fuahi LI, Marc Fisher, Yoram Cohen, Christopher H. Sotak.
School of Chemistry, Tel-Aviv University, Tel-Aviv,Israel; University of Massachusetts Medical School and Worcester Polytechnic Institute, Worcester, MA, USA.

1458. A Serial MR Study of Cerebral Blood Flow Changes and Lesion Development Following Endothelin-1 Induced Ischemia in Rats
Richard Buist, Jeff Biernaskie, Hao Lei, Dale Corbett, James Peeling
University of Manitoba, Winnipeg, MB Canada and Memorial University of Newfoundland, St. John's, NF, Canada.

1459. Evaluation of MRI Tissue Signature Changes Between Embolic and Thrombotic Ischemia
Quan Jiang, Rui Lan Zhang, Zheng Gang Zhang, Robert A. Knight, James R. Ewing, Jiani Hu, Qing Jiang Li, Polly Arniego, Guang Lian Ding, Michael Chopp.
Henry Ford Hospital, Detroit, MI, USA.

1460. Histopathological evaluation on infarct core, peri-infarct border and intrahemispheric remote area in T2 weighted and diffusion weighted MRI images in the rat brain.
Masato Nakane, Hiroshi Toyama, Hirofumi Anno, Masayuki Yamada, Tatsuhiko Okada, Kaname Matsumura, Kazuhiro Katada, Sukehiko Koga.
Fujita Health University, Toyoake, Aichi Japan and Mie Univeristy, Mie Japan.

1461. Comparison of ADC, CBF and T1 in Arterial Occlusive and Photo-Thrombotic Stroke Models, with Microtubule-Associated Protein-2 (MAP2) Immunoreactivity to Determine the Extent of Ischemia.
D.S. Williams, A. Kharlmov, E. Simplaceanu, and S.C. Jones.
Carnegie Mellon University, Pittsburgh, PA, USA and Allegheny General Hospital, Pittsburgh, PA, USA.

- 1462. Dynamics of tissue status following 1.5-hour transient focal cerebral ischemia in the rat, as measured using T2 - and DW-MRI and 1 H-MRS**
W.B. Veldhuis, F. Delmas, P.R. Bär, K Nicolay
University Medical Center, Utrecht, The Netherlands and Laboratoire de RMN Biologique, Gif-sur-Yvette, France;
- 1463. Regional response of cerebral blood volume to graded hypoxia in rat brain**
Jean-Francois Payen, Cecile Julien-Dolbec, Irene Tropres, Olivier Montigon, Henri Reutenauer, Anne Ziegler and Michel Decorps.
Johns Hopkins University, Baltimore, MD USA and Hopital Michallon, Grenoble, France.
- 1464. Monitoring Cerebrovascular Reserve Capacity Following Bilateral Carotid Artery Occlusion In Rat Using Arterial Spin Tagging Perfusion Imaging**
Richard Buist, Chunliang Wei, Vyacheslav Volotovskiy, James Peeling.
University of Manitoba, Winnipeg, MB Canada.
- 1465. Altered BBB Permeability in Acute Stroke Studied by Gd-DTPA Enhanced T1-weighted Imaging and 14C-**
Robert A. Knight, James R. Ewing, Taverekere N. Nagaraja, Vijaya Nagesh, Polly Arniego, Susan C. Fag, Quan Jiang and Joseph D. Fenstermacher.
Henry Ford Hospital, Detroit, Michigan USA and University of Georgia, Pharmacy, Augusta, Georgia USA.
- 1466. Magnetic Resonance Imaging Studies on the Effect of the Antithrombotic Agent Acutobin on Hyperglycemic Rat Middle Cerebral Ischemia/Reperfusion Model**
Jingna Wei, Qingchuang Wang, Kuangfen Liu, Michael J Quast.
University of Texas Medical Branch, Galveston, Texas USA and Fujian Medical University, Fujian P.R. of China
- 1467. Does Hypothermia Protect Against “Delayed Tissue Damage” Following a Brief Period of Forebrain Ischemia in the Gerbil?**
M. Lythgoe, D.L. Thomas, M.D. King, R. Ordidge, and D. Gadian.
Institute of Child Health, London, England, UK and University College of London, London, England, UK.
- 1468. Magnesium treatment reduces ischemic depolarizations and lesion volume after subarachnoid hemorrhage in the rat**
Walter van den Bergh.
University Medical Center Utrecht, Utrecht, The Netherlands.
- 1469. Diffusion MRI of adult rat brain in a model of transient global ischemia.**
I. Rodriguez, D. Alonso, J. Ruiz-Cabello, J. Serrano, A.P. Fernandez, L.O. Uttenthal, J. Rodrigo.
Complutense University, Madrid, Spain.

Animal Brain MR Imaging

- 1470. In vivo volume measurement of song control nuclei in the brain of European starlings (*Sturnus vulgaris*) using Manganese-Enhanced MRI**
V. Van Meir, M. Verhoye, I. Tindemans, P. Absil, J. Balthazart, A. Van der Linden
University of Antwerp, Antwerp, Belgium and University of Liège, Liège, Belgium.

- 1471. Microscopic Parametric Mapping of the Normal Mouse Brain**
Todd Ryan Mitchell, Stanley Thomas Fricke, Stefan Posse, Gregory J. Moore.
Wayne State University, Detroit, Michigan, USA.
- 1472. In vivo Tracking of the Neurodegeneration Induced by Intrahippocampal Injections of α -Amyloid**
Yusuf A. Bhagat, Andre Obenaus, J. Steven Richardson, Edward J. Kendall
University of Saskatchewan, Saskatoon, SK Canada;
- 1473. Water and teramethylammonium diffusion in the rat brain with kaolin-induced hydrocephalus**
Eva Sykova, Ivan Vorisek, Jindrich Fiala
Charles University, Prague, Czech Republic Prague, Czech Republic.
- 1474. MRI Tracer study of bulk flow of interstitial and cerebrospinal fluid in a new hydrocephalus model**
M Shibata, C-H Nguy, S Yamada, M Scadeng, S Bluml, JGMcComb, BD Ross
Children's Hospital of Los Angeles, Los Angeles, CA USA; Rudi Schulte Research Institute, Santa Barbara, CA USA and Huntington Medical Research Institutes, Pasadena, CA USA.
- 1475. Water Diffusion in Myelin Deficient Rat Spinal Cords**
Vikas Gulani, Andrew Webb, Ian D. Duncan, Paul Lauterbur
University of Illinois at Urbana-Champaign, Madison, Wisconsin, USA.
- 1476. Magnetic Resonance Imaging Investigation of a Delayed Type Hypersensitivity Lesion in the Rat Brain.**
Kerry A Broom, Daniel Anthony, Andrew M Blamire, Hugh Perry, Peter Styles, Nicola R Sibson
University of Oxford, Oxford, UK and Southampton University, Southampton, England.
- 1477. Measurements of Anatomic and Vascular Characteristics in the Brain of Aging Canine with or without Environmental Enrichment and Antioxidant Diet**
M. Y. Su, E. Head, J. Wang, J. Y. Chiou, H. Yu, B. A. Muggenburg, C. W. Cotman, O. Nalcioglu
University of California, Irvine, CA USA and Lovelace Respiratory Research Institute, Albuquerque, NM.
- 1478. MRI Detection of Early Reductions in Cerebral Perfusion Following Focal Striatal Injection of the Cytokine TNF- α : Implications for CNS Disease.**
N. Sibson, A. Blamire, V.H. Perry, P. Styles, D.C. Anthony.
University of Oxford, Oxford, UK and University of Southampton, Southampton, UK.
- 1479. Quantitative DWI Analysis of Neuroprotection Against Soman-Induced Neuropathology**
Yusuf A Bhagat, Andre Obenaus, Murray G Hamilton, Edward J Kendall
University of Saskatchewan, Saskatoon, Canada and Medical Countermeasures Section, Medicine Hat, AB Canada.
- 1480. Kainate Injury in the Rat Brain Evaluated by In Vivo Contrast-Enhanced MRI**
Robert Frangez, Marko Zivin, Franci Demsar, Katarina Beravs
Veterinary Faculty and Jozef Stefan Institute, Ljubljana, Slovenia
- 1481. Effects of Centrally Administered Arginine Vasopressin and Atrial Natriuretic Peptide on the Development of Brain Edema in Hyponatremic Rats**
Zsolt Vajda, Michael Pedersen, Tamás Dóczi, Endre Sulyok, Hans Stødkilde-Jørgensen, Jørgen Frøkiaer and Søren Nielsen.
University of Aarhus and Skejby University Hospital Aarhus, Denmark and Medical School of Pécs, Hungary.

- 1482. Bilateral cortex over activation in a unilateral rodent model of Parkinson's disease**
Galit Pelled, Hagai Bergman, Gadi Goelman
Hadassah Hebrew University Hospital, Jerusalem, Israel.
- 1483. Pharmacological Functional MRI of *Psammomys Obesus* Brain During Melatonin Stimulation**
Inbal Eti Biton, Alina Neuman, Nava Zisapel, Yaniv Assaf and Yoram Cohen.
Tel Aviv University, Tel Aviv, Israel.
- 1484. High Resolution R2* Mapping of the Belgrade Rat Brain: Role of Divalent Metal Transporter 1(DMT1) in Regional Iron Content.**
J. Bulte, H. Zywicke, P. Van Gelderen, M.D. Garrick, K.G. Dolan, J.R. Burdo, J.R. Connor, and J. Frank.
National Institutes of Health, Bethesda, MD, USA; Pennsylvania State University, Hershey, PA, USA; SUNY Buffalo, Buffalo, NY, USA.
- 1485. MRS,water and tetramethylammonium diffusion in a rat cortex after traumatic injury**
Ivan Vorisek, Vít Herynek, Martin Burian, Milan Hajek, Klaas Nicolay and Eva Sykova.
Institute for Clinical and Experimental Medicine, Prague, Czech Republic; University Utrecht, Utrecht, Netherlands and Charles University, Prague, Czech Republic;
- 1486. In-vivo imaging of closed head injury in mice: Automated analysis can document evidence for the degree of recovery induced by COP-1 immunization**
Uri Nevo, Jonathan Kipnis, Esther Shohami, Solange Akselrod, Michal Schwartz
Tel Aviv University, Tel-Aviv, Israel; The Weizmann Institute of Science, Rehovot, Israel and The Hebrew University, Jerusalem, Israel.
- 1487. In vivo neuro MRI microcopy of transgenic mice overexpressing a constitutively active human glycogen synthase kinase-3b (GSK-3b).**
M Verhoye, K Spittaels, C Van denHaute, K Bruynseels, F Van Leuven, A Van der Linden
University of Antwerp, Antwerp, Belgium and Center for Human Genetics, Flemish Institute for Biotechnology (VIB), KUL, Leuven, Belgium.
- 1488. Effects of Ketamine and Ketamine-Xylazine Anesthesia on Cerebral Blood Flow in Rat Observed Using Arterial Spin Tagging Perfusion Imaging**
Hao Lei, Casmier I. Nwaigwe, Heather Williams and Jeffrey F. Dunn
Dartmouth Medical School, Hanover, NH USA.
- 1489. Dynamic Registration of high resolution 3-D images from mouse brain.**
Jean-Philippe Galons, Alex I. Veress, Jingyu Guo, Leena Peltonen, Lewis L. Lanier, Jeffrey A. Weiss and Robert Gillies.
University of Arizona, Tucson, AZ USA; University of Utah, Salt Lake City, UT USA; UCLA Department of Human Genetics, Los Angeles, CA USA and University of California, San Francisco, San Francisco, California USA.
- 1490. Integrated T1 -T2 Imaging of Water Compartment in Nerve In Vivo**
Mark D. Does and John C. Gore
Yale University, School of Medicine, New Haven, CT, USA.
- 1491. MRI Detection of Cerebral Perfusion and Oxygenation Changes in Pig Brain using Intermolecular Multiple-Quantum Coherences**
Margaret Aranda, Louis-S. Bouchard, Rahim Rizi, Ali ASAI, Mounir Fertikh, Mitchell D. Schnall and Warren S. Warren.
University of Pennsylvania Medical Center, Philadelphia, PA and Princeton University, NJ USA.

1492. Functional MRI of rat olfactory glomerulae: Mapping a single neuronal unit

Ikuhiro Kida, Fahmeed Hyder, Fuqiang Xu, Robert Shulman
Yale University, New Haven, CT, USA.

1493. In Vivo 3D Imaging of the Rat Visual Pathway Using Mn²⁺ as a Tract Tracer.

T. Watanabe, T. Michaelis, and J. Frahm.
Biomed NMR Forschungs GmbH, Gottingen, Germany.

Brain Diffusion**1494. Neuro-Beçhet's Disease - Assessment with Isotropic Diffusion-Weighted Imaging**

A. Kunitatsu, O. ABE, T. Okubo, N. Hayashi, H. Mori, S. Aoki, K. Ohtomo
University of Tokyo, Tokyo, Japan.

1495. Diffusion in Acute Intoxicated Human Brain

Li Huang, Si-Run Liu, Guang Cao
Jinan University Medical College, Guangdong China;
GE Medical Systems, Hong Kong, China.

1496. Diffusion MR imaging of white matter injury in rabbit neonates after in utero hypoxia-ischemia

Brian C. Tom, Palamadai N.Venkatasubramanian, Reza Pouremad, Sidhartha Tan 1 and Alice M.Wyrwicz
Evanston Northwestern, Evanston, IL, USA.

1497. Average Models of Diffusion Maps in Normal Elderly Subjects and Patients with Alzheimers Disease

Andrew Janke, Stephen E. Rose, Jonathan Chalk, Derek Jones, Wendy Strugnell, David Doddrell, James Semple.
University of Queensland, Queensland Australia; University of Leicester, Leicester, England, UK;
Princess Alexandra Hospital, Brisbane, Australia and Smithkline Beecham Pharmaceuticals, Cambridge, England, UK.

1498. Normal aging in the central nervous system:Quantitative Diffusion-tensor Analysis Using MR Imaging

Osamu ABE, Yoshiro Satake, Yukichika Kikuya, Hiroki Koyanagi, Haruyasu Yamada, Okubo Toshiyuki, Akira Kunitatsu, Takeharu Yoshikawa, Harushi Mori, Naoto Hayashi, Shigeki Aoki, Hiroyuki Kabasawa, Yoshiyuki Takahashi and Kuni Ohtomo
University of Tokyo, Tokyo Japan.

1499. Diffusion Tensor Imaging and Magnetic Resonance Spectroscopy Studies of Schizophrenics and Controls.

R. Steel, M. Bastin, S. McConnell, I. Marshall, D. Cunningham-Owens, S. MacGregor Lawrie, E.C. Johnstone, and J.J. Best.
University of Edinburgh, Edingburgh, Scotland, UK.

1500. Diffusion Tensor Imaging for Severe Head Injury

Tsukasa Nagaoka, Hideaki Akimoto, Yoji Tanaka, Naoyuki Miyasaka and Kikuo Ohno.
Medical and Dental University, and Center for Magnetic Resonance Research, University of Minnesota, Minneapolis, MN USA;
Tokyo Medical and Dental University, Tokyo Japan;

1501. An MRI and MTI Study of the Brain from Patients with Acute Disseminated Encephalomyelitis

Matilde Inglese, Fabrizio Salvi, Gianluigi Mancardi, Massimo Filippi.
Neuroimaging Research Unit, Milan, Italy; University of Bologna, Italy and Dept of Neuroscience and Vision, University of Genoa, Italy.

- 1502. Spatial functional distribution in the corticospinal tract at the corona radiata: a 3DAC study**
Takashi Inoue, Akira Ogawa, Hiroaki Shimizu, Kuniaki Ogasawara, Takashi Yoshimoto, Hiroyuki Kabasawa.
Iwate Medical University, Iwate Japan; Tohoku University School of Medicine, Miyagi Japan and GE Medical Systems, Tokyo, Japan.
- 1503. Fast Marching Tractography in the Planning of Epilepsy Surgery.**
G. Parker, S.H. Eriksson, F. Rugg-Gunn, G. Barker, C. Wheeler-Kingshott, and J. Duncan.
Institute of Neurology, London, England, UK; None Given, Surrey, England, UK; University College London, London, England, UK.
- 1504. Diffusion Tensor Imaging in Fixed Brain Tissue.**
D. Guilfoyle, J.A. Helpert, and K. Lim.
Nathan Kline Institute, Orangeburg, NY, USA and New York University, New York, NY, USA.
- 1505. Diffusion Tensor Imaging of White Matter Changes Adjacent to Intra-cranial Tumors**
Gerard Riedy, Neeraj Chepuri, Hong Li and Yi-Fen Yen
Wake Forest University School of Medicine, Winston-Salem, NC, USA.
- 1506. Complementary information of symmetric colour encoded DTI maps in chronic white matter disease.**
Christina Rossmann, Jochen G. Hirsch, Michael Hennerici, Jochen Gaa, Achim Gass
University Hospital Mannheim/University of Heidelberg, Mannheim, Germany.
- 1507. Correlation of Diffusion Tensor Anisotropy Measures, T₂-Relaxation Distributions and Myelin Water Content in Human White Matter Brain.**
B. Mädler, K. Whittall, and A. Mackay.
University of British Columbia, Vancouver, BC, Canada.
- 1508. Dependence of SNR and Spatial Resolution on the Accuracy of DTMRI in Defining Local Tract Orientations: Validated with Mn-enhanced Optic Tracts**
Ching-Po Lin, Wen-Yih Isaac Tseng, Jyh-Horng Chen.
National Taiwan University Medical College, Taipei, Taiwan.
- 1509. An investigation of functional and anatomical connectivity using diffusion tensor imaging**
Martin Koch, David G. Norris, Margret Hund-Georgiadis
Max-Planck-Institute of Cognitive Neuroscience, Leipzig, Germany.

Diffusion ADC and Tensor Analysis
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- 1510. Developing a Quality Control Program for Diffusion Weighted Imaging.**
Ioannis Delakis, Elizabeth Moore, Janet De Wilde, Martin Leach.
Imperial College of Science, London, England, UK and Royal Marsden Hospital, Sutton, Surrey, England, UK.
- 1511. Effect of Magnetic Field Gradients Induced by Microvasculature on NMR Measurements of Diffusion Coefficient**
Valerij G. Kiselev.
Freiburg University Hospital, Freiburg, Germany.
- 1512. Tissue Characterization with Chi² maps of Monoexponential Diffusion Signal Fits.**
H. Mamata, F. Jolesz, R. Mulkern, and S. Maier.
Harvard Medical School, Boston, MA, USA.

- 1513. High B Value Diffusion MR Imaging: A Comparison of Apparent Diffusion Coefficients (ADCs) Values Between Two-point and Multi-point Analyses**
Hitoshi Kubo, Masayuki Maeda, Kenichirou Yata, Makoto Hayashi, Hajime Sakuma, Kan Takeda
The University of Tokushima, Tokushima, Japan; Mie University School of Medicine, Tsu, Mie, Japan
and Akita Research Institute of Brain and Blood Vessels, Dept. of Strokeology, Akita, Akita, Japan;
- 1514. Observation of multi-exponential decaying behavior on diffusion-weighted images with high b values: effects of neural fiber orientations and selection of the regions of interest**
Wen-Chau WU, Kuo-Hiang Kao, Ping-Hong Lai, Cheng-Yu Chen, Hsiao-Wen Chung
National Taiwan University, Taiwan R.O.C.
- 1515. ADC Measurements in a Rat Model with Compartmental Geometric Considerations at 3T.**
K. Bennett, R.W. Cox, H. Lu, K. Schmainda, R. Bennett, and J. Hyde.
Medical College of Wisconsin, Milwaukee, WI, USA.
- 1516. Feasibility of Measuring Axon Size in the Rat Spinal Cord by q-Space Imaging: Effects of Membrane Permeability and Cell Size Distribution.**
C-L. Chin, F. Wehrli, S.N. Hwang, D. Hackney, and S. L. Wehrli.
University of Pennsylvania, Philadelphia, PA, USA; Children's Hospital of Pennsylvania, Philadelphia, PA, USA.
- 1517. MR Microscopy studies of the appearance of the multiexponential diffusion in a rat spinal cord in vitro.**
Wladyslaw Piotr Weglarz, Andrzej Jasinski, Joanna Pindel, Dariusz Adamek, Piotr Kulinowski, Tomasz Skorka
H. Niewodniczanski Institute of Nuclear Physics and Jagiellonian University, Kraków, Poland.
- 1518. Diffusion MR Studies Characterize Axonal Degeneration and Dieback in the Injured Larval Sea Lamprey Spinal Cord.**
M. Takahashi, G. Zhang, M.E. Selzer, F. Wehrli, S.L. Wehrli, and D. Hackney.
University of Pennsylvania, Philadelphia, PA, USA and Children's Hospital of Philadelphia, Philadelphia, PA, USA.
- 1519. Fiber-Tracking of Human Brainstem: Validity, Reproducibility, and Tract Properties.**
Susumu Mori, Bram Stieltjes, Peter C. Van Zijl, Godfrey D. Pearlson, Meiyappan Solaiyappan, Walter Erwin Kaufmann
Johns Hopkins University, School of Medicine, and F.M.Kirby Research Center, Kennedy Krieger Inst., Baltimore, MD, USA.
- 1520. An Algorithm for White Matter Connectivity in the Human Brain Using Projected Diffusion Tensor Distance.**
Tetsuo Sato, Khader Hasan, Andrew Alexander
Nara Institute of Science and Technology, Ikoma, Japan and University of Utah, Salt Lake City, UT, USA.
- 1521. Limitations and requirements of diffusion tensor fibre-tracking: assessment using simulations.**
J-D. Tournier, F. Calamante, M.D. King, D. Gadian, and A. Connelly.
Institute of Child Health, London, England, UK and Great Ormond Street Hospital for Children, London, England, UK.
- 1522. A Probabilistic Map Approach for the Analysis of DTI-based Fiber Tracking and its Application to White Matter Injuries**
Susumu Mori, Christos Davatzikos, Dongrong Xu, Laura Amodei, Kim Fredericksen, Meiyappan Solaiyappan and Peter C. Van Zijl
Johns Hopkins University, School of Medicine and Kennedy Krieger Inst., Baltimore, MD, USA.

- 1523. Two Directional Method to Identify White Matter Tracts for Patients with Brain Tumors**
Wen-Ching Liu, Martin D. Ollenschleger and Andrei I. Holodny
University of Medicine and Dentistry of New Jersey, Newark, NJ, USA.
- 1524. A Comparison of “Goodness” Metrics for Use with Fast Marching Tractography.**
G. Parker.
Institute of Neurology, London, England, UK.
- 1525. Investigation of spinal cord nervous tracts using diffusion tensor imaging in a rat model of spinal cord injury.**
Andrzej Jasiński, Artur Krzyzak, Joanna Pindel, Dariusz Adamek, Wladyslaw P. Weglarz, Andrzej Urbanik.
H. Niewodniczanski Institute of Nuclear Physics, Jagiellonian University, Kraków, Poland.
- 1526. Decreased Diffusion Anisotropy of the Hippocampus in Schizophrenic Patients: Diffusion Tensor MR Study**
Haruyasu Yamada, Osamu Abe, Kiyoto Kasai, Noriomi Kuroki, Hidenori Yamasue, Toshiyuki Okubo, Takeharu Yoshikawa, Naoto Hayashi, Shigeki Aoki, Hiroyuki Kabasawa and Kuni Ohtomo.
University of Tokyo, Tokyo, Japan and Yamanashi Medical University, Yamanashi Japan;
- 1527. Bootstrap Analysis of DT-MRI Tractography Techniques: Streamlines and Tensorlines**
Mariana Lazar, Khader M. Hasan, Andrew Alexander.
University of Utah, Salt Lake City, Utah, USA.
- 1528. Orientational diffusion reflects fiber structure within a voxel.**
E. Von Dem Hagen, R.M. Henkelman.
University of Toronto, Toronto, ON, Canada.
- 1529. Solving the Diffusion Equation for Fiber Tracking in the Living Human Brain**
Daniel Gembris, Helmut Schumacher, Dieter Suter.
University of Dortmund, Dortmund, Germany.
- 1530. Tracking, Bundling and Quantitatively Characterizing in vivo Neuronal Fiber Pathways Using Diffusion Tensor Magnetic Resonance Imaging**
Zhaohua Ding, John C. Gore, Adam W. Anderson
Yale University, School of Medicine, New Haven, CT, USA.
- 1531. Characterization of Anisotropy in High Angular Resolution Diffusion Weighted MRI.**
L. Frank.
University of California, San Diego, CA, USA.
- 1532. Automated White Matter Delineation Tools Based On Diffusion Tensor Imaging**
K. Fredericksen, L. Amodei, W. Erwin K., Peter C. Van Zijl, G. D. Pearlson, S. Mori
Johns Hopkins University, School of Medicine, and F. M. Kirby Research Center, Kennedy Krieger Inst., Baltimore, MD, USA
- 1533. Reconstructing Three-Dimensional White Matter Tracts in the Human Brain Using the Level Set Approach.**
A.C.S. Chung, P. Armitage, J.A. Noble, and M. Brady.
University of Oxford, Oxford, England, UK.

- 1534. Visualizing White Matter Tract Directionality in Two-Dimension**
Chung-Yi Hong, Sheng-Kwei Song.
Emory University, School of Medicine, Atlanta, GA, USA and Washington University,
St. Louis, Missouri USA.
- 1535. A Continuous Tensor Field Approximation for DT-MRI Data**
Sinisa Pajevic, Peter J. Basser, Akram Aldroubi
National Institutes of Health, Bethesda, MD, USA and Vanderbilt University, Nashville, TN, USA.
- 1536. Independent Component Analysis Applied to Diffusion Tensor MRI.**
K. Arfanakis, D. Cordes, V. Haughton, J.D. Crew, and M.E. Meyerand.
University of Wisconsin, Madison, WI, USA.
- 1537. Exploration of b-Space for Diffusion Tensor Imaging of Human Brain**
Ibrahim Elshafiey, Ponnada Aswadha Narayana
University of Texas—Houston Health Science Center, Houston, Texas USA
- 1538. Improving Relative Anisotropy Measurement using Directional Correlation of Eigenvectors**
Shu-Wei Sun, Sheng-Kwei Song, Chung-Yi Hong, Woei Chyn Chu, Chen Chang.
National Yang-Ming University, Taipei, Taiwan; Washington University, St. Louis, MO and Emory
University, Atlanta, GA.
- 1539. A novel propagator approach for NMR signal attenuation due to anisotropic diffusion under various magnetic field gradients.**
Zhong Chen, Guoxing Lin, Jianhui Zhong
University of Rochester, Rochester, NY USA and Xiamen University, Fujian P.R. China;
- 1540. The distribution of currents induced in the brain by Magnetic Stimulation: a finite element analysis incorporating DT-MRI-derived conductivity data.**
Pedro C Miranda, Sinisa Pajevic, Carlo Pierpaoli, Mark Hallett and Peter J. Basser.
University of Lisbon, Lisbon, Portugal and National Institutes of Health, Bethesda, MD, USA.

Diffusion MRI Acquisition Methods
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- 1541. High Resolution Diffusion-Weighted Imaging with RAD-GRASE**
Arthur F. Gmitro, Mitsuko Kono, Rebecca J. Theilmann, Maria I. Altbach and Theodore P. Trouard
University of Arizona, AZ, USA.
- 1542. Optimization of Diffusion-Weighted Magnetic Resonance Images Acquired with Spin Echo or Stimulated Echo Spiral Pulse Sequences.**
B. Zauscher and L. Frank.
University of California, San Diego, CA, USA.
- 1543. A Method for Optimising the Diffusion-Weighting b-value and its Application to Human Brain Imaging.**
P. Armitage.
University of Oxford, Oxford, UK.
- 1544. Magnetization Transfer Studies of the Fast and Slow Apparent Diffusion Coefficient (ADC) Components in the Human Brain.**
R.V Mulkern, S. Vajapeyam and S.E. Maier.
Harvard Medical School, MA, USA.

- 1545. A Method to Enhance Apparent Diffusion by External Currents**
Kikuo Yamaguchi, Masaki Sekino, Norio Iriguchi, Shoogo Ueno
Graduate School of Medicine, University of Tokyo, Bunkyo-ku, Tokyo Japan;
- 1546. Gibbs Ringing and Negative ADC Values.**
G. Barker, G. Parker, and C. Wheeler-Kingshott.
The National Hospital, London, UK and Institute of Neurology, London, UK.
- 1547. A 3D Diffusion-Weighted Radial Fast Spin-Echo Sequence for Whole Brain Imaging with High Spatial Resolution.**
Rebecca J. Theilmann, Arthur F. Gmitro, Maria I. Altbach and Theodore P. Trouard
University of Arizona, AZ, USA.
- 1548. Investigation of the Visual Pathways using Diffusion-Weighted PSIF.**
R.A Quest and D.W. McRobbie.
Imperial College, Charing Cross Hospital, London, UK.
- 1549. Application of Non-CPMG Fast-Spin-Echo Sequences to MR Diffusion Imaging.**
M.E. Bastin and P. Le Roux.
University of Edinburgh, Edinburgh, UK and GE Medical Systems.
- 1550. Diffusion Tensor Imaging at 1.5 T and 3.0 T.**
Stefan Hunsche, Mike Moseley, Peter Stoeter, Maj Hedehus.
Institut für Neuroradiologie, Mainz, Germany and Stanford University, Stanford, CA, USA,
- 1551. Demonstration of two diffusion components in the human brain with high b-value diffusion-weighted imaging.**
Jochen G. Hirsch, Jochen Gaa, Michael Hennerici, Achim Gass
University Hospital Mannheim/University of Heidelberg, Mannheim, Germany.
- 1552. Two dimensional navigator echo correction in DWI: assessment of the use of multiple reacquisition at high b-value.**
David Atkinson, Fernando Calamante, Derek Hill and Alan Connelly.
Guy's Hospital, London, England, UK;
- 1553. Real-Time Navigator Quality Based Re-Acquisition Strategy Improves Reliability of Interleaved Diffusion Weighted Imaging at 3.0 Tesla.**
J. Van Den Brink, A. Van Muiswinkel, M. Jurrissen, G. Van Ensbergen, H. Jenniskens, H. Dingemans, R. Lamerichs, R. Visser, and P. Folkers.
Philips Medical Systems, Best, Netherlands.
- 1554. The value of Diffusion-Weighted Imaging and ADC maps in the differential diagnosis of intracranial tumors.**
Niloufar Sadeghi, Danielle Baleriaux, Philippe David, Thierry Metens
ULB-Erasme, Brussels, Belgium.
- 1555. An MRI Based Method for the Detection of Peri-Infarct Depolarizations (PIDs) in Acute Head Injury.**
Kenneth Richard Revett, Paul E. Summers, Andrew Simmons, Stuart J Hibbins, Anthony J. Strong.
King's College Hospital, King's College London, London, UK

- 1556. Diffusion Tensor Imaging in Neonatal Post Hemorrhagic Hydrocephalus.**
P. H. Ppi, B.P. Murphy, S. Maier, T.E. Inder, G. Zientara, and F. Jolesz.
Hospital des Enfants, Geneva, Switzerland and Harvard Medical School, Boston, MA, USA.
- 1557. A Navigated Steady-State Sequence for Diffusion Imaging.**
K. Miller, D.G. Nishimura, J.M. Pauly.
Stanford University, Stanford, CA, USA.

Perfusion Methodology: Arterial Spin Labeling
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- 1558. Multislice Perfusion MRI Using Arterial Spin Labeling: Controlling for MTC Effects in Adiabatic Fast Passage Inversion Using Proximal Slab Selective Saturation Pulses.**
D.S. Williams, Q. Ye, A. Koretsky, C. Ho
Carnegie Mellon, Pittsburgh, PA and National Institutes of Health, Bethesda, MD, USA.
- 1559. Dynamic Spin Labeling Angiography in a Reduced FOV.**
Carsten Warmuth and Matthias Günther.
Charité, Department of Radiology, Berlin, Germany and Deutsches Krebsforschungszentrum, Heidelberg, Germany.
- 1560. True FISP Sequences Applied for Data Recording in FAIR Perfusion Imaging.**
Petros Martirosian, Fritz Schick and Uwe Klose
University of Tübingen, Tübingen, Germany
- 1561. Multislice Online Quantitative Perfusion Imaging using FAIR Exempting Separate T1 Measurement (FAIREST).**
Jiongjong Wang, Geon-Ho Jahng, Song Lai.
Department of Diagnostic Imaging and Therapeutics, University of Connecticut Health Center, Farmington, CT, USA.
- 1562. Improved Efficiency for Multi-slice Continuous Arterial Spin Labeling Using Time Varying Gradients.**
David Alsop.
Harvard Medical School, Boston, MA, USA.
- 1563. A Method to Extend the Spatial Coverage of SPDI-CASL Perfusion MRI.**
SL. Talagala, E. Barbier, A. Kam, and A. Koretsky.
National Institutes of Health, Bethesda, MD, USA and University of Pittsburgh, Pittsburgh, PA, USA.
- 1564. Improved subtraction by adiabatic FAIR perfusion imaging.**
Janneke Schepers, Michael Garwood, Boudewijn van der Sanden, Klaas Nicolay.
Image Sciences Institute, Utrecht University, Utrecht, The Netherlands and University of Minnesota, Minneapolis, MN, USA.
- 1565. Non-invasive Dynamic 3D Angiography with ITS-3D-FAIR.**
M. Guenther, C. Warmuth, and L. Schad.
Deutsches Krebsforschungszentrum (DKFZ), Heidelberg, Germany and Charite Berlin, Berlin, Germany.
- 1566. FLOW Specific Suppression (FLOSS) Image Using a Flow-driven Adiabatic Pulse Sequence**
Tzu-Chen Yeh, Hui-Cheng Cheng, Jen-Chuen Hsieh, Cheng-Yen Chang and Low-Tone Ho.
Department of Medical Education and Research, Taipei Veterans General Hospital; Taipei, Taiwan.

- 1567. Accounting for Partial Volume Effects in Perfusion Measurements using AST Techniques.**
Patricia Figueiredo, Yongyue Zhang, Stephen Smith, Peter Jezzard
FMRI Centre, University of Oxford, John Radcliffe Hospital, Oxford, U.K.
- 1568. Double Adiabatic Inversion Efficiencies Measured In Vitro.**
H.M. Gach, A.W. Kam, S.L. Talagala, and E.D. Reid.
University of Pittsburgh, Pittsburgh, PA, USA and National Institutes of Health, Bethesda, MD, USA.
- 1569. Test-Retest Stability with Continuous Arterial Spin Labeled (CASL) Perfusion MRI in Regional Measurement of Cerebral Blood Flow.**
T.F. Floyd, J. Maldjian, J. Gonzales-Atavales, D. Alsop, J.A. Detre.
University of Pennsylvania/ HUP, Medicine, Philadelphia, PA, USA
- 1570. Practical Method of Quantifying Cerebral Blood Flow using Pulsed Arterial Spin Labeling—Correlation with Cold Xenon-CT measurements.**
Tokunori Kimura, Tomoyuki Iwai, Kiyohiko Takahashi, Takeshi Nozokido, Takaaki Sato and Isao Naito
Medical Systems R&D Center, Toshiba, Tochigi, Japan and Geriatrics Research Institute and Hospital, Gumma, Japan.
- 1571. Normal Cerebral Perfusion Changes over Time Measured Using Arterial Spin Labeling.**
L Parkes and P.S. Tofts.
Institute of Neurology, London, UK and University College London, London, UK.
- 1572. Dynamic Monitoring of T2* and Perfusion Changes induced by Oxygen or Carbongen Breathing.**
P. Schmitt, M. Weigel, P. Jakob, M. Kotas, M. Flentje, and A. Haase.
University of Wurzburg, Wurzburg, Germany; None Given, Wurzburg, Germany; University Clinics of Wurzburg, Wurzburg, Germany; Am Hubland, Wurzburg, Germany.
- 1573. Using arterial spin tagging to determine the effect of indomethacin on cerebral blood flow and carbon dioxide reactivity in humans**
K. S. St. Lawrence, F. Qye, B. K. Lewis, J. A. Frank and A. C. McLaughlin.
National Institutes of Health, Bethesda, MD USA.
- 1574. Single-Coil Arterial Spin-Tagging for Estimating Cerebral Blood Flow- an Experimental Concordance with Quantitative Autoradiography, supported by a Theoretical Study of The**
James Ewing, Ling Wei, Robert A. Knight, Yue Cao, Swati Pawa, Tavarekere Nagaraja
and Joseph Fenstermacher.
Henry Ford Hospital, Detroit, MI, USA; Washington University, St Louis, MO, USA and Michigan State University, College of Human Medicine, East Lansing, MI, USA.
- 1575. Cerebral Blood Flow in Rett Syndrome: Evaluation with Continuous Arterial Spin Labeling**
Xavier Golay, Florian Eichler, Peter B. Barker, Sakkubai Naidu, Peter C. Van Zijl.
F.M. Kirby Research Center, Kennedy Krieger Institute & Johns Hopkins University, Baltimore, MD USA.
- 1576. The Effect of Ordinary Coffee Consumption on Quantitative Cerebral Perfusion MR Imaging**
Aaron S. Field, Yi-Fen Yen, Jonathan H. Burdette and Dixon Moody.
Wake Forest University School of Medicine, Winston-Salem, NC USA.

Perfusion Methodology: Contrast Agents

- 1577. Global Cerebral Blood Flow (gCBF) Measurement in Rat Using Injection of Dissolved Hyperpolarized ^{129}Xe**
Guillaume Duhamel, Philippe Choquet, Emmanuelle Grillon, Jean Louis Leviel, Michel Decorps, Anne Ziegler and André Constantinesco.
Université Joseph Fourier, Centre Hospitalier Universitaire, and
Université Louis Pasteur, Centre Hospitalier Universitaire, Strasbourg Cedex, France.
- 1578. Automatic Determination of the Arterial Input Function (AIF) in Dynamic Contrast-Enhanced MRI in Acute Stroke.**
T. Carroll and H. Rowley.
University of Wisconsin-Madison, Madison, WI, USA.
- 1579. Dependence of estimation errors on mean transit time in dynamic susceptibility-contrast MR imaging: further investigation with singular value decomposition.**
Fu-Nien Wang, Ing-Jye Huang, Hsiao-Wen Chung, Cheng Yu Chen.
National Taiwan University, Taipei, Taiwan R.O.C. and General Hospital, Taipei, Taiwan R.O.C.
- 1580. Is quantification of bolus tracking MRI reliable without deconvolution?**
J.E. Perthen Mphys, F. Calamante, M.D. King, D. Gadian, and A. Connelly.
University College London, London, UK and Institute of Child Health, London, UK.
- 1581. The Equivalence of SVD and Fourier Deconvolution for Dynamic Susceptibility Contrast Analysis.**
David Alsop and Gottfried Schlaug.
Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, USA.
- 1582. Measurement of cerebral blood flow in MRI using a nonparametric deconvolution technique with energy compensation.**
Claus Kiefer, Marwan M EL-Koussy, Karl O.Lovblad, Gerhard Schroth.
University of Berne, Berne Switzerland.
- 1583. Use of Training Data for Improved Model-Free Estimation of the Impulse Response in Dynamic MRI Studies.**
L. Hanson, J. Marstrand, E. Rostrup.
Hvidovre University Hospital, Hvidovre, Denmark
- 1584. Quantitative Measurements of Cerebral Blood Volume Using the Steady State Method: Plasma vs. Total Blood Volume.**
Azim Celik and Weili Lin.
University of North Carolina at Chapel Hill, Chapel Hill, NC.
- 1585. Simulation of Perfusion Parameters in Dynamic Susceptibility Contrast MRI.**
Linda Andersson, Freddy St Hilberg and Ronnie Wirestam.
Lund University Hospital, Lund, Sweden.
- 1586. Does Contrast Based Perfusion Imaging Give the Right Answer in Pathological Tissue? A Monte Carlo Simulation Study.**
A. Blamire and P. Styles.
MRC Biochemical and Clinical Magnetic Resonance Unit, Oxford, UK and University of Oxford, Oxford, UK.

- 1587. A Method of Quantification of Cerebral Mean Transit Time Using Bolus Tracking Perfusion MRI.**
E. DeLucia-Deranja, A. Tudorica, C. Patlak, H. Li, W. Huang, F. Hospod, and G. Newman.
SUNY at Stony Brook, Stony Brook, NY, USA.
- 1588. A fitting approach to the simultaneous assessment of cerebral blood volume and blood-brain barrier breakdown**
Glyn Johnson, Stephan Wetzel and Soonmee Cha
New York University School of Medicine, New York, New York, USA.
- 1589. Bolus Perfusion Effects in the Cervical Spinal Cord**
Joshua S. Shimony, Erbil Akbudak, Caitlin C. Sweeney and Thomas E. Conturo.
Washington University, Saint Louis, Missouri USA.
- 1590. Assessment of Blood-Brain Barrier Integrity Using a Macromolecular Contrast Agent.**
G. Tian, G. Dai, U.I. Tuor, B. Xiang, J. Mark, and R. Deslauriers.
National Research Council, Winnipeg, MN Canada.
- 1591. Relationship Between Cerebral Perfusion and Internal Carotid Blood Flow.**
J.R. Marstrand, E. Rostrup, S. Rosenbaum, E. Garde, and H.B.W. Larsson.
Hvidovre University Hospital, Hvidovre, Denmark.
- 1592. Use of High Dimensional Non-Rigid Registration to Facilitate Tissue Classification in EPI-based Perfusion Data.**
Christina Triantafyllou, John Suckling, Mike O'Sullivan, David Lythgoe and Hugh Markus.
Hammersmith Hospital, London, England, UK; Guy's, King's and St Thomas' School of Medicine, London, England, UK and St. George's Medical School, London, England, UK;
- 1593. Dynamics of ictal and postictal brain perfusion and diffusion.**
Johannes Weber, Andreas Hufnagel, Guido Widman, Arnd Doerfler and Michael Forsting.
University of Essen, Essen, Germany.
- 1594. Evidence of Damaged Periventricular Capillary Beds in Normal Pressure Hydrocephalus: A Bolus Tracking Experiment.**
R. Corkill, M.R. Garnett, A. Blamire, B. Ragacopalan, T. Cadoux-Hudson, and P. Styles.
None Given, Oxford, UK; University of Oxford, Oxford, UK; Dept. of Radiological Sciences, Oklahoma City, OK, USA.
- 1595. Quantitative Perfusion MRI and CO₂ Reactivity Tests in Patients with a Symptomatic ICA Occlusion.**
Matthias J. P. Van Osch, Dirk R. Rutgers, Max A. Viergever, Jeroen Van Der Grond.
Image Sciences Institute, Utrecht, Netherlands.
- 1596. Perfusion and Diffusion Weighted MRI in Human Anterior Choroidal Artery Infarction**
Christian Matthias Kerskens, Claudia Anett Doege, Berenice Romero, Peter Brunecker and Arno Villringer.
Humboldt University, Berlin, Germany.
- 1597. MR Perfusion Imaging in Childhood Moyamoya Syndrome: Relationship to Clinical Symptoms and Implications for Patient Management.**
F. Calamante, V. Ganesan, F.J. Kirkham, W. Jan, W.K. Chong, D. Gadian, and A. Connelly.
Institute of Child Health, London, UK; University College London, London, UK; Great Ormond Street Hospital, London, UK.

1598. Perfusion Quantification Using Gaussian Processes.

I. Andersen, A. Szymkowiak, C. Rasmussen, L.K. Hansen, J.R. Marstrand, H.B.W. Larsson.
Hvidovre Hospital, Hvidovre, Denmark and Technical University of Denmark, Hvidovre, Denmark.

Perfusion: Clinical Applications**1599. Perfusion-Weighted Imaging of Inter-ictal Temporal Lobe Epilepsy Using FAIR-HASTE**

Ho-Ling Liu, Peter Kochunov, Jinwen Hou, Yonglin Pu, Srikanth Mahankali, Ching-Mei Feng, Seong-Hwan Yee, Yung-Liang Wan, Peter T. Fox and Jia-Hong Gao.
Chang Gung Univ., Taoyuan, Taiwan and Univ. of Texas Health Science Center, San Antonio, TX, USA.

1600. Quantitative Evaluation of Mean Transit Time Obtained with Perfusion MR Imaging: Compared to Xe-133 SPECT in Occlusive Carotid Disease.

Keiichi Kikuchi, Kenya Murase, Hitoshi Miki, Teruhiko Shimizu, Takanori Kikuchi, Yoshifumi Sugawara, Junpei Ikezoe and Shiro Ohue.
Ehime University School of Medicine, Onsen-gun, Japan and Osaka University Medical School, Osaka Japan.

1601. Perfusion imaging of meningioma using continuous arterial spin labeling: Comparison with T2*-weighted dynamic imaging.

Yoshio Koshimoto, Hirohiko Kimura, Hidemasa Uematsu, Hirotsugu Kado, Satoshi Muramoto, Hiroki Yamada, Yasutaka Kawamura and Harumi Itoh.
Fukui Medical University, Fukui, Japan;

1602. Vasodilatory Response to Acetazolamide in Patients with Internal Carotid Artery or Middle Cerebral Artery Stenosis: An Echo Planar Imaging – Dynamic Susceptibility Contrast – Enhanced MRI Study.

Chang-Shin Lee and Cheng-Yu Chen.
Tri-Service General Hospital and National Defense Medical Center, Taipei, Taiwan R. O. C.

1603. Determination of perfusion changes in brain metastases undergoing stereotactic radiotherapy using a noninvasive quantitative MRI arterial spin labeling technique.

Marc-André Weber, Heinz-Peter Schlemmer, Matthias Guenther, Christoph Thilmann, Matthias Lichy, Jürgen Debus, Ivan Zuna, Lothar Schad, Stefan Delorme and Gerhard Vankaick.
German Cancer Research Center, Heidelberg, Germany.

MRI Studies of CSF**1604. WITHDRAWN****1605. The Relationship between Flow-void Score and Stroke Volume Show on CSF Hydrodynamics.**

Ming-Yen Chen, Teng-Yi Huang, Cheng-Yu Sandy Chen, Hsiao-Wen Chung.
National Taiwan University, Taipei, Taiwan, R.O.C. and Tri-service General Hospital, Taipei, Taiwan;

1606. Influence of Respiration on Cerebrospinal Fluid Flow in Normal Elderly and Pathologic Conditions

Sigrid Friese, Tanja Gostic, Christian Koenig, Claudia Strik, Uwe Klose
University of Tübingen, Tübingen, Germany.

1607. Quantification of CSF Circulation Volume in Healthy Adults using 2D CINE Phase Contrast MRI

Teng-Yi Huang, Ming-Yen Chen, Hsiao-Wen Chung, Cheng-Yu Chen
National Taiwan University, Taipei, Taiwan, R.O.C. and Tri-service General Hospital, Taipei, Taiwan;

Head and Neck MR Imaging

- 1608. Navigation at the Optic Nerve for Monitoring of Eye Movement.**
S. Olt, P. Jakob, T. Meigen, and A. Haase.
University of Wurzburg, Wurzburg, Germany; None Given, Wurzburg, Germany; Am Hubland, Wurzburg, Germany.
- 1609. Real-Time MR Imaging with Tagging for Tongue Motion Analysis During Speech**
Cengizhan Ozturk, Maureen Stone, Devrim Unay, Andrew Lundberg, Elliot McVeigh
Bogazici University, Bebek, Istanbul, Turkey; University of Maryland College Park, Baltimore, MD, USA; University of Maryland School of Medicine, Baltimore, MD, USA and National Institutes of Health, Bethesda, MD, USA.
- 1610. Measurement by MRI of Rabbit Eye Volume before and after D-mannitol Infusion**
Tomoko Sawada, Kazutaka Kani, Jiro Nakamura, Shigehiro Morikawa, Toshiro Inubushi
Shiga University of Medical Science, Shiga Japan;
- 1611. MR fluoroscopic assessment of the upper airway morphology in Obstructive Sleep Apnea Syndrome(OSAS); Visualization of the effect of Oral splint, Nasal Bi-PAP.**
Hiroshi Fukatsu, Shinji Naganawa, Takeo Ishigaki, Akiko Noda.
Nagoya University School of Medicine, Aichi Japan;
- 1612. Assessing the Effectiveness of Neck Restraints using Magnetic Resonance Imaging**
Sarah Wayte, Richard Wellings, Mathew Cook, Tim Crane and Jo Higgins.
Walsgrave Hospital NHS Trust,UK; University of Warwick, UK and Birmingham Children's Hospital,UK;
- 1613. High-Resolution Inner Ear Imaging Using 3D Asymmetric Fully-Balanced Steady State Coherent Imaging Pulse Sequence.**
Anthony T. Vu
GE Medical Systems, Milwaukee, WI, USA.
- 1614. Fast recovery 3D-fast spin echo imaging of the inner ear at 3T**
Shinji Naganawa, Tokiko Koshikawa, Hiroshi Fukatsu, Takeo Ishigaki, Ikuo Aoki and Ayako Ninomiya
Nagoya University School of Medicine, Nagoya, Japan and Toshiba Corporation, Tokyo, Japan

Spine MR Imaging

- 1615. Diffusion-weighted MR Imaging of the Spinal Cord Using a Half-Fourier Single-shot Fast Spin-echo Technique**
Kazuhiro Tsuchiya, Shichiro Katase, Ayako Yoshino, Junichi Hachiya, Hitoshi Kanazawa, Kenji Yodo.
Kyorin University; Toshiba Corporation and Toshiba Medical Systems, Tokyo, Japan.
- 1616. The Hemodynamic Response in The Spinal Cord**
Saaussan Madi, Adam Flanders, Joseph I. Tracy, Jonathan Nissanov.
Thomas Jefferson University, and MCP Hahnemann University, Philadelphia, PA, USA.
- 1617. Diffusion Tensor Imaging of the Cervical Spinal Cord Lesion with Echo-Planar Sequence**
Toshiyuki Okubo, Kiichi Ishigame, Masaaki Hori, Haruyasu Yamada, Osamu Abe, Shigeki Aoki, Kuni Ohtomo, Tsutomu Araki and Hiroyuki Kabasawa.
Yamanashi Medical University, Yamanashi Japan and GE Yogawawa Medical Systems, Tokyo Japan.

- 1618. Force-Signal Amplitude Relation in Spinal Cord BOLD Imaging**
Saaussan Madi, Adam Flanders, Simon Vinitiski, Gerald J Herbison, Jonathan Nissanov.
Drexel University and Thomas Jefferson University, Philadelphia, PA, USA.
- 1619. Water Diffusion in the Spinal Cord of a Transgenic Mouse Model of Amyotrophic Lateral Sclerosis.**
P. N. Venkatasubramanian, Brian C. Tom, Alice M. Wyrwicz.
Evanston Northwestern Healthcare, Center for M.R. Research, Evanston, IL, USA.
- 1620. Magnetic Resonance and Magnetization Transfer Imaging Correlates of Cervical Cord Pathology in Patients with Primary Progressive Multiple Sclerosis.**
Giuseppe Santuccio, Marco Rovaris, Marco Bozzali, Giancarlo Comi and Massimo Filippi.
Neuroimaging Research Unit, Milan, Italy.
- 1621. MRI of the Human Cervical Spinal Cord at 3 Tesla.**
J. Korzan, Z. Taher, M. Gorassini, D.J. Emery, C. Beaulieu.
University of Alberta, Edmonton, AB, Canada.
- 1622. Dynamic Assessment of Blood-Spinal-Cord Barrier in Contusion Injured Rat Spinal Cords In Vivo.**
T.H. Mareci, X.S. Silver, and P.A. Patel
University of Florida, Gainesville, FL, USA.
- 1623. Prognostic Value of MRI in Spinal Cord Injury.**
Ponnada Aswadha Narayana, Russell Abbe, Dejian LAI, Mehmet Bilgen.
University of Texas - Houston Health Science Center, Houston, Texas, USA.
- 1624. Non-lethal disruption of the axonal cytoskeleton alters water diffusion in spinal cord white matter.**
Timothy M. Shepherd, Peter E. Thelwall, Edward D. Wirth III
University of Florida Brain Institute, Gainesville, FL, USA.
- 1625. Spinal arterio-venous malformations: Evaluation with 3-D Contrast-Enhanced magnetic resonance angiography.**
James Meaney, Jane Cullingworth, Romhild Hoegeveen, Daina Dambitis, John Straitton, Michael Nelson, John Ridgway and Aleksandra Radjenovic.
Philips Medical Systems and The General Infirmary at Leeds, Leeds, England, UK.
- 1626. Diffusion-weighted MR imaging of vertebral bone marrow: Differentiation of degenerative spines and spondylitis involving to bone marrow adjacent to end plates**
Woo Mok Byun
Diagnostic Radiology, College of Medicine, Yeungnam University.
Daemyungdong, Namku, Taegu, Korea.
- 1627. Upper thoracic-spine disc disease in cervical MR imaging**
Luis Martí-Bonmatí, Estanislao Arana, Rosa Dosd, Enrique Moll
Dr Peset University Hospital and Quiron Clinic, Valencia, Spain.
- 1628. Cervical spine interfacetal dislocations: patterns of disc and ligament injuries.**
John A. Carrino, Mark Schweitzer, William Morrison, Adam Flanders, Luke Madigan, Alexander Vaccaro.
Thomas Jefferson University, Philadelphia, Pennsylvania USA.

Basic Science Focus Session (with posters): Elastography

- 1629. A Novel Approach to Analyzing Magnetic Resonance Elastography Data: Simulation of Wave Images**
Ingolf Sack, Gerd Buntkowsky, Johannes Bernarding, Thomas Tolxdorff, Juergen Braun .
Free University of Berlin, University Hospital Benjamin Franklin, Berlin, Germany.
- 1630. Comparative Performance of Inversion Algorithms for Magnetic Resonance Elastography**
A. Manduca, T.E. Oliphant, A. Dresner, J.F. Greenleaf, R.L. E.
Mayo Clinic and Foundation, MN, USA.
- 1631. Accounting for Three Dimensional Motion Effects in MR Harmonic Displacement Data.**
E. Van Houten, K.D. Paulsen, M.I. Miga, F.E. Kennedy, Jr., and J.B. Weaver.
Dartmouth College, Hanover, NH, USA and Dartmouth-Hitchcock Medical Center, Lebanon, NH, USA.
- 1632. NMR Elasticity Imaging: Three-Dimensional Elasticity Reconstruction Model.**
A.R. Skovoroda, D.D. Steele, M. O'Donnell, T.L. Chenevert, and S. Emelianov.
Institute of Mathematical Problems of Biology, Pushchino, Russia and University of Michigan, Ann Arbor, MI, USA.
- 1633. Localized Detection of Phase Transitions in Agarose Gels using Magnetic Resonance Elastography**
Juergen Braun, Ingolf Sack, Johannes Bernarding, Karl Juergen Wolf, Thomas Tolxdorff
Department of Medical Informatics, University Hospital Benjamin Franklin, Berlin, Germany
- 1634. Finite Element Simulation of Propagating Shear Waves in a Bent Beam verified with Magnetic Resonance Elastography**
Thomas Jenkyn, Kai-nan An, Kenton R Kaufman, Richard Ehman
Yo Clinic, Orthopaedic Biomechanics Laboratory, Rochester, Minnesota USA.
- 1635. Characterization of an Electromagnetic Actuator for MR Elastography**
Kai Uffmann, Claus Abicht, Harald H. Quick, Heinz Ulbrich, Mark E.Ladd.
University Hospital Essen, Essen, Germany.
- 1636. Phase Difference Encoding of Coherent Pathways for High Speed MR Elastography**
Roger Grimm, John Rydberg, Richard Ehman
Mayo Clinic, Rochester, MN, USA.
- 1637. Development of a Multi-echo Sequence for Static MR-elastography.**
P. Siegler, J.M. Boese, and L.R. Schad.
Duetches Krebsforschungszentrum, Heidelberg, Germany.
- 1638. Initial Performance of Three Dimensional Steady State MR Elastography.**
J.B. Weaver, V. Houten, M.I. Miga, F.E. Kennedy, and K.D. Paulsen.
Dartmouth College, Lebanon, NH, USA.
- 1639. Evaluation of Quantitative MR-Elastography Measurements**
Uwe Hamhaber, Uwe Klose, Frieder Grieshaber, Joachim Nagel.
University of Tübingen, Tübingen, Germany and University of Stuttgart, Stuttgart, Germany.
- 1640. A Constrained Breast Magnetic Resonance Elastography Technique: 3D Phantom Study.**
A. Samani, J. Bishop, and D. Plewes.
University of Toronto, Toronto, ON, Canada.

Elastography

- 1641. Validation of phase encoding methods for magnetic resonance elastography**
Michael H Buonocore, Gina Belleau.
University of California, Sacramento, CA, USA.
- 1642. Adaptive Estimation of Piece-wise Constant Shear Modulus for Magnetic Resonance Elastography**
Travis E. Oliphant, Armando Manduca, Alex Dresner, Richard Ehman, James Greenleaf.
Mayo Clinic and Foundation, MN, USA.
- 1643. MR-elastography for the Detection of Lesions Induced by High Intensity Focused Ultrasound.**
J. Boese, P. Siegler, J. Jenne, R. Rastert, I. Simiantokakis, and L. Schad.
Deutsches Krebsforschungszentrum, Heidelberg, Germany.
- 1644. Reducing Acquisition Time for Repeated Phase Contrast Imaging.**
J.B. Weaver, D.M. Healy, Jr., E. Van Houten, and K.D. Paulsen.
Dartmouth College, Lebanon, NH, USA and University of Maryland, Baltimore, MD, USA.
- 1645. A System for Generating Either Transverse or Longitudinal Waves for MR Elastography**
Kai Uffmann, Claus Abicht, Harald H. Quick, Heinz Ulbrich, Jorg F. Debatin, Mark E. Ladd.
University Hospital Essen, Essen, Germany.
- 1646. A Signal/Noise Analysis of magnetic Resonance Strain Imaging.**
J. Bishop, A. Samani, and D. Plewes.
University of Toronto, Toronto, ON, Canada.
- 1647. Fast Spin-Echo Magnetic Resonance Elastography of the Brain**
John Rydberg, Roger Grimm, Scott Kruse, Joel Felmlee, Paul McCracken, Richard Ehman.
Mayo Clinic, Rochester, MN, USA.
- 1648. MR Elastography of Fixed Human Brain Slices**
Geoffrey Ryon Dixon MD, Alex Dresner, Scott Kruse, Richard Ehman
Mayo Clinic, Rochester, MN USA.
- 1649. Motion compensated encoding for static displacement elasticity imaging.**
D. Steele, S. Emelianov, A.R. Skovoroda, and T.L. Chenevert.
University of Michigan, Ann Arbor, MI, USA and The Institute of Mathematical Problems, Puschino, Russia.

Non-Neuro Diffusion

- 1650. Diffusion Measurements Using Dipolar Demagnetizing Fields and Potential Applications**
Scott D. Kennedy, Zhong Chen, Jianhui Zhong
University of Rochester, Rochester, New York USA.
- 1651. Measurement of Cell Size in Biological Tissue Using Diffusion-Weighted MRI**
Olaf Dietrich, Sabine Heiland, Klaus Sartor
University of Heidelberg Medical School, Heidelberg, Germany.
- 1652. Measurements of Surface-to-Volume Ratio in Biological Samples Using Oscillating Gradients**
Melanie Schachter, Richard P. Kennan, Mark D. Does, Adam W. Anderson and John C. Gore.
Yale University, New Haven, CT, USA.

1653. MR Measurement of the Apparent Diffusional Water Permeability of the Xenopus Oocyte Plasma Membrane.

Jonathan V. Sehy, Alison A. Banks, Joseph J. H. Ackerman, Jeffrey J. Neil.
Washington University, St. Louis, MO USA; Bowdoin College, Brunswick, ME USA; Washington University, St. Louis, MO USA and St. Louis Children's Hospital, St. Louis, MO, USA.

Basic Science Focus Session (with posters): Spectral Quantification**1654. Reassessment of the apparent equilibrium constant of Creatine Kinase Reaction for accurate in vivo assessment of [ADP] by 31P MRS in the human brain and skeletal muscle.**

Stefano Iotti, Antonio Sabatini, Alberto Vacca, Chiara Frassinetti, Bruno Barbiroli.
Università di Bologna, Bologna, Italy; Università di Firenze, Firenze, Italy and Università di Modena e Reggio Emilia, Modena, Italy.

1655. Quantitation of Deoxy-Myoglobin in Skeletal Muscle: Reproducibility and Effects of Location and Disease.

Roland Kreis, Michael Ith, Iris Baumgartner, Karin Bruegger, Corinna Skjelsvik, Bruno Jung and Chris Boesch.
University & Inselspital, Bern, Switzerland.

1656. Multivoxel Metabolic Rate Measurement in Human Brain Following Oral Administration of [1-¹³C] glucose with 2-T Highly Sensitive ¹³C-MRS System.

Kazuya Okamoto, Hidehiro Watanabe, Masaaki Umeda, Masanori Oda, Tomoyuki Kanamatsu, Yasuzo Tsukada, Akiko Matsumoto, Taisuke Otsuki.
Toshiba Medical Systems R&D Center, Tochigi Japan; Soka University, Hachioji, Tokyo Japan and National Center of Neurology and Psychiatry, Kodaira, Tokyo Japan.

1657. Solvent removal and data quantification in proton MR spectroscopy using time-scale method

Hacene Serrai, Lotfi Senhadji, David Clayton, Chun Zuo and Robert Lenkinski
Beth Israel Deaconess Medical Center, Boston, MA USA; Rennes I, Rennes, France and University of Pennsylvania, Philadelphia, PA USA.

1658. A New Time-Domain Frequency-Selective Quantification Algorithm

Rocco Romano, Stefania Camassa, Claudia Pagano, Andrea Motta, Maria Teresa Santini, Pietro Luigi Indovina.
Complesso Universitario di Monte S. Angelo, via Cinthia, Naples, Italy; Istituto per la Chimica di Molecole di Interesse Biologico, Naples, Italy and Istituto Superiore di Sanità, Viale Regina Elena, Rome, Italy.

1659. Parameterized Evaluation of Pathological Macromolecules in Proton MR Spectra of the Human Brain

Uwe Seeger, Irina Mader, Uwe Klose, Thomas Nägele.
University of Tübingen, Tübingen, Germany;

1660. Wavelet Detection of Intracerebral Ethanol

Frederick Shic, Cat-Huong Nguy, Brian Ross
Huntington Medical Research Institutes, Pasadena, CA US; and Rudi Shulte Research Institute, Santa Barbara, CA US.

1661. Analysis of Quantitation Errors Due to Neglect of Chemical Exchange and T₁ Variations when Correcting for Partial Saturation in Magnetic Resonance Spectroscopy: Theoretical and Experimental

C. Galban and R. G. S. Spencer.
NIH/National Institute on Aging, Baltimore, MD, USA.

- 1662. Proton T1 and T2 relaxation times of human brain metabolites at 3 Tesla**
Vladimír Mlynárik, Stephan Gruber and Ewald Moser.
NMR Group, Institute of Medical Physics, University of Vienna, Vienna, Austria.
- 1663. T1 Measurements of Phosphorus Metabolites at 4.1 Tesla in Brain and Skeletal Muscle by FLAP MRSI.**
Steven D Buchthal, Bradley Newcomer, Jan A. Den Hollander and Gerald M Pohost.
University of Alabama at Birmingham, Birmingham, AL, USA.
- 1664. Enhancing Features in NMR Spectra for Pattern Recognition**
Radka Stoyanova, Truman Brown, John Lindon, Andy Nicholls, Jeremy Nicholson.
Fox Chase Cancer Center, Philadelphia, PA USA and Imperial College of Science, Technology & Medicine, London, UK;
- 1665. Classification of Brain Tumors Using 1 H MRSI at an Echo Time of 272 msec in Combination with Linear Discriminant Analysis. Strategies to Improve the Correct Classification Rate.**
Fabien Szabo de Edelenyi, François Estève, Sylvie Grand, Christoph Segebarth, Christophe Rubin, Michel Décorps, Jean François LE BAS, Virginie Lefournier, Chantal Rémy
INSERM U.438 - RMN Bioclinique, CHU Grenoble - Pav. B, Grenoble, CDX 9, France;

Spectroscopic Quantitation

- 1666. Kinetic Modeling of Phosphatidylcholine and Phosphatidylethanolamine Biosynthesis Using 13C-NMR Spectroscopy.**
Mehdi Adinehzadeh, Nicholas Reo, Brent Foy.
Wallace-Kettering Neuroscience Institute, Ohio USA and Wright State University, Dayton, OH, USA.
- 1667. ¹H Spectroscopy without Water Suppression: Removal of Sideband Modulations at Short TE.**
M. Elliott, D. Clayton, and R. Lenkinski.
University of Pennsylvania, Philadelphia, PA, USA; Stanford University, Stanford, CA, USA and Harvard University, Boston, MA, USA.
- 1668. Spectral Editing: Use of a selective inversion pulse in an adiabatic double spin-echo sequence.**
Manoj K. Sammi, Jullie W. Pan, Frank W Telang, Nora D Volkow, Hoby P Hetherington.
Brookhaven National Laboratory, Upton, NY USA and Albert Einstein College of Medicine, Bronx, NY, USA.
- 1669. Quantitation of Localized 31 P Magnetic Resonance Spectra Based on the Reciprocity Principle.**
Roland Kreis, Johannes Slotboom, Joachim Pietz, Bruno Jung, Chris Boesch.
University & Inselspital, Bern, Switzerland and University Heidelberg, Germany.
- 1670. Evaluation of inversion recovery techniques for recording short echo time in vivo proton MR spectra of cerebral low-molecular-weight metabolites.**
Zenon Starcuk jr.1, Jaroslav Horky, Zenon Starcuk.
Institute of Scientific Instruments, Brno, Czech Republic;
- 1671. Effects of Imaging Pixel Misregistration on Serial 1 H MR Spectroscopy of Focal Brain Pathologies**
Belinda S.Y. Li, Robert I. Grossman, Oded Gonen.
Fox Chase Cancer Center, Philadelphia, PA, USA and University of Pennsylvania, Philadelphia, PA, USA.

- 1672. Now It Can Be Said: N-Acetylaspartate IS a Neuronal Marker—A HRMAS proton MR spectroscopy and Stereology Study**
Leo Ling Cheng, K. Newell, R. Le, B.T.Hyman, R.G.Gonzalez.
Massachusetts General Hospital, Harvard Medical School, Charlestown, MA USA.
- 1673. Identification of Pathogenic Fungi by a Statistical Classification Strategy of 1 H MR Spectra.**
Uwe Himmelreich, Ray Somorjai, Brion Dolenko, Carolyn Mountford, Tania Sorrell
University of Sydney, Sydney, NSW Australia and Institute of Biodiagnostics, Winnipeg, Canada.
- 1674. Quantification of a Single MR Spectrum by Principal Component Analysis (SPCA).**
J-H. Kwag, S. Pickup, and W. Chen.
University of Minnesota Medical School, Minneapolis, MN USA and University of Pennsylvania, Philadelphia, PA, USA.
- 1675. Magnetization Transfer Rates and Diffusion Coefficients in Human Bone Marrow Differ Significantly between Healthy Volunteers and Patients with Hematological Diseases - a 1 H-MRS Study.**
Jürgen Machann, Klaus Brechtel, Hermann Einsele, Philippe L. Pereira, Otto Lutz, Claus D. Claussen, Fritz Schick.
Eberhard-Karls-Universität, Tübingen, Germany.
- 1676. Reproducibility of 2D Localized COSY in vitro.**
Nader Binesh, Kenneth Yue, M.Albert Thomas
University of California, Los Angeles, Los Angeles, CA, USA.
- 1677. Spectral Quantification by a Modified Principal Component Analysis (MPCA).**
J-H. Kwag, X-H. Zhu, and W. Chen.
University of Minnesota, Minneapolis, MN, USA.
- 1678. Optimised Processing to Enhance time-Reduced Acquisition: the OPERA house window function for 2D NMR spectroscopy of biological samples.**
June Q.Y. Watzl, Edward J. Delikatny
University of Sydney, Sydney, NSW Australia.
- 1679. Statistical Analysis of Human Cerebrospinal Fluid 1H NMR Spectra**
Beata Toczyłowska, Adam Jozwik, Katarzyna Kierul
Medical University Hospital, Warsaw, Poland.
- 1680. Potential Pitfalls when Using Prior Knowledge in Time-Domain Quantification of 31 P NMR Spectra.**
Oliver Schmidt, Michael Bunse, Wulf-Ingo Jung, Günther J. Dietze, Otto Lutz.
University of Tübingen, Tübingen, Germany.
- 1681. Metabolite Quantitation Reproducibility in Serial 1H-MRSI Studies of Human Brain Using a Stereotactic Immobilization/Repositioning Frame**
Andrei Z. Damyanovich, Satish M. Jaywant, Warren Mason, David J. Mikulis.
University of Toronto, ON Canada.
- 1682. Automatic Frequency Alignment for Magnetic Resonance Spectra—Algorithms and Comparison**
Sabine VAN Huffel, Yu Wang, Leentje Vanhamme, Paul Vanhecke
Katholieke Universiteit Leuven, Gasthuisberg, Leuven, Belgium;

- 1683. Advanced computational methods for brain tumour discrimination with MRS.**
Y. Huang, Y.Y.B. Lee, P.J.G. Lisboa, W. El-Deredy, C. Arus.
John Moores University, Liverpool, UK and Barcelona, Spain
- 1684. In vivo Metabolite T₂ Accurately Measured with Large TE Range**
Elana Brief, Kenneth P Whittall, David Li, Alex Mackay.
University of British Columbia, Vancouver, BC Canada.
- 1685. Quantification of NAA, Creatine and Choline in Turbo Spectroscopic Imaging MR Data using Time Domain Fitting Procedures**
H.J.A. in 't Zandt, P. Van Hecke, R. Lamerichs, L. Vanhamme, S. Van Huffel
Katholieke Universiteit Leuven, and Philips Medical Systems, Best, Netherlands.

MRS Localization and Processing
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- 1686. Characterization of Gradient-Induced Signal Modulations: Implications for Proton MR Spectroscopic Methods.**
D. Clayton, M.A. Elliott, J. Leigh, and R. Lenkinsi.
University of Pennsylvania, Philadelphia, PA, USA and Harvard University, Boston, MA, USA.
- 1687. Spatial Interference Effects Due to Scalar Coupling Interactions in STEAM**
E. Wrenn Wooten, Dmitriy A. Yablonskiy, Joseph J.H. Ackerman.
Washington University, School of Medicine, St Louis, MO USA
- 1688. Removal of gradient induced frequency modulations in localized proton spectroscopy**
Hacene Serrai, David Clayton, Lotfi Senhadji, Chun Zuo and Robert Lenkinski.
Beth Israel Deaconess Medical Center, Boston, MA USA; University of Pennsylvania, Philadelphia, PA and Universite Rennes1, Rennes, France.
- 1689. Differentiation of Choline and Ethanolamine in Human Brain.**
N. Hattori, M.A. Thomas, S. Naruse, M. Umeda, C. Tanaka, N. Inoue, M. Fukunaga, Y. Someya, and T. Sawada.
Osaka & Kyoto Prefectural University of Medicine, Osaka, Japan and University of California, Los Angeles, CA, USA.
- 1690. Advanced Proton Echo Planar Spectroscopic Imaging with Highly Effective Outer Volume.**
Archie Chu, Jeffrey Alger, Gregory J. Moore and Stefan Posse.
Wayne State University, Detroit, MI, USA and University of California, Los Angeles, Los Angeles, CA, USA
- 1691. Combination of multi-slice and 3D acquisition in spectroscopic imaging to improve resolution.**
J.W.C. Van Der Veen, D.R. Weinberger, J. Frank, and J. Duyn.
National Institutes of Health, Bethesda, MD, USA and Delft University of Technology, Delft, The Netherlands.
- 1692. Rapid Spiral Chemical Shift Imaging at 3T.**
E. Adalsteinsson and D.M. Spielman.
Stanford University, Stanford, CA, USA.
- 1693. Fast Spectroscopic Imaging of the Human Brain at 3 Tesla.**
R. Lamerichs, P. Harvey, P. Folkers, D. Meier, and P. Boesiger Ph.D.
Philips Medical Systems, Best, The Netherlands and Institute of Biomedical Engineering, Zurich, Switzerland.

- 1694. Optimizing 1H MRSI of the Human Brain at 4.1 Tesla.**
Jan A den Hollander, Du Fei, Steven D. Buchthal
University of Alabama at Birmingham, Birmingham, AL, USA.
- 1695. Processing Strategy for Sensitivity-Encoded Spectroscopy Imaging.**
X. Zhao, R. Prost, Z. Li, and S-J. Li.
Medical College of Wisconsin. Milwaukee, WI, USA and None Given, Nashotah, WI, USA.
- 1696. Data Acquisition Efficiency in 'Turbo' Spectroscopic Imaging: Use of Time Domain Processing, Prior Knowledge, and Linear Prediction to reduce Acquisition Times**
S. R. Williams and P. F. Tokarczuk.
University of Manchester, Imaging Science and Biomedical Engineering, Manchester, UK;
- 1697. Assessment of 3D 1 H Echo-Planar Spectroscopic Imaging Using Automated Spectral Analysis**
Andreas Ebel, Andrew A. Maudsley.
VA Medical Center, San Francisco and University of California, San Francisco, California, USA.

MRS Methodology

- 1698. Water-Suppressing Band-Selective Excitation and Refocusing Pulses for 1H CSI Optimized by Simulated Annealing.**
J. Shen.
Nathan Kline Institute, Orangeburg, NY, USA.
- 1699. Analysis of Multiple Inversion Recovery as a Water Suppression Method for 1 H Magnetic Resonance Spectroscopy.**
Jack Knight-Scott, Vu M. Mai, Andreana Petrova Haley
University of Virginia, Charlottesville, VA USA and Evanston Hospital, Evanston, IL, USA.
- 1700. Effects of Poor Shimming on Quantitative Measurement of Metabolite Levels by 1H MR Spectroscopy.**
Hyeon-Man Baik, Bo-Young Choe, Tae-Suk Suh, Hyoung-Koo Lee and Kyung-Sub Shinn.
Catholic University of Korea, Seoul, S. Korea.
- 1701. In Vivo Brain pH Mapping Using 19x19 Voxels 1H MR Spectroscopic Imaging of the Down Field Region.**
Martin Büchert, J O'Neill, Peter Vermathen, Andrew A. Maudsley.
University of California, San Francisco, San Francisco, CA, USA and Inselspital and University, Bern, Switzerland;
- 1702. 13C NMR isotopomer distribution analysis: a method for measuring the synthesis of biological polymers.**
Caterina Puccetti, Tommaso Aureli, Cesare Manetti, Filippo Conti
Università 'La Sapienza', Roma, Italy and Sigma-Tau S.p.A. Research Labs, Pomezia Italy.
- 1703. Effect of Superparamagnetic and Paramagnetic Contrast Agents on T1 and T2 Relaxation of Creatine and Choline**
Mari H.B. Hjelstuen, Henrik W. Anthonsen, Inger Johanne Bakken, Ingrid S. Gribbestad, Atle Bjornerud, Tore Skjetne.
SINTEF Unimed MR-Center, Trondheim, Norway and Nycomed Imaging AS, Norway.

- 1704. Probing Dosimeter Gels With ^{129}Xe NMR**
J. M Joers, P. Marc Fong, J. C. Gore
Yale University, New Haven, CT USA.
- 1705. Electrophoretic CSI Using Deuterated Acetonitrile.**
D. Elverfeldt, J. Heinze, and J. Hennig.
University of Freiburg, Freiburg, Germany.
- 1706. A Neural Network Method for Automated Detection of J-edited GABA**
Michael I. Appel, Douglas L. Rothman, Robin A.deGraaf, Graeme F. Mason.
Yale University, New Haven, CT USA.

Basic Science Focus Session (with posters): Data Processing Issues in fMRI

- 1707. Are Semi-Random Designs Better than Random Designs for Event-Related fMRI?**
T. Liu, E. Wong, L. Frank, and R. Buxton.
University of California, San Diego, CA, USA.
- 1708. Localization of the Resting State Vasomotor Fluctuation with FFT, Cross Correlation, Principal Component and Independent Component Analysis of fMRI data.**
V. Kiviniemi, J.-H. Kantola, B.B. Biswal, J. Jauhiainen, Aapo Hyvärinen and Osmo Tervonen.
University of Oulu, Oulu, Finland; Medical College of Wisconsin and Helsinki University of Technology, Otaniemi.
- 1709. Mapping, Transient, Randomly Occurring Neuropsychological Events Using Independent Component Analysis.**
H. Gu, W. Engelen, E. Stern, Y. Yang, D.A. Silbersweig, W. Zhan, and H. Fang.
Cornell University Medical College, New York, NY, USA.
- 1710. The Relationship of BOLD, CBF and CBV Changes Induced by Hypercapnia During the Transient-State in Rat Brain Detected by Functional MRI.**
G. Wu, F. Luo, Z. Li, S-J. Li, and X. Zhao.
Medical College of Wisconsin, Milwaukee, WI, USA.
- 1711. Fixed Effect Model for Analyzing the Spatiotemporal Brain.**
Jagath Rajapakse, Jayasanka Piyaaratn.
Nanyang Technological University, Singapore.
- 1712. Spatiotemporal Dynamic fMRI in a Digit Ordering Working Memory Task.**
Witaya Sungkarat
University of Southern California, Los Angeles, CA, USA.
- 1713. A Dynamically Weighted Time Delay Neural Network for Modeling FMRI Response.**
Vinod Venkatraman, Jagath Rajapakse
Nanyang Technological University, Singapore.
- 1714. Hybrid Independent Component Analysis of fMRI Data in the Frequency Domain.**
J.D. Carew, V.M. Haughton, C. Moritz, B. Rogers 4 , M.E. Meyerand.
University of Wisconsin, Madison, WI, USA.
- 1715. Enhancing Functional Paradigm Specific Independent Components with the AFRICA Technique.**
Stephen LAConte, Shing-Chung Ngan and Xiaoping Hu.
University of Minnesota, Minneapolis, MN, USA.

- 1716. Characterizing Phase Synchronization in Whole-Brain fMRI Activation.**
A.R. Laird, J. Carew, B. Rogers, K. Arfanakis, C. Moritz, and M. Meyerand.
University of Wisconsin, Madison, WI, USA.
- 1717. Long and Short Term Reproducibility of Various Methods of Quantifying Brain Activation Using fMRI**
Kyung Peck, Alan Sunderland, Penny Gowland, Richard Bowtell.
University of Nottingham, Nottingham, England, UK.
- 1718. A Comprehensive Approach to Estimating Test-Retest Reliability in fMRI**
Steven R Roys, Ranjan Maitra, Rao P Gullapalli.
University of Maryland, Baltimore, Baltimore, Maryland USA.

FMRI Data Analysis

- 1719. Biased Activation Onset Times in Segmented-EPI fMRI Series Corrected by Fourier Interpolation in the K-space**
P.F. Van de Moortele, A. Shmuel, J. Pfeuffer, E. Yacoub, K. Ugurbil and Xiaoping Hu.
University of Minnesota, CMRR, Minneapolis, MN, USA.
- 1720. PCA for mapping time delays in the transient response from functional MRI studies**
Anders H. Andersen, William S. Rayens, Robin Greene-Avison, Creed Pettigrew, Joseph Berger and Malcolm J. Avison
University of Kentucky, Kentucky, USA.
- 1721. Phase Synchronization: A Method of Detecting Functional Connectivity**
A.R. Laird, J.D. Carew, B.P. Rogers, K. Arfanakis, C.H. Moritz, M.E. Meyerand
University of Wisconsin, Madison, WI, USA.
- 1722. Temporal Shift Sensitivity of Event Related FMRI**
Luis Hernandez, Douglas Noll, David Thomas Badre
University of Michigan, Ann Arbor, MI USA and Massachusetts Institute of Technology, Boston, MA, USA.
- 1723. Optimal Temporal Resolution in Single Event fMRI.**
B. Dilharreguy, R.A. Jones, and C. Moonen.
Universite Bordeaux, Bordeaux, France.
- 1724. Temporal Resolution Assessment of Simulated Event-related Functional MRI using ANOVA**
Jian-chuan Chen, Ho-Ling Liu, Yau-yau Wai, Yung-Liang Wan
Chang Gung Memorial Hospital, Kwei-hsan, Taiwan R.O.C.;
- 1725. The Temporal Constancy of Resting Brain Activity Implicated in fMRI Studies**
Guojun HE, Jintong Mao, Andrea S. Perry, Jia-Hong Gao, Peter Fox and Yijun Liu.
University of Florida, Gainesville, FL and University of Texas Health Science Center at San Antonio, San Antonio, TX, USA
- 1726. Frequency Domain Ranking Independent Component Analysis of a fMRI Complex Motor Paradigm.**
C. Moritz, J.D. Crew, V.M. Haughton, and M.E. Meyerand.
University of Wisconsin Colleges, Cross Plains, WI, USA.
- 1727. Modeling Hemodynamic Response in fMRI Using Wavelet Analysis.**
Y. Chen, S-C. Ngan, S. Laconte, and X. Hu.
University of Minnesota, Minneapolis, MN, USA.

- 1728. Extraction of Transient BOLD Responses Associated with Cortical Spreading Depression using Spatial ICA.**
Chaiyapoj Netsiri, Daniel P. Bradley, Justin M. Smith, Martin I. Smith, Nikolaos Papadaki, Adrian Carpenter, Laurance Hall, Andrew A. Parsons, Christopher Huang and Michael F. James.
University of Cambridge, Cambridge, England, UK and SmithKline Beecham Pharmaceuticals, Essex, England, UK.
- 1729. Localization of Brain Alpha Activity by Functional MRI Using Independent Component Analysis**
Jeong-Won Jeong, Tae-Seong Kim, Manbir Singh
University of Southern California, Los Angeles, CA, USA.
- 1730. Comparison of Orthogonal and Independent Component Analysis on Dimension-Reduced fMRI Data in Patial Least Squares Framework.**
Fa-Hsuan Lin, Anthony R. McIntosh, Thomas A. Zeffiro, John Agnew, John Belliveau.
Massachusetts General Hospital, Charlestown, MA USA; University of Toronto and Georgetown University Medical Center.
- 1731. Comparison of Hybrid Independent Component Analysis and Simple Regression of an Event-Related FMRI Experiment.**
B. Rogers, J. Carew, M. Quigley, A. Laird, K. Arfanakis, C. Moritz, and M. Meyerand.
University of Wisconsin, Madison, WI, USA.
- 1732. Bayesian Estimation of a Parameterized Hemodynamic Response Function in an Event-Related fMRI Experiment.**
K.H. Knuth, B. Ardekani, and J.A. Helpert.
New York University Medical School, New York, NY, USA
- 1733. Using Bayesian Analysis to Test the Linearity of the BOLD Response in Event-Related fMRI**
Jeff Kershaw, Kenichi Kashikura, Iwao Kanno.
Akita Laboratory, Akita City, Japan.
- 1734. Partial least squares for balancing variance partitioning and fixed-effect regression models in fMRI analysis.**
Anders H. Andersen, William S. Rayens, Zhiming Zhang, Charles D. Smith and Don Gash.
University of Kentucky, Lexington, KY, USA.
- 1735. Group Statistical Parametric Maps in Rat Pharmacological MRI.**
Andrew Lowe, Mark Symms, Mohammed Shoaib, Steve Williams.
Institute of Neurology, London, UK.
- 1736. An Optimised Permutation Test for fMRI Analysis.**
Matthew Belmonte, Deborah Yurgelun-Todd.
McLean Hospital, Belmont, MA, USA.
- 1737. Should We Fit the Data to the Analysis Method? An in vivo fMRI Study of the Spatio-temporal Heterogeneity of fMRI Data.**
R. Baumgartner, R. Somorjai, and L. Ryner.
Institute for Biodiagnostics, Winnipeg, MB, Canada.

- 1738. Regularised fMRI Signal Response Estimation in a Library of Orthonormal Bases**
C. J. Long, E.T. Bullmore, E.M. Brown, V. Solo, M.J. Brammer.
Institute of Psychiatry, Camberwell, London, UK; University of Cambridge, Cambridge UK;
Massachusetts General Hospital, Boston, MA, USA; Macquarie University, Sydney, NSW, Australia
and Institute of Psychiatry, Camberwell, UK
- 1739. Local Clustering of Functional Magnetic Resonance Images in the Frequency Space**
Jatuporn Chinrungrueng, Francois Meyer
University of Colorado at Boulder, Boulder, CO, USA.
- 1740. Spatially Connected Activation in fMRI at 3 Tesla: Influence on Somatotopy in Human Sensorimotor Cortex?**
Christian Windischberger, Roland Beisteiner, Vinod Edward, Marcus Erdler, Rupert Lanzenberger, Ross Cunnington, Bernhard Streibl, Andreas Gartus and Ewald Moser.
University of Vienna, Vienna Austria.
- 1741. A significance test for Clustering.**
W. Auffermann, S-C. Ngan, E. Yacoub, and X. Hu.
University of Minnesota, Minneapolis, MN, USA.
- 1742. fMRI Of Visual Perception: Networks Identified By SPM And Independent Component Analysis**
Vince Calhoun, James Pekar, Tulay Adali and Godfrey D. Pearlson.
Johns Hopkins University, Baltimore, MD USA and University of Maryland Baltimore County, Baltimore, MD USA.
- 1743. A Category System to Test the Feasibility of BOLD fMRI Motor Map for Patients with Brain Tumors and Arteriovenous Malformations.**
Wen-Ching Liu, Mathangi Thiagarajan, Tzu-Lung Ho, Andrew Kalnin and Andrei Holodny.
University of Medicine and Dentistry of New Jersey, Newark, NJ, USA.
- 1744. Validating a Simple "Open" Head Restraint for use in fMRI.**
C. Nangini, E. Seto, A. El-Rahmann, and S. Graham.
University of Toronto, Toronto, ON, Canada.
- 1745. fMRI and concurrent EEG in patients with focal epilepsy: Processing of EEG signals for fMRI analysis.**
Goran Vucurevic, Stephan Boor, Rainer Boor, Georg Kutschke, Peter Stoeter
Institute for Neuroradiology, Mainz, Germany.
- 1746. Correlation Coefficient Generation on a Commercially Available Real-Time fMRI Scanner with Rapid Fusion of Anatomic Data for Application to Image-Guided Surgery**
Theodore Roosevelt Steger III, Edward Jackson
University of Texas M.D. Anderson Cancer Center, Houston, TX USA.
- 1747. Can Improved Statistical Modeling reduce residual autocorrelation in fMRI?**
Mehrdad Razavi, Thomas J. Grabowski, Sonya Mehta, Lizann Bolinger
The University of Iowa, Iowa City, IA, USA.
- 1748. Regression of a Semi Parametric Model of fMRI Time-Series in the Wavelet Domain**
F.G Meyer, G. McCarthy
University of Colorado, Boulder, CO, USA and Duke University, Durham, NC, USA

1749. Using a Spectral Peak Statistic to Detect Potential fMRI Activations.

M. Jarmasz and R. Somorjai.
National Research Council Canada, Winnipeg, MB, Canada.

1750. High fMRI Percent Enhancements at High Resolution.

J.S. Hyde, B.B. Biswal, and A. Jesmanowicz.
Medical College of Wisconsin, Milwaukee, WI, USA.

Basic Science Focus Session (with posters): MRI Safety and Bioeffects**1751. Vibroacoustic Modeling of Noise in Magnetic Resonance Imagers**

Robert A. Hedeem, Richard P. Mallozzi, William A. Edelstein, Timothy J. Havens
GE Corporate R & D, Florence, SC, USA.

1752. Acoustic Noise Reduction in a 4T Whole Body MR Imager

Chris K. Mechefske, Yuhua Wu, Brian K. Rutt.
University of Western Ontario, London, Ontario Canada and The John P. Robarts Research Institute,
London, Ontario, Canada.

1753. Reduction of Acoustic Noise in Gradient Coils.

P. Mansfield, B. Haywood, and R. Coxon.
University of Nottingham, Nottingham, UK.

1754. Stimulation of Peripheral Nerves by Fast Magnetic Field Gradients: A General Stimulation Forecast (GSF)

A. Hoffmann, S.C. Faber, M. Reiser
University of Munich, Dep. of Clinical Radiology, Klinikum Grosshadern, München, Germany.

1755. Stimulation Study of a Field Flexible Gradient System

Martin Brand, Johann Schuster, Ralph Michael Kimmlingen, Axel Haase
Physikalisches Institut EP5, Universität Würzburg, Am Hubland, Würzburg, Germany; Siemens AG,
Medizinische Technik, Henkestraße, Erlangen, Germany.

1756. Estimating in vivo Temperature Changes Due to Localized RF Heating from Interventional Devices

Christopher J. Yeung and Ergin Atalar.
Johns Hopkins University, Baltimore, MD, USA.

1757. Heating Effects around Resonant Lengths of Wire during RF Excitation

Jacqueline Pictet, Stephan Wicky, Reto Meuli and Jacques J. van der Klink.
EPFL, and Chuv Lausanne, Service de Radiologie, Lausanne, Switzerland;

1758. Classical Analysis of RF Power Requirements in MRI.

T. Ibrahim, R. Lee, B. Baertlein, and P.M.L. Robitaille.
Ohio State University, Columbus, OH, USA.

1759. Heat distribution near pacemaker lead tips

Roger Luechinger, Oliver M. Weber, Marcel Bieler and Peter Boesiger.
Institute for Biomedical Engineering, University and ETH Zurich, Zurich, Switzerland;

1760. Magnet Radius, Field Strength and the “Moses Effect”

D. Schaefer.
G. E. Medical Systems, Milwaukee, WI, USA.

1761. Influence of Static Magnetic Fields and Magnetic Gradient Fields on Tumor Cell Cycle

E.M. Teichmann, J. Hengstler, I. Schiffer, W. Schreiber, R. Graf, F. Oesch, H. Wolfgang, Spiess, M. Thelen
Johannes Gutenberg-University, Mainz, Germany;

1762. MRI at 3.0 Tesla: Preliminary Ex-vivo Animal and In-Vivo Human Safety Studies.

A. Gregory Sorensen, Ona Wu, Kei Yamada, J. Thomas Vaughan.
sachusetts General Hospital, Charlestown, MA USA; Kyoto Prefectural University of Medicine, Kyoto, Japan and University of Minnesota, CMRR, Minneapolis, MN, USA.

Safety and Bioeffects**1763. Acoustic Noise on 1.5 T MRI Systems: Worst Case and Comparative Measurements.**

David L. Price, Janet P. De Wilde, Annie M. Papadaki, Jane S. Curran, Richard I. Kitney
MagNET, Department of Electrical Engineering, Imperial College, Exhibition Rd, London, UK;

1764. Stimulation Prediction by E-Field Simulation.

Martin Brand, Oliver Heid, Axel Haase
Universität Würzburg, Würzburg, Germany and Siemens AG, Erlangen, Germany.

1765. Stimulation Properties of Gradient Coils.

Martin Brand, Oliver Heid, A. Haase.
Universität Würzburg, Würzburg, Germany and Siemens AG, Erlangen, Germany.

1766. Sampling and Evaluation of Specific Absorption Rates during Patient Examinations Performed on 1.5-Tesla MR Systems.

Gunnar Brix, Martin Reint, Gerhard Brinker
Siemens AG, Erlangen, Germany.

1767. Intravascular MRI-receiver coils in combination with traps: Reducing troubling thermal effects.

V. Matschl, J. Heverhagen, H.J. Jaensch, M. Kalinowski, H. Alfke, H.-J. Wagner and K.J. Klose.
Philipps University, Marburg, Germany.

1768. Estimation of resistive pressure effects in mechanical heart valves due to MRI

Neil Robertson, Manuel Diaz-Gomez, Barrie Condon Dr.
Institute of Neurological Sciences, Glasgow, Scotland

Basic Science Focus Session (with posters): Rapid Imaging**1769. Hyperechoes in RARE(TSE, FSE)-Sequences**

Jürgen Hennig and Klaus Scheffler.
University Hospital Freiburg, Freiburg, Germany.

1770. Combining UNFOLD with SMASH or SENSE

B. Madore.
Harvard University, Boston, MA, USA.

- 1771. SENSE Image Quality Improvement Using Matrix Regularization**
K. King.
G. E. Medical Systems, Milwaukee, WI, USA.
- 1772. Real-Time Partial Parallel Spiral Imaging with Localized Sensitivities**
Holger Eggers, Peter Boernert, Peter Boesiger
Philips Research, Hamburg, Germany and University of Zurich, Zurich, Switzerland.
- 1773. Reducing Transverse Coherencies for Spoiled Gradient Echo Imaging**
Reed F. Busse, Stephen J. Riederer
Mayo Clinic, MR Research Center, Rochester, MN, USA.
- 1774. Fast Volume Coverage using Sliding, Nonuniform Angular Sampling: The Spiral CT Approach with Projection FLASH and TrueFISP Sequences**
Klaus Scheffler
Universität Freiburg, Freiburg, Germany
- 1775. Optimization of Steady-State Pulse Sequences for fast Phase Difference and Complex Difference Flow Imaging**
Vinay M. Pai and Han Wen.
National Institutes of Health, Bethesda, MD, USA.
- 1776. Dynamic Imaging of Time-Varying Objects**
Qi Zhao, Nitin Aggarwal and Yoram Bresler.
University of Illinois at Urbana Champaign, Urbana, IL USA.
- 1777. Fast 3D Imaging Using Variable-Density Spiral Trajectories**
J.H. Lee, B. Hargreaves and D.G. Nishimura.
Stanford University, Stanford, CA, USA.
- 1778. Spiral Imaging on a Human Ultra-High-Field Scanner**
Josef Pfeuffer, Shantanu Sarkar, Pierre-Francois van De Moortele, Kamil Ugurbil and Xiaoping Hu.
University of Minnesota, Center for MR Research, Minneapolis, MN, USA.
- 1779. Sub-Second Continuous 2D Non-Fourier Dynamic Adaptive MRI Using Near-Optimal Spatial Encoding**
Dimitrios Mitsouras, Alan S. Edelman, Lawrence Patrick Panych, Ferenc A. Jolesz, Gary Zientara
Massachusetts Institute of Technology, Cambridge, MA USA; Brigham and Women's Hospital, Harvard Medical School, Boston, MA USA.
- 1780. Fluid-Attenuated SSFP Imaging**
N.K. Bangerter, S. Vasanawala and D.G. Nishimura.
Stanford University, Stanford, CA, USA.

Fast Imaging Sequence Variations

- 1781. Half-Fourier Single-Shot STEAM Imaging**
Jürgen Finsterbusch, Jens Frahm
Biomedizinische NMR Forschungs GmbH am Max-Planck-Institut für biophysikalische Chemie,
Göttingen, Germany

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- 1782. STEN Pulse Sequence: Application to Ultrafast Imaging.**
Pavel Shkarin, Douglas L Rothman
Yale School of Medicine, New Haven, CT, USA.
- 1783. A Fully Refocused Gradient Recalled Echo (FRGRE) Pulse Sequence, with Specific Implementation and Optimization for Cardiac MRI**
Michael H. Buonocore, Laurie B. Hildebrand
University of California, Sacramento, CA USA; University of California, Davis, Davis, CA.
- 1784. Steady-State Preparation for Spoiled Gradient Echo Imaging**
Reed F. Busse, Stephen J. Riederer
Mayo Clinic, MR Research Center, Rochester, MN, USA.
- 1785. Catalyzing the Steady State Using a Genetic Algorithm**
W.R. Overall, D.G. Nishimura and B.S. Hu
Stanford University, Stanford, CA, USA.
- 1786. Reducing Signal Oscillations During the Approach to Steady State in True FISP Using Partial Dephasing**
Frederick H. Epstein, Daniel Kim, Elliot McVeigh
University of Virginia, Charlottesville, Virginia, USA; National Institutes of Health, Bethesda, MD, USA.
- 1787. Design and Application of a Robust Spectral-Spatial RF Pulse**
N. Gai, K. King, M. Saranathan and Y. Zur.
G. E. Medical Systems, Milwaukee, WI, USA; Biltmore Advanced Imaging Center, Phoenix, AZ and Keren Hayesod St., Tirat Carmel, Israel.
- 1788. Spin Echoes with a Quadratic Phase Modulation of the RF Pulse Train**
P. Le Roux.
General Electric Medical Systems, Buc, France.
- 1789. Compressed FastSpin Echo**
Kwan-Jin Jung
Brain Science Research Center, Taejon, South Korea
- 1790. Reducing SAR in Real-Time SSFSE Imaging with Variable-Flip Hard Refocusing RF Pulses**
Reed F. Busse and Stephen J. Riederer
Mayo Clinic, MR Research Center, Rochester, MN, USA.
- 1791. Analysis of Single Echo, TR Periodic SSFP Sequences**
Yiu-Cho Chung
Siemens Medical Systems, Chicago, IL, USA.
- 1792. 3D Burst Microscopic Imaging Sequence**
Y. Taniguchi, H. Ochi and K. Okajima.
Hitachi, Ltd., Tokyo, Japan.

Fast Imaging and Parallel Imaging Methods

- 1793. SMASH With Arbitrary Coil Array Geometries and Phase Encoding Directions.**
Mark D. Price, Charles A. McKenzie, Ernest N. Yeh, Michael A. Ohliger, Jianmin Wang and Daniel K. Sodickson
Beth Israel Deaconess Medical Center, Harvard-MIT Division of Health Sciences and Technology, Boston, MA USA and Siemens AG, Erlangen, Germany.
- 1794. Simulation Based Analysis of the Effects of Imaging Depth on Partially Parallel Imaging Techniques**
James A. Bankson and Steven M. Wright
Texas A&M University, TX, USA College Station, Texas USA.
- 1795. Generalized Partially Parallel Imaging with Spatial Filters**
James A. Bankson, Steven M. Wright
Texas A&M University, TX, USA College Station, Texas USA.
- 1796. A SMASH Approach to Non-Integral Accelerations and Physical Regridding of Data Using Fractional Spatial Harmonics**
Ernest N. Yeh, Charles A. McKenzie, Michael A. Ohliger, Mark D. Price, Daniel K. Sodickson
Beth Israel Deaconess Medical Center, Harvard Medical School, St., Boston, MA, USA.
- 1797. Imaging with an Array of RF Coils — a Space-Frequency Approach**
Yudong Zhu
GE Corporate R&D Center, Niskayuna, NY, USA.
- 1798. Increasing the SNR in Steady-State Imaging by Sensitivity Encoding**
Markus Weiger, Klaas P. Pruessmann, Paul R. Hilfiker, Dominik Weishaupt, Peter Boesiger.
University and ETH Zurich, Zurich, Switzerland.
- 1799. The Power Spread Function Effect on Low Resolution Sensitivity Encoded Imaging**
X. Zhao, Z. Li, R. Prost and S.-J. Li.
Medical College of Wisconsin and Froedtert Memorial Hospital, Milwaukee, WI, USA.
- 1800. Fast Image Reconstruction for Sensitivity Encoded Spiral Imaging**
S. Kannengiesser, J.M. Pauly and R.K. Butts.
Aachen University of Technology, Aachen, Germany and Stanford University, Stanford, California, USA.
- 1801. SENSE Geometry Factor Image Processing**
A. Karnick and K. King.
G. E. Medical Systems, Milwaukee, WI, USA.
- 1802. Sensitivity encoding (SENSE): advantages and disadvantages.**
Yasuyuki Kurihara, Yoshiko K. Yakushiji, Ichiro Tani, Yasuo Nakajima and Marc Van Cauteren.
St. Marianna University, School of Medicine, Kawasaki City, Japan.

Fast Imaging: Acquisition Strategies

- 1803. Dynamic Imaging Using k-space Sharing and Sliding Window Reconstruction**
James d'Arcy, David Collins, Ian Rowland, Martin Leach
Institute of Cancer Research, Sutton, Surrey UK.

- 1804. Teardrop, a novel non-raster readout for True FISP**
Christopher Kumar Anand, Michael Thompson, Dee H. Wu and Tom Cull
Marconi Medical Systems, Cleveland, OH, USA.
- 1805. Shared k-Space Echo Planar Imaging with Keyhole**
Maxim Zaitsev, Karl Zilles, N. Jon Shah
Institute of Medicine, Research Centre Jülich, Jülich, Germany.
- 1806. Single TRajjectory Radial (STAR) Imaging**
Gordon E. Sarty
University of Saskatchewan, Saskatoon, Saskatchewan, Canada
- 1807. Echo Planar Pulse Sequence for 3D Dynamic Adaptive MRI.**
Dimitrios Mitsouras, Alan S. Edelman, Lawrence P. Panych, Ferenc A. Jolesz and Gary P. Zientara
Massachusetts Institute of Technology, Cambridge, MA, USA and Brigham and Women's Hospital, Harvard Medical School, Boston, MA USA.
- 1808. Fast Multiple-Excitation Multiple-Echo Spin-Echo Pulse Sequence for Non-Fourier Spatial Encoding.**
Dimitrios Mitsouras, Alan S. Edelman, Lawrence Patrick Panych, Ferenc A. Jolesz and Gary Zientara.
Massachusetts Institute of Technology, Cambridge, MA, USA and Brigham and Women's Hospital, Harvard Medical School, Boston, MA USA.
- 1809. Increasing Acquisition Speed in Undersampled 3D Projection Imaging**
Y. Toropov and W. Block.
University of Wisconsin, Madison, WI, USA.
- 1810. A Novel Subencoding Reconstruction Technique in 3D Half-Fourier FSE for Non-Contrast MRA without Flow-Related N/2 Artifacts.**
Yoshio Machida, Shigehide Kuhara, Miguel Angel Gonzalez Ballester, Hiroshi Takai, Yoshimori Kassai and Yoshinori Hamamura
Medical Systems R&D Center, Toshiba, Otawara, Tochigi Japan;
- 1811. Single-Shot Imaging at Sub-Millimeter Resolution Using Adiabatic Outer-Volume-Suppression.**
Josef Pfeuffer, Pierre-Francois Van de Moortele, Essa Yacoub, Gregor Adriany, Amir Shmuel, Peter Andersen, Hellmut Merkle, Kamil Ugurbil and Xiaoping Hu
University of Minnesota, Minneapolis, MN, USA.
- 1812. 3D UNFOLD Technique for Dynamic MRI**
Yijing Wu, Dennis L. Parker, Andrew L. Alexander.
University of Utah, Salt Lake City, UT, USA.

General Clinical Cardiac Imaging

- 1813. Arrhythmogenic Right Ventricular Dysplasia/Cardiomyopathy: Protocol Optimization of Black- and Bright-Blood Techniques—Part II**
E. Castillo, J. Rutberg, H.J.V. Braga, H.G. Caulkins and D.A. Bluemke.
Johns Hopkins University School of Medicine, Baltimore, MD, USA.
- 1814. Use of a Multi-Echo Gradient Echo Sequence for the Calculation of T2* Values in the Myocardium for the Analysis and Quantification of Iron Overload in Thalassemia Patients**
C. Charrier, P. Gatehouse, L. Anderson and D.N. Firmin.
Royal Brompton Hospital and Imperial College of Science, London, England, UK.

- 1815. Discordance Between LV Mass by Magnetic Resonance Imaging and Clinically-Used Partition Values for Discriminating Normal from Hypertrophic Left Ventricles**
M. Chuang, C.J. Salton, S. Yeon, K. Kissinger, P. Danias and W.J. Manning.
Beth Israel Deaconess Medical Center and Harvard University, Boston, MA, USA.
- 1816. The Quantification of Pulmonary Valve Haemodynamics Using MRI**
Scott Reid, Peter Walker, John Fisher, Zsolt Nagy, John Ridgway, Kevin G Watterson and Mohan Sivananthan.
University of Leeds, Leeds, England, UK;
- 1817. Utility of MRI in the Evaluation of the Ascending Aorta in Patients with surgical Aortic Valve Disease.**
Vicente Sanjuan, Jose Lopez Mut, Joaquin Rueda, Fernando Mas, Pilar lopez, J.C. Martinez, Vicente Miranda, Julian Celma, J.A. Montero
Hospital General Valencia, Valencia, Spain.
- 1818. Diagnosis and Follow-up of Surgical Repair on Ventricular**
Vicente M. Sanjuan, Joaquin Rueda, Sergio Canovas, Fernando Mas, Pilar Lopez, Jose Lopez Mut, J.A. Montero, Julian Celma, Jose Velasco
Hospital General Valencia, Valencia, Spain.
- 1819. Right Ventricular Involvement in Patients with Inferior Myocardial Infarction -Correlation of Contrast-enhanced Magnetic Resonance Imaging to Other Findings**
Matthias Gero Friedrich, Jeanette Schulz-Menger, Anja Wagner, Rainer Dietz.
Franz-Volhard-Klinik, Berlin, Germany
- 1820. A comparison between Magnetic Resonance Imaging and Echocardiography in the evaluation of Pulmonary Hypertension.**
John Foster, Tarek Saba, Muriel Cockburn, Michael Cowan, Andrew Peacock
Western Infirmary, Glasgow, UK.
- 1821. Right Ventricular Outflow Tract Tachycardia: MRI Findings.**
Nefise Cagla Tarhan, Ahmet Muhtesem Agildere, Bulent Ozin, Ali Firat, Aydin Kurt.
Baskent University Faculty of Medicine, Ankara, Turkey;
- 1822. MRI guided endomyocardial biopsy in patients with suspected myocarditis.**
Guenther Schneider, Roland Seidel, Ingrid Janzen, Bernhard Schwab, Katrin Altmeyer, Bernhard Kramann
University Hospital, Saarland Germany.
- 1823. Regional Wall Motion Abnormality in Brugada Syndrome Using Stripe-Tagged MRI.**
Makoto Motooka, Naoaki Yamada, Hidehiro Iida, Shinichi Urayama, Tetsuya Matsuda, Makoto Takamiya
National Cardiovascular Center, Osaka Japan and Kyoto University, Kyoto, Japan.
- 1824. 3D Reconstruction of Intra-cardiac Anatomy: a Comparison of Magnetic Resonance Imaging (MRI), Intra-cardiac Echocardiography (ICE) and Trans-esophageal Echocardiography (TEE).**
M.E. Miquel, R.S. Razavi, E.J. Baker, S.F. Keevil
Cardiac MR Research Group, London, UK.

1825. Assessment of Right Atrium and Ventricle of Mulibrey Nanism Patients with Functional Magnetic Resonance Imaging.

Sari Marjut Kokki, Kirsi Lauerma, Markku Kupari, Pauli Hekali, Marita Lipsanen-Nyman
Helsinki University Hospital, Helsinki, Finland.

High-Field Cardiac Imaging

1826. Cardiac Triggering at 3.0 Tesla

Stefan E. Fischer, Jan den Boef, Filip Vugts
Philips Medical Systems, Best, The Netherlands.

1827. Signal-to-noise ratios in human cardiac imaging: comparison of 3 T and 1.5 T

Ralph Noeske, Frank Seifert, Karl-Heinz Rhein, Axel Bornstedt, Bernhard Schnackenburg and Herbert Rinneberg.
Physikalisch-Technische Bundesanstalt, Berlin, Germany; German Heart Center Berlin, Cardiac MRI, Berlin, Germany and Philips Medical Systems, Hamburg, Germany.

1828. Human Cardiac MRI at 3 Tesla Using a Whole Body Radio Frequency Coil

Robert L. Greenman, Robert E. Lenkinski, David Alsop, Ronald Watkins, John F. Schenck, Randy Giaquinto, Joseph Piel, Kenneth Rohling.
Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA USA and General Electric Corporate Research and Development Center, Schenectady, NY, USA.

1829. In-vivo Measurement of Myocardial Sodium T2 *

Wolfgang Schreiber, Simone Laukemper-Ostendorf, Melanie Schmitt, Karl Friedrich Kreitner, Oliver Klaus Mohrs, Manfred Thelen
Johannes Gutenberg-University, Mainz, Germany.

1830. Oxygenation Dependence of T2* and T1 in the Isolated Rate Heart at 11.75T

S. Kohler, K.-H. Hiller, C. Heindl, W.R. Bauer, A. Haase.
University Wurzburg; Physikalisches Institut and Am Hubland, Wurzburg, Germany.

1831. Faster Left Ventricular Relaxation in Mouse Hearts Missing Muscle and Mitochondrial Creatine Kinase

T.C.-C. Hu, G.A. MacGowan, C.-W. Du, A. Koretsky.
Carnegie Mellon University; University of Pittsburgh Medicine School, Pittsburgh, PA, USA and National Institutes of Health, Bethesda, MD, USA.

1832. Intracellular sodium imaging in acute coronary ligation

Jan G. Van Emous, Marcel G.J. Nederhoff, Cees J.A. Van Echteld
ICIN and University Medical Center, Utrecht, The Netherlands.

1833. MR Imaging at 7 Teslas of myocardial infarction in rats : Assessment of superparamagnetic Iron Oxide Nanoparticles contrast agent

Catherine Chapon, Florence Franconi, Laurent Marescaux, Laurent Lemaire . Jean-Jacques LE Jeune.
Université d'Angers, Angers, France.

Technical Advances in Cardiac Imaging
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1834. Synchronising cardiac and respiratory motion with an external cuirass respirator - a novel way of improving scanning efficiency in Cardiac Magnetic Resonance Imaging

Sven Plein, Timothy N. Bloomer, John P. Ridgway, Gavin J. Bainbridge, Zamir Hayek and Mohan U. Sivananthan
Leeds General Infirmary, Leeds, England, UK.

- 1835. True FISP: Assessment of accuracy for measurement of Left Ventricular mass in an animal model.**
Wyatt C Jaffe, David Fieno, Orlando Simonetti and Paul Finn.
Northwestern University, Chicago, IL and Siemens Medical Systems, Chicago, IL, USA.
- 1836. Cardiac cine MR imaging: Comparison between TrueFISP and FLASH.**
Wei LI, Qun Chen, Robert R Edelman, Pottumarthi V Prasad.
Northwestern University Medical School, Evanston, IL, USA.
- 1837. Comparison of Two Types of Fat-suppressed Black-blood MR Imaging for Fat, Myocardial and Flow signals Suppression and Cardiac Structure Visualization: Black-Blood Fast STIR and Black-blood Chess MR Imaging.**
Yasuo Amano, Katsuya Takahama, Tatsuo Kumazaki, Hiroyuki Kabasawa.
Nippon Medical School, Tokyo, Japan.
- 1838. Automatic Detection of Vortical Flow Patterns from Three-dimensional Phase Contrast MRI**
Einar Brandt, Tino Ebbers, Lars Wigström, Jan Engvall, Matts Karlsson
Linköping University, Linköping, Sweden
- 1839. Parameters Affecting the MR Measurement of Pressure with Microbubbles**
Rohan Dharmakumar, Donald Plewes, Graham Wright
University of Toronto, Imaging Research, Toronto, ON Canada.
- 1840. Optimizing Magnetization Dynamics for Cardiac Microscopy**
Anja C.S. Brau, Gary P. Cofer, Laurence W. Hedlund, G. Allan Johnson
Duke University Medical Center, Durham, NC, USA.
- 1841. Segmented 2D Imaging of the Heart with a Novel Motion Resistant Phase Ordering Technique**
P. Jhooti, J. Keegan, P. Gatehouse and D.N. Firmin.
Sydney Street; Royal Brompton Heart & Lung Hospital, Imperial College of Science, London, England, UK.
- 1842. Combined Analysis of Ventricular and Atrial Motion using MRI**
J.M. Declerck, C. Ozturk, L. Gutierrez, G. Shechter and E.R. McVeigh.
Oxford University, Oxford, England, UK; Bogazici University, Istanbul, Turkey and NHLBI, Bethesda, MD, USA.

Coronary Artery Imaging

- 1843. Patient Monitoring during Coronary MRA by Real-time Spiral Imaging.**
Peter Koken, Holger Eggers, Tobias Schäffter, Dirk Manke, Kay Nehrke, Peter Börnert.
Philips Research Hamburg, Hamburg, Germany and University of Karlsruhe, Karlsruhe, Germany.
- 1844. Real-Time Interactive Imaging Enhanced High-Resolution Magnetic Resonance Coronary Angiogram**
Phillip Yang, Craig Meyer, Michael McConnell, Masahiro Terashima, Shuichiro KAJI, Al Macovski, John Pauly, Dwight Nishimura, Bob Hu
Stanford University, Stanford, CA USA.
- 1845. Faster Free-Breathing 3D Coronary MR Angiography using Multi-Stack Spiral Imaging.**
Peter Börnert, Dirk Manke, Kay Nehrke
Philips Research Hamburg, Hamburg, Germany and University of Karlsruhe, Karlsruhe, Germany.

- 1846. About the Fat Suppression in 3D Spiral Coronary MR Imaging.**
Peter Börnert, Matthias Stuber, René Botnar, Kraig Kissinger, Peter Koken, Elmar Spuentrup and Warren J. Manning.
Philips Research Hamburg, Hamburg, Germany and Beth Israel Deaconess Medical Center and Harvard University, Medical School, Boston, MA.
- 1847. About the Superiority of Spiral Imaging in 3D Coronary MR Angiography.**
Peter Börnert, Matthias Stuber, René Botnar, Kraig Kissinger, Peter Koken, Elmar Spuentrup and Warren J. Manning.
Philips Research Hamburg, Hamburg, Germany; Beth Israel Deaconess Medical Center and Harvard University, Medical School, Boston, MA.
- 1848. 3D Coronary Vessel Wall Imaging with a Local Inversion Technique and Spiral Image Acquisition**
René M. Botnar, Won Y. Kim, Matthias Stuber, Peter Börnert, Elmar Spuentrup, Kraig V. Kissinger and Warren J. Manning
Beth Israel Deaconess Medical Center, and Philips Medical Systems, Boston, MA USA and Philips Research Laboratories, Hamburg, Germany.
- 1849. Ultra-Fast Navigator Technology and Real-Time Motion Correction Improves Image Quality in Submillimeter Navigator-Gated Free-Breathing 3D Coronary MRA.**
Elmar Spuentrup, Matthias Stuber, René Michael Botnar, Kraig V Kissinger, Warren J. Manning.
Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, Massachusetts USA
- 1850. An Improved Diminishing Variance Algorithm for Respiratory Compensation in Coronary Imaging**
R. Schaeffer, C. Meyer, T. Sachs, J.M. Pauly, B. Hu, D.G. Nishimura.
Stanford University, Stanford, CA, USA.
- 1851. Tracking Three-Dimensional Volume-Selective Coronary Artery Imaging**
P. Gatehouse, G.-Z. Yang, J. Keegan, R.H. Mohiaddin and D.N. Firmin.
Royal Brompton Hospital and Imperial College of Science, London, England, UK.
- 1852. Study of Respiratory Motion in Coronary MRA.**
Dirk Manke, Kay Nehrke, Peter Rösch, Peter Börnert, Olaf Dössel.
University of Karlsruhe, Karlsruhe, Germany and Philips Research Hamburg, Hamburg, Germany.
- 1853. Suppression of Motion Artifacts Using an Acoustic Respiratory Feedback Monitor.**
Kay Nehrke, Dirk Manke, Peter Börnert.
University of Karlsruhe, Karlsruhe, Germany and Philips Research Hamburg, Hamburg, Germany.
- 1854. Improved Coronary MRA Using a New Blood Pool Contrast Agent (P-792) and Respiratory Navigator Gating**
Martijn S. Dirksen, Hildo J. Lamb, Patrik Kunz, Philippe Robert, Claire Corot, Albert De Roos
Leiden University Medical Center, Leiden, The Netherlands.
- 1855. Multi-slice breathhold spiral MR coronary angiography in combination with an intravascular Feruglose contrast agent (NC100150 Injection)**
Patrick R Knuesel, Daniel Nanz, Ursula Wolfensberger, Gustav K Von Schulthess, Borut Marincek and Juerg Schwitter
University Hospital Zurich, Zurich, Switzerland.

- 1856. 3D Magnetization-Prepared True-FISP: A new technique for the MR imaging of Coronary Arteries**
Vibhas Deshpande, Steven Shea, Gerhard Laub, Orlando Simonetti, Paul Finn, Debiao Li
Northwestern University, Chicago, IL USA and Siemens Medical Systems, Ontario Chicago, IL, USA;
- 1857. Measuring Nitroglycerin Tolerance in the Right Coronary Artery; Preliminary Results**
Sten Oyre, Michael S. Hansen, Karsten Muff Munk, Sebastian Kozerke, Keld Sorensen, Jens Erik Nielsen-Kudsk, Peter Boesiger and Erik Morre Pedersen
Aarhus University Hospital, Aarhus N., Denmark and University of Zurich, Inst. of Biomedical Engineering, Zürich, Switzerland.
- 1858. Noninvasive Detection of Coronary Artery Stenosis By Using High-Resolution Selective Three-dimensional Coronary MR Angiography**
Yoshiki Amou
Kurashiki Central Hospital, Kurashiki, Okayama Japan
- 1859. Detection of MR Flow Disturbance in Small Diameter Tubes and Coronary Arteries**
Pamela K. Woodard, Jie Zheng, DanaR.Abendschein, Richard Kowalski, Nasser Fatouree, Nikolaos V. Tsekos, Amir A.Amini and Robert J. Gropler
Washington University, St. Louis, MO, USA.
- 1860. Coronary Angiography of the Perfused Mouse Heart—Method and Visualization**
K.-H. Hiller, S. Kuhler, S. Voll, M. Nehrendorf, C. Waller, W.R. Bauer and A. Haase.
Dept. of Biophysics, Wurzburg, Germany.
- 1861. Feasibility of adaptive resolution coronary artery imaging**
Charles H. Cunningham, Graham A. Wright and Michael L. Wood
University of Toronto, North York, ON Canada.

Myocardial Function and Flow

- 1862. Quantification of Left-to-Right Shunt in Pediatric Patients**
Philipp Beerbaum, Hermann Körperich, Peter Barth, Hermann Esdorn, Jürgen Gieseke, Hans Meyer
Clinic for Congenital Heart Disease, Nordrhein-Westfalen Germany and Philips Medical Systems, Hamburg Germany.
- 1863. Assessment of Coronary Sinus Flow and Flow Reserve with Phase Contrast MR Imaging in Healthy Volunteers and Patients with CAD: a Comparison with PET**
Juha Koskenvuo, Jaakko Hartiala, Juhani Knuuti, Hajime Sakuma, Jyri Toikka, Markku Komu, Markku Saraste and Pekka Niemi.
Turku University Hospital, Turku, Finland.
- 1864. High Temporal Resolution Multi-Echo Phase Contrast MRI**
Richard B Thompson and Elliot R McVeigh.
National Institutes of Health, Bethesda, Maryland, USA.
- 1865. Comparison of Cartesian and Radial Balanced FFE for Interactive Real Time Cardiac Imaging**
Tobias Schaeffter, Steffen Weiss, Holger Eggers, Peter Börnert and Volker Rasche.
Philips Research, Hamburg, Germany.
- 1866. Torsion Scales Inversely with the Size of the Heart Between Mouse and Man.**
Aravindan Kolandaivelu, Han Wen
Howard Hughes Medical Institute-NIH Research Scholar, Bethesda, MD USA.

- 1867. Measurement of Left Ventricular Velocities: MR-Phase Contrast Velocity Mapping Versus Doppler-Ultrasound in Healthy Volunteers.**
B Schneider, M Markl, B Saurbier, A Geibel, V Gehrig, A Volz, J Hennig, M Langer.
University of Freiburg, Freiburg, Germany.
- 1868. Assessment of changes in myofiber orientation with MR-diffusion tensor imaging after regional cardiac infarction.**
Liesbeth Geerts-Ossevoort, Theo Arts, Peter Bovendeerd and Klaas Nicolay.
Eindhoven University of Technology, Utrecht, Netherlands.
- 1869. Correlation Between Electrical and Mechanical Activation in the Paced Canine Heart**
Owen Faris, Frank Evans, Cengizhan Ozturk, Daniel Ennis, Joni Taylor, Elliot McVeigh.
Johns Hopkins University, Baltimore, MD USA and National Institutes of Health, Bethesda, MD, USA.
- 1870. Visualization of myocardial strain-rate tensors from time-resolved 3D cine phase contrast MRI.**
Pernilla Selskog, Einar Brandt, Lars Wigström, Matts Karlsson.
Linköping University, Linköping, Sweden.
- 1871. Left Ventricular Apical Strain Measurements in the Human Heart.**
Anthony Aletras, Han Wen.
National Institutes of Health, Bethesda, MD, USA.
- 1872. Strain Patterns from a 4D B-Spline Model of Tagged MRI: Baseline and Post-MI Studies**
J. Huang, D.R. Abendschein, V. Davila-Roman and A.A. Amini.
Washington University, St. Louis, MI, USA.
- 1873. Imaging Longitudinal Cardiac Strain on Short-Axis Images using 3D-HARP.**
Nael F Osman, Smita Sampath, Ergin Atalar, Jerry Ladd Prince.
Johns Hopkins University, Baltimore, Maryland USA.
- 1874. Accuracy of 3D Myocardial Strains from a 4D B-Spline Deformable Model for Tagged MRI**
J. Huang, A.A. Amini.
Washington University, St. Louis, MI, USA.
- 1875. Cardiac Motion Encoding using HARP and DENSE: Tagging or Phase Contrast?**
J. Andrew Derbyshire, Nael F. Osman.
GE Medical Systems, Waukesha, WI USA and Johns Hopkins University, Baltimore, MD, USA.
- 1876. Limiting Dilatation Decreases Infarct Size in an Ovine Model of Acute Myocardial Infarction.**
Aaron S. Blom, James J. Pilla, Daniel J. Brockman, Lawrence Dougherty, Joseph Giammarco,
Frank W. Bowen, Qing
Yuan, Victor Ferrari, Michael A. Acker, Leon Axel
University of Pennsylvania Medical Center, Philadelphia, PA USA.
- 1877. Partial Left Ventriculectomy Acutely Improves Cardiac Function as Assessed by Tissue-tagged MRI**
Aaron S. Blom, James J. Pilla, Daniel J. Brockman, Victor A. Ferrari, Matthew Beal, Christopher Jobes,
Michael A. Acker, Leon Axel
University of Pennsylvania Medical Center, Philadelphia, PA, USA.
- 1878. Visualization of Left Ventricular Function under Physically Induced Stress by Interactive Real-Time MRI**
Oliver Weber, Markus Oelhafen, Holger Eggers, Peter Börnert, Peter Boesiger
University and ETH Zurich, Zurich, Switzerland and Philips Research, Hamburg,
Germany.

- 1879. Cardiac Function Evaluation in a Single Breath-Hold: Real-Time True FISP Cine Imaging**
Vivian S. Lee, Daniel Resnick, Peter Lee, Jeffrey Bundy, Orlando Simonetti, Gerhard Laub, Glenn A. Krinsky, Jeffrey C. Weinreb.
New York University Medical Center, New York, NY USA; Albert Einstein School of Medicine, Bronx, NY, USA and Siemens Medical Systems, Chicago, IL, USA.
- 1880. Ultra-High Resolution True FISP Projection Reconstruction Acquisition for Cardiac Function Evaluation**
Dana C. Peters, Elliot R. McVeigh
National Institutes of Health, Bethesda, Maryland USA.
- 1881. Real-Time Echo and Spiral Planar Imaging for the Assessment of Left Ventricular Function - A Comparison**
Oliver Weber, Markus Oelhafen, Holger Eggers, Peter Börnert, Peter Boesiger
University and ETH Zurich, Zurich, Switzerland and Philips Research, Hamburg, Germany.
- 1882. Multi-echo Projection Reconstruction for Real-time Cardiac MRI**
Dana C. Peters, Richard B. Thompson, Elliot R. McVeigh.
National Institutes of Health, Bethesda, Maryland USA.
- 1883. Rapid Evaluation of Right Ventricular Volume and Mass Without Breath-holding Using Real-Time Interactive Cardiac Magnetic Resonance Imaging System**
Shuichiro Kaji, Phillip Yang, Craig Meyer, John M. Pauly and Bob Hu.
Kawasaki Medical School, Okayama Japan and Stanford University, Stanford, California USA.
- 1884. Evaluation of Left Ventricular Volumes and Ejection Fraction with Fast Steady-state Cine MR Imaging: Comparison with Left Ventriculography**
Yasutaka Ichikawa, Hajime Sakuma, Kakuya Kitagawa, Nanaka Kawada, Kan Takeda, Munenobu Motoyasu, Atsushi Nozaki
Mie University School of Medicine, Tsu, Mie Japan and GE Yokogawa Medical Systems, Hino, Tokyo Japan.
- 1885. Assessment of Ventricular Function in a single Breath-hold using Real-time TrueFISP Cine Imaging**
Jörg Barkhausen, Gerhard Laub, Mathias Goyen, Jorg F Debatin, Stefan GRuehm, Mark E Ladd
University Hospital Essen, Essen, Germany a Siemens Medical Systems, Inc., Chicago, Illinois USA.
- 1886. Direct Comparison of Fast Gradient Echo, Segmented EPI, and FISP Variants of High Resolution Cine MRI**
Andrew Ernest Arai, Melissa Coleman, Kwabena Agyeman, Anthony Homer Aletras
National Institutes of Health, National Heart, Lung and Blood Institute, Bethesda, MD, USA.
- 1887. Left Ventricular Function Measurement and Visualization of Endocardium Using Noncontrast-Enhanced Cardiac Cine SSFP Imaging**
F. Chan, M. Alley, C. Coulam, A. Shimakawa, K. Wedding, N.J. Pelc and R.J. Herfkens.
Stanford University, Stanford, CA, USA and GE Medical Systems, Milwaukee, WI, USA.
- 1888. Single Breath-hold Ejection Fraction Determination by 3D Cine Imaging.**
Mark B.M. Hofman, Piotr A. Wielopolski, Willem G. van Dockum, Anja Lehning, Mathijs Oudkerk and Albert C. van Rossum.
University Hospital Vrije Universiteit, Amsterdam, Netherlands.

- 1889. Noninvasive Assessment of Ventricular Contractility During Cardiac MRI Examinations.**
Randy Setser, Jon Chia, Kamilla Lunn, Kay Sayre, Sebastian Flacke, Christine Lorenz
Washington University, Saint Louis, Missouri, USA.
- 1890. A noninvasive MR imaging strategy for predicting left ventricular remodeling.**
Maythem Saeed, Norbert Watzinger, Gunar Lund, Michael F Wendland, Charles B Higgins.
University of California San Francisco, San Francisco, CA, USA.
- 1891. Simultaneously Quantitative Analysis for Right Ventricular and Left Ventricular Functions with MRI in a Rat Pulmonary Hypertension Model.**
Yi-Jen Lin-Wu, Shinichi Kanno, Chien Ho.
Carnegie Mellon University, Pittsburgh, PA, USA.
- 1892. Oral administration of nicorandil improves left ventricular function: A long-term MR study in rats**
Maythem Saeed, Norbert Watzinger, Gunnar Lund, Michael F Wendland and Mitsuaki Chujo.
University of California San Francisco, San Francisco, California USA and Chugai Pharmaceutical Co, Ltd, Tokyo, Japan.
- 1893. Calculation of Left Heart Pressure Gradients with Breath-Hold Phase Contrast MRI**
Richard B Thompson, Elliot R McVeigh
National Institutes of Health, Bethesda, MD, USA.
- 1894. Right Ventricular Dilatation as Determined by MRI Correlates Closely with Clinical Deterioration of Functional Class in Patients with Primary Pulmonary Hypertension.**
Michael Poon, Jeffrey Goldman, Zahi Fayad, Kevin Dunsky, Ann Marie McDonald and Valentine Fuster.
Mount Sinai School of Medicine, New York, NY, USA
- 1895. Cine Magnetic Resonance Imaging of Myocardial Ischemia and Reperfusion in Mice.**
Stuart Scott BERR, Zequan Yang, Wesley D. Gilson, John N. Oshinski, Brent A. French
University of Virginia, Charlottesville, VA, USA and Emory University, Atlanta, GA, USA

Myocardial Perfusion and Viability

- 1896. Validation of MRI Myocardial Perfusion in Humans with PET.**
Thomas Fritz-Hansen, Jens Hove, Klaus Kofoed, Henning Kelbaek, Henrik Larssone
Cardiovascular PET Research Unit, Copenhagen, Denmark and Hvidovre University Hospital, Hvidovre, Denmark;
- 1897. Serial first pass contrast perfusion MRI following coronary artery angioplasty (PTCA) in patients with single vessel disease: qualitative and quantitative image analysis.**
Penelope R. Sensky, Nilesh J Samani, Graham R. Cherryman.
University of Leicester, Leicester, Leics United Kingdom.
- 1898. Myocardial Perfusion Measurements with First-Pass MRI in Patients with Coronary Artery Disease: A Comparison Between Semi-Quantitative and Quantitative Evaluation.**
Melanie Schmitt, Oliver Klaus Mohrs, Wolfgang Günther Schreiber, Steffen Ehrhard Petersen, Karl-Friedrich Kreitner, Thomas Voigtländer, Magalie Viallon, Thomas Wittlinger, Georg Horstick, Steffen Ziegler, Jürgen Meyer and Manfred Thelen.
Johannes Gutenberg-University, Mainz, Germany.

- 1899. A non ECG-gated model for myocardial perfusion imaging; evaluation of diagnostic performance evaluation in patients with coronary artery disease (CAD)**
Penelope R. Sensky, Mark Horsfield, Nilesh J Samani, Graham R. Cherryman.
University of Leicester, Leicester, Leics United Kingdom.
- 1900. Influence of Dispersion on Quantification of Myocardial Perfusion and Perfusion Reserve with First-Pass MRI: Simulations Using MMID4.**
Melanie Schmitt, Wolfgang Günther Schreiber, Magalie Viallon, Manfred Thelen
Johannes Gutenberg-University, Department of Radiology, Mainz, Germany.
- 1901. Correction of Flow Effects in Renal and Myocardial Tissue Perfusion Quantification using Dynamic MRI and Contrast Media.**
Marko K. Ivancevic, Ivan Zimine, François Lazeyras, David Foxall, Jean-Paul Vallee
Geneva University Hospital, Geneva, Switzerland and Marconi Medical Systems, Cleveland, OH, USA.
- 1902. The Regional Blood Volume in Human Myocardium: Determination with MRI using NC100150 (CLARISCAN™).**
Christian M Wacker, Frank Wiesmann, Michael Bock, Peter Jakob, Jörn Sandstede, Volker Hoffmann, Lothar Schad and Wolfgang Bauer.
University of Wuerzburg, Wuerzburg, Germany; Radiological Diagnostics & Therapy, Heidelberg, Germany and II Med. Universitätsklinik, Klinikum Mannheim, Mannheim, Germany.
- 1903. T₁ Fast Acquisition Relaxation Mapping (T₁ FARM): an alternative bolus tracking technique.**
Deanna D. Bellamy, Charles A. McKenzie, Frank S. Prato, Dick J. Drost.
University of Western Ontario, London, Ontario Canada and Beth Israel Deaconess Medical Center, Boston, MA, USA.
- 1904. Automatic quantitative analysis of myocardial perfusion with magnetic resonance imaging.**
Marcel Breeuwer, Marcel Quist, Luuk Spreeuwers, Ingo Paetsch, Nidal Al-Saadi, Eike Nagel
Philips Medical Systems QV 1, The Netherlands and University Medical Center Utrecht, German Heart Institute Berlin, Berlin, Germany.
- 1905. A Fast, Multiple-Slice, Multiple-Point Method for the Determination of T1 Relaxation Time for use in Quantitative Myocardial Perfusion Measurement.**
John P Ridgway, Aleksandra Radjenovic, David M Higgins, Andrea Kassner, Mohan Sivananthan
Leeds General Infirmary, Leeds, UK and Philips Medical Systems, Leeds, UK.
- 1906. Myocardial Perfusion Measurements With Albumin-Binding MS-325 Contrast Agent.**
Michael Jerosch-Herold, Robert M. Weisskoff, Norbert Wilke, Cory Swingen, Abdul Mansoor, Hong Huang, Fan Zhao
University of Minnesota, Minneapolis, Minnesota USA and Epix Medical Inc., Boston, Massachusetts, USA.
- 1907. Use of Cardiac MRI in Evaluating Acute Infarct Size and Ventricular Remodeling in an Animal Model of Heart Failure Subsequent to Reperfused Myocardial Infarction.**
John N Oshinski, Jeffery R Jones, Jamie F Mata, Zequan Yang, Brent A. French.
Emory University, School of Medicine, Atlanta, Georgia USA and University of Virginia, Charlottesville, VA, USA.
- 1908. A Canine Model of Hibernating Myocardium using Magnetic Resonance Imaging with Gd-DTPA.**
Katie S. Lekx, Frank S. Prato, Jane Sykes and Gerald Wisenberg.
University of Western Ontario, London, Ontario Canada.

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Sheba Medical Center, Tel-Hashomer, Israel and Universidad Complutense, Madrid, Spain.
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G.D. Waiter, A. Al-Mohammad, M. Egred, S.I.K. Semple, T.W. Redpath
University of Aberdeen, Aberdeen, UK and Grampian University Hospitals NHS Trust, Aberdeen, UK.
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Institute for Biodiagnostics, Winnipeg, MB Canada and University of Manitoba, Winnipeg, MB Canada.
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S.D. Thomas, D.J. Emery and A.H. Wilman.
University of Alberta, Edmonton, Alberta Canada.
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Yu Liu, Robert Breger, Tonya Hollrith and Lynda Yanny.
St. Luke's Medical Center, Milwaukee, WI, USA.
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William Guerin Bradley, Dar-Yeong Chen, Gordan Lai, Monte Zarlingo, Christopher Swanson, George Chu and Mark Chen.
Long Beach Memorial MRI Center, Long Beach, CA, USA.
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Biagio Merlino, Hans Rainer Hentrich, Massimo Daprà, Miles Andrew Kirchin 4, Lorenzo Bonomo 5
University of Chieti, Via Valignani, Chieti, Italy; Bracco Byk Gulden, Konstanz, Germany and Medical & Regulatory Affairs, Milan, Italy.
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University of Wisconsin-Madison, Madison, WI, USA and Medical College of Wisconsin, Milwaukee, Wisconsin, USA.
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University of Maryland, Baltimore, Baltimore, MD, USA.

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Marconi Medical Systems, Cleveland, OH, USA.
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University of Sheffield, Sheffield, England.

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J. De Becker, R. Muthupillai and R. Stefancik.
Philips Medical Systems, Best, Netherlands; Philips Medical Systems, Houston, TX, USA and EPIX Medical, Inc., Cambridge, MA, USA.
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Shimadzu Corporation, Medical Systems Division, Kyoto Japan.
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Mitsue Miyazaki, Hiroshi Takai, Hirofumi Wada, Takashi Ogikawa, Rie Kuwahara, Joji Urata.
Toshiba Corp. Medical R&D Center, Tochigi Japan and Saiseikai Kumamoto Hospital, Kumamoto Japan.
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Johan Wikström, Håkan Ahlström, Martin Wasser, Peter MT Pattynama, Hans-Rainer Hentrich, Massimo Daprà, Miles Kirchin, Alberto Spinazzi.
Department of Radiology, Uppsala, Sweden; Department of Radiology, Leiden, The Netherlands; Department of Radiology, Rotterdam, The Netherlands; Bracco-Byk Gulden GmbH, Konstanz, Germany and BRACCO S.p.A., Milano, Italy.
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Masayuki Kumashiro
Kurashiki Central Hospital, Kurashiki, Okayama Japan.
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University of Pennsylvania, Philadelphia, PA, USA.
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Hirosaki University Hospital, Hirosaki, Aomori Japan.
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University Hospital Essen, Essen, Germany.

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Maastricht University Hospital, Maastricht, The Netherlands.

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Giles Roditi FRCR, Allan Reid FRCR, Margot O'Hara.
Glasgow Royal Infirmary, Glasgow, UK.
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University Hospital Maastricht, Dept. of Radiology, Maastricht, Netherlands;
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John Graeme Houston, Wendy Milne, Jean-Paul Charon, John Dick, Peter Stonebridge and Declan G. Sheppard.
Tayside University Hospitals NHS Trust, Scotland UK.
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Jaroslaw Ryterski, Jaroslaw Wieckowski, Iwona Foremniak, Andrzej Pytlewski
Institute of Psychiatry and Neurology, Warszawa, Poland and Wojewodzki Szpital Specjalistyczny, Radom, Poland.
- 1934. Assessment of Gadolinium-Enhanced Time-Resolved Three-Dimensional MR Angiography for Evaluating Renal Artery Stenosis**
Hatsuko Masunaga, Yasuo Takehara, Haruo Isoda, Tatsuya Igarashi, Masahiro Sugiyama, Satoshi Isogai, Nami Kodaira, Hiroyasu Takeda, Atsushi Nozaki and Harumi Sakahara
Hamamatsu University School of Medicine, Department of Radiology, Hamamatsu, Shizuoka Japan.
- 1935. Gadolinium-Enhanced 3-D MR Angiography of Renal Artery Stenosis: A Pilot Comparison of Maximum Intensity Projection, Multi-Planar Reformatting, and 3-D Volume Rendering Post-Processing Algorithms**
Visveshwar Baskaran, Frederick Scott Pereles, Albert A Nemcek Jr., James Carr, Frank H Miller, John Ly, Elizabeth A. Krupinski, John Paul Finn
Northwestern University, Chicago, IL USA and University of Arizona, Tucson, AZ, USA.
- 1936. 2D fast Phase Contrast for assessing blood flow in renal artery stenosis**
Mirco Cosottini, Virna Zampa, Maria Chiara Michelassi, Massimo Lombardi, Davide Caramella and Carlo Bartolozzi.
University of Pisa, Pisa, Italy.
- 1937. Quantitative analysis of renal perfusion during Gd-enhanced MRA in healthy kidney donors: age-related changes.**
Sjoerd van den Dool, Martin Wasser, Hans de Fijter, Rob van der Geest.
Leiden University Medical Center, Leiden, Netherlands

- 1938. Contrast Enhanced Magnetic Resonance of the Renal Veins in the Setting of MRA of Potential Kidney Donors: Optimization of a Pulse Sequence.**
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Erasmus University Medical Center Rotterdam, Rotterdam, Netherlands.
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Jean-Pierre M Charon, J Graham Houston, Declan G Sheppard and James S Anderson
Tayside Universities Hospital Trust, Ninewells Hospital and Medical School, Dundee, Scotland.
- 1940. Gadolinium enhanced 3D Magnetic Resonance Angiography planning of stent implantation in aortic coarctation and recoarctation**
Reza Razavi, Marc Eric Miquel, Eric Rosenthal, Shakeel Qureshi, Edward James Baker.
King's College London, London, UK.
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Guenther Schneider, Roland Seidel, Katrin Altmeyer, Urban Geithoff and Bernhard Kramann.
University Hospital, Homburg, Saarland, Germany.
- 1943. Morphologic and Functional Assessment of Chronic Thromboembolic Pulmonary Hypertension (CTEPH) by Breath-hold MR Techniques: Findings Before and After Thromboendarterectomy**
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Johannes Gutenberg Universität, Mainz, Germany.
- 1944. Delineation of Venous Structure of the Upper Abdomen Using Gd-enhanced Time-Resolved 3D MR Angiography.**
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Hamamatsu Univ. School of Med., Hamamatsu, Japan and GE Yokogawa Medical Systems, Hino, Tokyo Japan.
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James Meaney, John Ridgway, Aleksandra Radjenovic, R. Hoegeveen, Jacqueline Roberts, Daina Dambitis and Marc Kouwenhoven
The General Infirmary at Leeds, Leeds, England, UK;
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Gabriele Anja Krombach, Patrick Haage, Tobias Schaeffler, Volker Rasche, A Rudlowski, Arno Buecker and Rolf W. Guenther
University of Technology, Aachen, Germany and Philips Research Laboratories, Hamburg, Germany.
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Andrew J Watt, John Foster, Abdu Shabani
The Royal Hospital for Sick Children, Glasgow, Scotland, UK;

MRA Techniques

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Yong Zhou, Timothy Carroll, Emilio Esparza-Coss, Thomas Grist, Charles A. Mistretta and Frank R. Korosec.
G. E. Medical Systems, Milwaukee, WI, USA and University of Wisconsin-Madison, Madison, WI USA
- 1949. Evaluation of Model Fitting to a Time-Resolved SENSE Magnetic Resonance Angiography Measurement**
F. Wajer, D. Van Ormondt, M. Fuderer, J. van den Brink and R. de Beer.
Delft University of Technology, Delft, Netherlands and Philips Medical Systems, Best, Netherlands.
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Thomas K.F. Foo, Vincent B. Ho, Hani Marcos, Maureen N. Hood, Peter Choyke
GE Medical Systems, Johns Hopkins University, Baltimore, MD, USA and National Institutes of Health, Bethesda, MD, USA.
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Keio University School of Medicine, Tokyo, Japan and GE Yokogawa Medical Systems, Tokyo, Japan.
- 1952. Gadobenate dimeglumine (MultiHance®) in contrast-enhanced.**
Thomas J. Kroenke, Martin N. Wasser, Peter M.T. Pattynama, Hans-Rainer Hentrich, Matthias Taupitz, Bernd Hamm, Miles Kirchin and Alberto Spinazzi.
Institut für Radiologie, Universitätsklinikum Charité, Berlin, Germany; Department of Radiology, Leiden, Netherlands and Afdeling Radiologie, Academisch Ziekenhuis Rotterdam Dijkzigt, Rotterdam, The Netherlands.
- 1953. Optimization of the Injection Protocol with P792, a new Blood Pool Contrast Agent, in the Conditions of Contrast-Enhanced MRA : Experimental Measurements in Rabbits and Pigs.**
Philippe Robert, Robin Santus, Xavier Violas, Marc Port, Claire Corot.
Guerbet, BP 50400, Roissy CDG, France.
- 1954. Angio MR (AMR) of the Fingers: Technical Specificities and Clinical Applications.**
Jean-Luc Drape, Christophe Argaud, Sophie Goettmann, Didier Godefroy, Anne-Marie Dupont, Thierry Diche and Alain Chevrot.
Hopital Cochin, 27 rue du Faubourg Saint-Jacques, Paris, France.
- 1955. A Comparison of Navigator Methods for the Minimization of Motion Artifacts in Pulmonary MR Angiography.**
Richard Watts, Thanh D. Nguyen, Jeffrey W. Bezanson, Martin R. Prince, Yi Wang
Weill Medical College, Cornell University, New York, NY, USA.
- 1956. Dynamic ASL Flow Imaging with Cardiac Triggered True FISP Acquisition.**
Qun Chen, Vu M Mai, Pippa Storey and Robert R Edelman.
Evanston Northwestern Healthcare, Evanston, IL, USA.
- 1957. MRI—a tool for evaluating the feasibility of VEGF-mediated pro-angiogenic therapy**
Rinat Abramovitch, Yuval Dor, Ahuva Itin, Eli Keshet.
The Goldin Savad Inst. for Gene Therapy, and MRI/MRS lab, HBRC, Hadassah Hebrew University Hospital, Jerusalem, Israel.

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Bruno Marchand, Philippe douek, Philippe Robert, Claire Corot, Jean Pierre Roux, Patrice Adeleine , Marcella Hernandez-Hoyos, Maciej Orkisz, Yannick Crémillieux and Emmanuelle Canet
Hôpital de la Croix-Rousse, Lyon cedex, France;

Vessel Wall MR Imaging**1959. Quantitative MRI Study of Sustained VEGF Induced Blood-Retinal Barrier in Rabbits**

Nadir Alikacem, Toyo Yoshizawa, Kevin Nelson, Charles Wilson.
University of Texas Southwestern Medical Center at Dallas, Dallas, Texas USA.

1960. Magnetization Transfer Maps of the Vulnerable Atherosclerotic Plaque.

Matthew M Philp, Jerome L Ackerman, Denise P Hinton.
Boston University, Boston, MA, USA and Massachusetts General Hospital, Charlestown, MA, USA.

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William Kerwin, Thomas S. Hatsukami, Chun Yuan.
University of Washington, School of Medicine, Seattle, WA, USA.

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University of Washington, School of Medicine, Seattle, WA, USA.

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Hee Kwon Song, Alexander C. Wright, Ronald L. Wolf and Felix W. Wehrli.
University of Pennsylvania Medical Center, Philadelphia, PA, USA.

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Joseph Gati, Jonathan Thomas, David A. Steinman and Brian K. Rutt.
Imaging Research Labs, The John P. Robarts Research Institute, London, ON Canada.

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University of Virginia, Charlottesville, VA, USA.

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University of Washington, School of Medicine, Seattle, WA, USA and PLA General Hospital, Beijing, China.

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Department of Radiology, University of Utah, UT, USA.

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Cai Jianming, Youquan Cai, Yuangui Gao, Shuihui Chen, Chun Yuan
Chinese PLA General Hospital, Beijing P.R.China and University of Washington, Medical Center, Seattle, WA, USA.
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Cardiovascular Medicine, Stanford University, Stanford, CA USA;
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Ying Luo, Nayak L. Polissar, Chun Yuan.
University of Washington, Seattle, Washington USA
- 1971. A simple measure of flow shear and turbulence**
James G. Pipe
Barrow Neurological Institute, Phoenix, AZ, USA.

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- 1972. Phase Contrast MRI With High Temporal Resolution by View Sharing.**
Michael Markl and Jürgen Hennig.
University of Freiburg, Freiburg, Germany.
- 1973. Accurate Flow Measurements With Segmented k-Space MR Phase Velocity Mapping.**
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Cleveland State University, Cleveland, OH USA; The Cleveland Clinic Foundation, Cleveland, OH USA and Siemens Medical Systems, Chicago, IL, USA.
- 1974. In-Plane Flow Mapping with Two-Dimensional Velocity-Sensitive Spin Preparation.**
Han Wen
National Institutes of Health, National Heart, Lung and Blood Institute, Bethesda, MD, USA.
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Charles L. Dumoulin, Ray F. Lee, Kate McLeish, Colin G. Caro.
G. E. Corporate R & D Center, NY USA; King's College London, London, UK. and Imperial College of Science, Technology and Medicine, University of London, London, UK.
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Donald WMcRobbie, Christopher N Guy, Rebecca Quest
Imperial College, Charing Cross Hospital, London, England, UK.
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Noam Alperin, Sang H Lee, Paul E Summers
University of Illinois at Chicago, Chicago, Illinois USA; King's College London, London, England.
- 1978. Anti-Aliasing Acquisition for Velocity Encoded CINE.**
Qing-San Xiang
University of British Columbia, BC Children's Hospital & St. Paul's Hospital,
Vancouver, BC Canada.

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Meide Zhao and Fady T. Charbel.
University of Illinois at Chicago, College of Medicine, Neurosurgery Department, Chicago, IL USA.
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University of Applied Sciences, Jena, Germany.
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University of Illinois at Chicago, Chicago, Illinois, USA.
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Western General Hospital, Edinburgh; Edinburgh University, Scotland, UK and Imperial College, London, England, UK.
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University Medical Center Utrecht, The Netherlands.
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University of Kentucky, Lexington, KY, USA and Baxter Healthcare Corp, McGaw Park, IL, USA.
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University Hospital Rotterdam, Leiden, The Netherlands.

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University of Kobe, Kobe City, Japan; University of Pennsylvania, Philadelphia, PA, USA and Shimane Medical University, Izumo, Japan.
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University of Pennsylvania, Philadelphia, PA, USA and University of Kobe, Kobe, Hyogo, Japan.
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University of Wurzburg, Wurzburg, Germany.

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Omiya Medical Center, Jichi Medical School, Omiya, Japan; Medical Systems R&D Center, Tochigi, Japan and Toshiba Medical Systems Co., Ltd., Tokyo, Japan
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University of Pennsylvania, Philadelphia, PA, USA.
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St. Marianna University, School of Medicine, Kawasaki City, Japan and Toshiba Corp. - Nasu Works, MR System Design Group, Tochigi, Japan;
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University of Occupational and Environmental Health, Iseigaoka Fukuoka Japan and Toshiba Medical Systems R&D Center, Tochigi Japan.
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University of Virginia, Charlottesville, VA, USA.
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Magalie Viallon, Wolfgang Schreiber, Melanie Schmitt, Manfred Thelen, Hanz-Ulrich Kauczor
Johannes Gutenberg Universität, Mainz, Germany.
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Nobuhiko Ogasawara, Kazuyoshi Suga, Katsuyoshi Ito, Shinji Koike, Keiko Kishimoto, Munemasa Okada, Naofumi Matsunaga
Yamaguchi University, Yamaguchi Japan.
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University of Virginia, Charlottesville, VA USA and Evanston Northwestern Healthcare, Evanston, Illinois USA.
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Evanston Hospital, Evanston, IL USA; University of Virginia, Charlottesville, VA USA and Beth Israel Deaconess Medical Center, Boston, MA, USA.

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University of Wurzburg and Am Hubland, Wurzburg, Germany.
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Peter Jakob, T. Wang, G. Schultz, Axel Haase and D. Hahn.
University of Wurzburg, Würzburg, Germany
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Y. Ohno, K. Oshio, H. Uematsu, M. Nakatsu, Y. Takahashi, K. Nagasawa, W. Geffer and H. Hatabu.
Department of Radiology, Kobe City, Japan; Harvard University, Boston, MA, USA; Fukui Medical School-Radiology, Fukui, Japan; University of Pennsylvania Medical Center, Philadelphia, PA, USA and GE Yokagawa Medical System, Tokyo, Japan.
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University of Virginia, Charlottesville, VA, USA.
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University of Virginia, Charlottesville, VA, USA.
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Eduard E. De Lange, Mark H. Stoler, Jonathon D. Truwit, Thomas M. Daniel, David R. Jones, Talissa Altes, Mark R. Conaway, John P. Mugler III and James R. Brookeman.
University of Virginia, Charlottesville, VA, USA.
- 2005. MRI of Lung Parenchyma in Small Rodents in Vivo at 4.7 T: Detection and T2* Determination with a Gradient-Echo Sequence.**
Nicolau Beckmann.
Novartis Pharma, Ltd., Basel, Switzerland;
- 2006. Ventilation-Perfusion Imaging of Human Lung Using Oxygen-Enhanced and Arterial Spin Labeling Techniques.**
Vu M. Mai, Alexander A. Bankier, Robert R. Edelman, Qun Chen
Evanston Hospital, Evanston, IL USA and Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, USA.
- 2007. Flow-sensitive MR imaging of the lung using ECG-gated half-Fourier FSE: subtraction at different phases of pulmonary circulation.**
S. Kawawanami, K. Nakamura, M. Miyazaki, S. Sugiura, Y. Ishino, K. Kumamoto, Y. Matsufuji and H. Nakata
University of Occupational and Environmental Health, Fukuoka Japan.

- 2008. Lung Biomechanics via Non-Rigid Registration of Serial MR Images**
H. Hatabu, Y. Ohno, H. Uematsu, M. Nakatsu, H.K. Song, K. Oshio, W. Geftter and J.C. Gee.
University of Pennsylvania, Philadelphia, PA, USA; Department of Radiology; Fukui Medical School-
Radiology, Kobe City, Japan and Harvard University, Boston, MA, USA.
- 2009. Optical flow analysis of chest wall motion**
Tae Iwasawa, Seiichirou Kagei, Toshiyuki Gotoh, Yasuhiro Yoshiike, YewKurabayashi, Hiroaki Kurihara,
Kimihiro Saito.
Yokohama National University, Yokohama, Kanagawa Japan
- 2010. Mapping Regional Pulmonary Expansion in Patients with Sarcoidosis Using Tagging MRI**
Vitaly Napadow, Phillip Boiselle, Vu Mai, Richard Gilbert, Robert Edelman, Qun Chen
Massachusetts Institute of Technology, Cambridge, Massachusetts USA; Beth Israel Deaconess Medical
Center, Boston, MA USA and Northwestern University, Evanston, IL USA.
- 2011. Resolution Enhancement in Lung 1H Imaging Using A Partially Parallel Acquisition Strategy**
P. Jakob, M. Griswold, R. Heidemann, J. Ming, M. Nittka, B. Kiefer and A. Haase.
Universitüt Würzburg, Würzburg, Germany and Siemens Medical Engineering Group, Erlangen, Germany.

MR Imaging of the Abdomen

- 2012. SENSE in the Abdomen and Pelvis.**
D.J Larkman, M. Bydder, N. DeSouza, A.D Williams, F.H Bearden, J.V Hajnal
Imperial College, School of Medicine, London, UK and Marconi Medical Systems, Cleveland, OH, USA.
- 2013. High Definition Whole Body Imaging at 3 Tesla.**
Steve Roberts, Alan Freeman, Philip Murphy, Robert Gauss, Michael Burl.
Marconi Medical Systems UK Ltd., Surrey UK. and Marconi Medical Systems, Highland Heights,
OH, USA.
- 2014. Whole Body Fast Spin Echo Imaging at Three Tesla**
J.K. Mendes, N. DeZanche, D.J. Emery and A. Wilman.
University of Alberta, Edmonton, Alberta Canada.
- 2015. Diffusion Weighted MR Imaging of the Abdomen with Pulse Triggered Single Shot Sequences.**
P. Mürtz, D. Pauleit, S. Flacke, F. Träber, J.S. vanden Brink, J. Gieseke, H.H. Schild
University of Bonn, Bonn, Germany and Philips Medical Systems, Best, The Netherlands.
- 2016. A T2-weighted radial MRI method for imaging the abdomen.**
M.I. Altbach, R.J. Theilmann, M. Kono, T.P. Trouard, E.K. Outwater, A.F. Gmitro
University of Arizona, Tucson, AZ, USA; University of Arizona, Tucson, AZ and Biomedical Engineering
Program, Tucson, AZ.
- 2017. Breath-hold T2-weighted imaging of hepatic lesions by using fast recovery fast spin-echo sequence**
Tonsok Kim, Takamichi Murakami, Satoru Takahashi, Masatoshi Hori, Horonobu Nakamura, Manabu
Takamura.
Osaka University Medical School, Suita-City, Osaka Japan.
- 2018. Small Hepatic Lesions in Patients Having Malignancy: Diagnostic Capability of FLAIR-HASTE
MR Imaging**
Masayasu Yasui, Katsuyoshi Ito, Shinji Koike, Nobuhiko Ogasawara, Keiko Kishimoto
and Naofumi Matsunaga.
Yamaguchi University School of Medicine, Yamaguchi Japan.

- 2019. Fatty Liver Quantification with Line Scan Echo Planar Spectroscopic Imaging (LSEPSI)**
Hiroshi Shinmoto, Koichi Oshio, Robert Mulkern, Yuji Yuasa, Akihiro Tanimoto, Masahiro Jinzaki, Shigeo Okuda, Sachio Kuribayashi
Keio University, Tokyo, Japan and Harvard University, Boston, MA.
- 2020. Differentiation between Hepatic Cyst and Hemangioma: The Value of Breath-hold, Multisection Fluid-attenuated Inversion-Recovery (FLAIR) Imaging using HASTE Sequence**
Katsuyoshi Ito, Hajime Okazaki, Shinji Koike, Ayame Shimizu, Keiko Kishimoto, Masayasu Yasui, Nobuhiko Ogasawara, Kazuyoshi Suga, Naofumi Matsunaga
Yamaguchi University School of Medicine, Yamaguchi Japan.
- 2021. T2-Weighted MRI of the Liver: Comparison of Fast Recovery Fast Spin Echo and Single Shot Fast Spin Echo Sequences**
Maricela Contreras, Gregory T. Sica, Kelly H. Zou, Robert V. Mulkern, Clare M. Tempany
Brigham and Women's Hospital, Boston, MA USA.
- 2022. Characterization of Hepatic Tumors Containing Fat: MR Imaging Findings with Pathologic Correlation.**
Huiyi Ye
Beijing, P.R. China.
- 2023. Comparison of Inversion Recovery Gradient-and Spin-Echo(IR-GraSE) and Turbo-Spin-Echo (TSE) Techniques in the Diagnosis of Hepatic Focal Lesions at 1.5T**
Kyu-Tong Yoh, Ji-Kon Ryu, Kwang-Hyun Ryu, Woo-Hyun Ahn
Pundang Jesaeng General Hospital, Kyonggi-do Korea.
- 2024. Hepatic kinetics of MRI contrast agents in the isolated perfused rat liver**
Catherine Pastor, Jean-Paul Vallée, Joachim Mayer, Sibylle Pochon, Corinne Planchamp, François Terrier
Geneva University Hospital, Geneva, Switzerland and Université de Lausanne, Lausanne, Switzerland.
- 2025. Hypervascular hepatic lesions: dynamic and late enhancement pattern with Gd-BOPTA**
Giovanni Morana, Luigi Grazioli, Gunther Schneider, Marco Testoni, Menni Katuscia, Miles Kirchin, Antonio Chiesa and Carlo Procacci.
University of Verona, Verona, Italy.
- 2026. Detection of hepatocellular carcinoma: Comparison of in-phase and out-of-phase gradient recalled echo dynamic MR imaging using double-echo FLASH sequence during the hepatic arterial phase**
Tomohiro Namimoto, Yasuyuki Yamashita, Akihiko Arakawa, Naoko Tsunoda, Kazuhiro Yoshizumi, Yukinori Koga and Mutsumasa Takahashi.
Kumamoto National Hospital, Kumamoto, Japan.
- 2027. MR Imaging Follow-Up of Hepatic Tumors after Radiofrequency Ablation**
Jeong-Min Lee, Chong-Soo Kim.
Chonbuk National University Hospital, Chonju, South Korea.
- 2028. Cirrhosis: A Modified Caudate-to-Right-Lobe Ratio**
Hitomi Awaya, Donald G Mitchell, Tamotsu Kamishima, George Holland, Katsuyoshi Ito.
Thomas Jefferson University Hospital, Philadelphia, PA USA and Yamaguchi University School of Medicine, Yamaguchi Japan.
- 2029. Small Early Enhancing Hepatic Lesions in Patients with Cirrhosis: Evaluation with Serial Contrast-enhanced Dynamic MR Imaging.**
Ayame Shimizu, Katsuyoshi Ito, Shinji Koike, Keiko Kishimoto, Naofumi Matsunaga.
Yamaguchi University School of Medicine, Yamaguchi Japan.

- 2030. Evaluation of Gastro-Esophageal Varices after Endoscopic Sclerotherapy with MR angiography**
Satoru Kitano, Shinji Hirohashi, Kouji UEDA, Nagaaki Marugami 4 , hideo uchida 5 , hajime ohishi.
Nara Medical University, Nara Japan.
- 2031. Automatic Classification of Texture Analysis and 31P MRS Parameters of Cirrhotic Liver**
Daniel Jirak, Monika Dezortova, Pavel Taimr, Milan Hájek
Institute for Clinical and Experimental Medicine, Prague, Czech Republic.
- 2032. Comparison between MnDPDP-Enhanced MR Imaging of the liver and histological assessment after surgical excision due to chronic liver failure and/or hepatocellular carcinoma. Preliminary results.**
Emanuele Casciani
Rome Univeristy, Rome, Italy.
- 2033. Usefulness of T1-weighted Imaging with Different TR/TE in Differentiating Hemangioma from Metastasis in Non-cirrhotic Liver after Administration of Super-Paramagnetic Iron Oxide (SPIO)**
Tomoaki Ichikawa, Ali S Arbab, Hironobu Sou, Hiroto Nakajima, Takatoshi Kitamura, Tsutomu Araki
Yamanashi Medical University, Yamanashi Japan.
- 2034. Investigation of in vivo contrast mechanism of superparamagnetic iron oxide (SPIO) particles**
Akihiro Tanimoto, Yuji Yuasa, Hiroshi Shinmoto, Tadayoshi Kurata, Tomohiro Yamashita, Shigeo Okuda, Masahiro Jinzaki, Yutaka IMAI, Sachio Kuribayashi
Keio University School of Medicine, Tokyo, Japan.
- 2035. MnDPDP-enhanced MRI versus spiral CT in the detection of hepatic colorectal metastases**
Riccardo Antonio Lencioni, Francescamaria Donati, Mario Cammisa, Carlo Catalano, Antonio Chiesa, Giorgio Cittadini, Ernesto Di Cesare, Francesco Fiore, Giovanni Gandini, Andrea Giovagnoni, Luigi Grazioli, Riccardo Manfredi, Pasquale Marano, Carlo Masciocchi, Gianni Morana, Roberto Passariello, Carlo Procacci, Mario Ziviello, Carlo Bartolozzi.
University of Rome La Sapienza, Pisa, Italy;
- 2036. Safety and efficacy of a bolus administration of MnDPDP in MR liver studies.**
Luis Martí-Bonmatí, Asunción Torregrosa, Alberto Miguel, Enrique Mollá, Rosa Dosdá, Estanislao Arana
Hospital Universitario Peset y Clinica Quirón, Valencia, Spain.
- 2037. Biliary Motor Function in Gallstone Patients Evaluated by Fatty-Meal MR Cholangiography.**
Yusuke Inoue, Kohki Yoshikawa, Naoki Yoshioka, Kuni Ohtomo.
University of Tokyo, Tokyo, Japan.
- 2038. Assessment of the Effectiveness of MRCP in Predicting the Presence or Absence of CBD Stones in Patients with Biliary Symptom.**
Nobuhito Katayama, Mitsunori Ikeda, Yoshihiko Tsukune, Yusuke Inoue
University Hospital, Kanagawa, Japan and Institute of Medical Science, University of Tokyo, Tokyo, Japan
- 2039. MR Cholangiography in the evaluation of pediatric sclerosing cholangitis.**
Calogero Ferrara, Gianluca Valeri, Luca Salvolini, Giorgio Marchetti, Enrico De Nigris and Andrea Giovagnoni.
University of Ancona, Ancona, Italy and University of Modena, Modena, Italy.

- 2040. Evaluation of Pancreatic Exocrine Function with Secretin-stimulated Diffusion-weighted MR Imaging with A Single-shot Spin-echo Echoplanar Sequence.**
Hiroki Haradome, Tomoaki I. Chikawa, Hironobu Sou, Hiroto Nakajima, Tsutomu Araki, Junichi Hachiya and Taro Takahara.
Yamanashi Medical University, Yamanashi, Japan and Kyorin University, Toyko, Japan.
- 2041. Intraductal Papillary-Mucinous Tumor of the Pancreas on MR Cholangiopancreatography: ERCP Comparison and Histologic Correlation.**
Moon-Gyu Lee, Hee Ja Yoon, Ah Young Kim, Sung Ku Lee, Kyung Hoon Kang, Eun Mee Kang, Sung Gyu Lee, Hyun Kwon Ha and Pyo Nyun Kim
University of Ulsan—Seoul, Republic of Korea and Seoul National University Hospital, Seoul, Republic of Korea.
- 2042. Simultaneous Acquisition of an In-Phase and Out-Phase (SINOP) Sequence with Automatic Subtraction for Fatty Infiltration of the Pancreas**
Shinji Koike, Katsuyoshi Ito, masayasu Yasui, ayame Shimizu, Nobuhiko Ogasawara, Keiko Kishimoto, munemasa Okada, kazuyoshi Suga, naofumi Matsunaga
Yamaguchi University School of Medicine, Yamaguchi Japan.
- 2043. MR endoscopy: Results in Applying to the Upper Gastrointestinal and the Pancreatobiliary Tracts.**
Tomoaki Ichikawa, Fumiaki Kitahara, Tsutomu Araki, Atsushi Nanbu, Masaaki Hori, Hiroshi Kumagai, Shigeki Aoki and Masayuki Fujino
Yamanashi Medical University, Tokyo University.
- 2044. MRI and fluoroscopy of the stomach and duodenum with CO₂ as contrast medium**
David J. Lomas, Rohit Sood, Clare Sims, Malek Makki, Martin J. Graves
University of Cambridge, Cambridge, England, UK;
- 2045. Interstitial MR Lymphography(Comparison of MR Imaging with Gadofluorine 8 and Gd-DTPA in Metastatic Lymph Node)**
Morio Shimada, Sanshin Hayashi, K. Yoshikawa, J. H. Weinmann, Tomoaki Miyazawa, T. Suganuma, Y. Inoue, T. Kogure, A. Senoo and K. Ito
Toho University School of Medicine, Tokyo, Japan.
- 2046. Splanchnic Aneurysm and MR Angiography**
Frank Pilleul, Olivier Beuf, jodie forest, agnes coulou.
Place Arsonval, Lyon, France and University of California, San Francisco, San Francisco, CA, USA
- 2047. Echo-Planar Imaging of Gaviscon Alginate Rafts in Vivo.**
Luca Marciani, Paul Young, Damian J.Tyler, Nick S.Coleman, Janice Snee, John Sykes, Sarah L. Little, Ian G. Jolliffe, Peter W. Dettmar, Robin C. Spiller, Penny A. Gowland
University of Nottingham, Nottingham, U.K.
- 2048. 31 P NMR evaluation of hepatic ATP level variations following over-expression of NTPDase1/CD39**
Chun ZUO, Masato Imai, Olaf Guckelberge, Elzbieta Kaczmarek, Eva Csizmadia, Simon Robson
Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, USA.
- 2049. Local Staging of Rectal Cancers with Endorectal MRI**
Oguz Akin, Ahmet Muhtesem Agildere, Gurel Nessar, Gulden Aydog, Nefise Cagla Tarhan, Aydin Kurt
Baskent University School of Medicine, Ankara, Turkey;

- 2050. MR Imaging and Dynamic MRCP after Secretin Administration in the Assessment of Intraductal Papillary Mucinous Pancreatic Tumors**
Riccardo Manfredi, Maria Gabriella Brizi Gabriele Masselli, Massimiliano Mutignani, Guido Costamagna, Amorino Vecchioli, Pasquale Marano Rome, Italy
- 2051. Abdominal and Pelvic MR Imaging with a VIBE (Volumetric Interpolated Breath-hold Examination) Sequence: Pictorial Review**
Naoki Takahashi, Vamsidhar Narra, Vikram Patel, Mehdi Poustchi-Amin, Jeffrey J. Brown
Mallinckrodt Institute of Radiology, Washington University, St Louis, MO, USA.
- 2052. The Effects of ESWL on Young Rabbit Kidney; Comparisons with spiral CT, power Doppler US and MRI**
Eun-Suk CHA, Kyung-Sub Shinn
St. Vincent's Hospital, Kyunggi-do South Korea;
Catholic University Medical College, Seoul, S. Korea.
- 2053. Investigating the pattern of lung injury in neonatal chronic lung disease using MRI**
Eleri W. Adams, Serena J Counsell, Nigel L Kennea, Joseph V Hajnal, Joanna M Allsop, Philip N Amess, Anna S Thornton, Gavin Hamilton, A David Edwards
Imperial College School of Medicine, Hammersmith Hospital, London, England, UK and Queen Mary's University Hospital, London, England, UK.

Genitourinary and Renal MR Imaging

- 2054. Quantitative Blood Oxygenation in the Kidney.**
Michael Pedersen, Jan Mørkenborg, Thomas H. Dissing, Jørgen Frøkiær.
Aarhus University Hospital, Aarhus University.
- 2055. Perfusion Imaging of the Rabbit Kidney in evaluating Hyperacute Cyclosporine Nephrotoxicity.**
Eun-Jung Lee, Hyun Kim, Kyung-Sub Shinn, Bo-Young Choe.
Catholic University of Korea, Seoul, Korea.
- 2056. Measurement of the renal perfusion by means of 2-compartment Patlak analysis from dynamic magnetic resonance imaging.**
Yasuyuki Yamashita, Tomohiro Namimoto, Seiji Tomiguchi, Naoko Tsunoda, Kazuhiro Yoshizumi, Yukinori Koga, Mutsumasa Takahashi.
Kumamoto University, School of Medicine, Kumamoto Japan.
- 2057. Magnetic Resonance Urography in Potential Living Related Renal Donors: Prospective Comparison of Breathhold RARE and Low Dose Gadolinium-Enhanced 3D Techniques Without Pharmacologic Intervention.**
Sabah D. Butty, Klaus D. Hagspiel, J. FritzAngle, Daniel A. Leung, Alan H. Matsumoto, David J. Spinosa, Hilary A. Sanfey, Robert G. Sawyer, Christopher McCullough, Timothy L. Pruett.
University of Virginia, Charlottesville, VA USA.
- 2058. Dynamic Three-Dimensional (3D) MR Renography: Preliminary Feasibility Studies**
Vivian S. Lee, Henry Rusinek, Peter Lee, Glyn Johnson, Joseph C. Veniero, Gerhard Laub, Glenn A. Krinsky, Jeffrey C. Weinreb.
New York University Medical Center, New York, NY USA; Albert Einstein School of Medicine, Bronx, NY, USA and Siemens Medical Systems, Chicago, IL, USA.

- 2059. Analysis of Dynamic Three-Dimensional (3D) MR Renography: Regional Characterization by Multicompartmental Modeling**
Vivian S. Lee, Henry Rusinek, Sobin Kim, Edward Leonard, Peter Lee, Glyn Johnson
New York University Medical Center and Columbia University, New York, NY, USA and Albert Einstein School of Medicine, Bronx, NY, USA.
- 2060. Dual phase Chemical shift imaging for histological diagnosis of renal cell carcinoma: Evaluation by subtraction chemical shift mapping**
Makoto Amanuma, Junji Tanaka, Kyoko Enomoto, Tsuneya Watabe, Atsuko Heshiki.
Saitama Medical School, Iruma, Japan;
- 2061. Kidney perfusion measurements with the FAIR method: A clinical feasibility study**
Norbert Karger, Christopher Ahlers, Carsten Liess, C. Muhle, Martin Heller, Claus C Glueer.
Klinik fuer Diagnostische Radiologie, CAU Kiel, Kiel, Germany.
- 2062. Comprehensive MR Evaluation of Renal Donors: Accuracy and Cost Comparison with Conventional Imaging**
Pranav P. Patel, Susanne Shamsolkottabi, Melody A. Denson, Stephen C. Rayhill, You Min Wu and Alan H. Stolpen
University of Iowa Hospitals & Clinics, Iowa City, IA, USA
- 2063. Assessment of Renal Structural and Functional Abnormalities After Acute Renal Vein Occlusion in Dogs with Contrast-Enhanced Dynamic Echo-Planar MRI**
K. Suga, N. Ogasawara, N. Matsunaga.
Yamaguchi University School of Medicine, Ube, Japan.
- 2064. Dynamic, fat-suppressed, contrast-enhanced imaging of renal cell carcinoma using Shared Prepulses (sharp).**
Richard McCarthy, Frank Miller, Scott Pereles, Orlando Simonetti, Gerhard Laub and Paul Finn
Northwestern University Medical School, Chicago, IL, USA.
- 2065. Kidney MR signal changes induced by breathing Carbogen gas**
Yantian Zhang, Hugh Preas, Christopher Wilcox, Peter Choyke.
National Institutes of Health, Bethesda, MD
- 2066. Wilms' Tumor. The Accuracy of MRI in Detection of the Preoperative Chemotherapy Efficiency and MRI -Histopathological Comparison**
Victor Josef Dombrovsky, Ellen Vladimirovna Polevichenko, Anna Vitalievna Shepeleva
Rostov State Medical University, Rostov Russia;
- 2067. Assessment of Regional Renal Tubular Dysfunction with Gadolinium-Enhanced Dynamic Echo-Planar Imaging: Experimental Study.**
Nobuhiko Ogasawara, Kazuyoshi Suga, Katsuyoshi Ito, Shinji Koike and Naofumi Matsunaga.
Yamaguchi University, Ube, Japan.

Genitourinary and Pelvic MR Imaging
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- 2068. Determination of High-Risk Regions for Recurrence of Cervical Carcinoma after Wertheim-Meigs Surgery in a 3D-MRI and CT Based Coordinate System**
Claus Peter Heussel, Gero Teichmann, Helle Dammann, Manfred Thelen, Michael Hoeckel, Hans-Ulrich Kauczor.
University Leipzig, Leipzig, Germany and Johannes Gutenberg-University, Mainz, Germany.

- 2069. Assessment of of Early Stage Endometrial Carcinoma using T2- Weighted and Gd-enhanced T1-Weighted MR Imaging**
Eun-Jung Lee, Jae-Young Byun, Bum-Soo Kim, Sung-Eun Nam Koong, Bo-Young Choe, Tae-Suk Suh, Hyoung-Koo Lee, Kyung-Sub Shinn.
University of Korea, Seoul, Korea.
- 2070. The Role of MRI in the Assessment and Follow-Up of Patients Undergoing Uterine Fibroid Embolisation.**
Allan Wreid FRCR, Michael W Sproule FRCR, Giles H Roditi FRCR.
Glasgow Royal Infirmary, Glasgow, Scotland, UK.
- 2071. Uterine Peristalsis on ultrafast MR imaging**
Asako Nakai, Kaori Togashi, Hisataka Kobayashi, Akira Hiraga, Koji Koizumi, Hiroyuki Ueda, Toshihide Yamaoka, Masako Kataoka, Junji Konishi.
Kyoto University, Kyoto, Japan.
- 2072. Myometrial contractility using SENSE imaging**
Andreanna D Williams, David J Larkman, JanJBrosens, Mark Bydder, Joseph V Hajnal, Nandita deSouza
Imperial College, School of Medicine, London, UK.
- 2073. Uterine artery embolization for symptomatic fibroids and adenomyosis: assessment by MRI.**
Reena Chetna Jha, Junko Takahama, Susan Ascher, Izumi Imaoka, James B Spies.
Georgetown University, Georgetown University Hospital, Washington, DC and Shimane Medical University, Tenri, Japan.
- 2074. Uterine pseudolesions related to contraction: characterization with multiphase-multislice T2-weighted MRI.**
Takayuki Masui, Motoyuki Katayama, Shigeru Kobayashi, Tatsuhiko Ito, Satoru Nakayama, Harumi Sakahara, Atsushi Nozaki, Hiroyuki Kabasawa
Hamamatsu University School of Medicine, Hamamatsu, Japan and GE Yokogawa Medical, Hino, Japan.
- 2075. IMRI Guided Cryoablation of Uterine Leiomyoma.**
Patrick Ellison Sewell JR., Bryan D. Cowan
University of Mississippi Medical Center, Jackson, MS, USA.
- 2076. Quantification of Short Term Prostatic Motion due to Bladder Filling.**
Peter Gibbs, Pedro A Kassinda, Andy W Beavis, Lindsay W. Turnbull.
Hull Royal Infirmary, Hull, England, UK.
- 2077. Differentiation of Prostatic Cancer from Benign Prostatic Lesions Using Dual Echo Dynamic Contrast MRI.**
Satoshi Muramoto, Hirohiko Kimura, Hidemasa Uematsu, Yoshiyuki Ishimori, Yasutaka Kawamura, Tsuyoshi Matsuda, Norihiro Sadato, Yoshiharu Yonekura, Harumi ITO
Fukui Medical University, Fukui, Japan.
- 2078. Role of Diffusion-weighted MRI in the Examination of Prostatic Carcinoma and Benign Prostatic Hyperplasia.**
Munetaka Matoba, Hisao Tonami, Hajime Yokota, Masaaki Kuginuki, Itaru Yamamoto
Kanazawa Medical University, Ishikawa Japan.
- 2079. Textural Analysis of the Prostate using Co-occurrence matrices.**
Adrian Knowles, Oscar Brihuega-Moreno, Peter Gibbs, Lindsay W. Turnbull.
Philips Medical Systems, Best, The Netherlands and Hull Royal Infirmary, Hull, East Yorkshire UK.

- 2080. The effect of maternal posture on pelvic outlet MR measurements.**
Sven Claude André Michel, Borut Marincek, Annett Rake, Karl Treiber, Rabih Chaoui, Burkhardt Seifert, Rahel Kubik-Huch
University Hospital, Zurich, Switzerland.
- 2081. Fetal MR Imaging with a Half-Fourier Rapid Acquisition with Relaxation Enhancement Sequence: The Value of 2D Single-Slice Hydrography and Cine-Display.**
kazuyuki Ohgi, Makiko Toyoda, Hiroyuki Yokote, Takashi Furukawa, Hiromi Akiyama, Shouichirou Kimura, Kouichirou Murata, Katsuhito Gotoh and Shuhei Takemoto.
Japanese Red-Cross Medical Center, Tokyo, Japan; Kasukabe-Shuwa Hospital, Saitama Japan; Kitazato-Institute Hospital, Tokyo Japan and Toshiba Medical Incorp., Tokyo Japan;
- 2082. Antepartum Evaluation of Suspected Placenta Accreta: Is there a role for MRI?**
Alan H. Stolpen, Monzer Abu-Yousef and Wendy F. Hansen.
University of Iowa Hospitals & Clinics, Iowa City, IA USA.
- 2083. Magnetic Resonance Imaging in Comparison with Ultrasound in Patients with Suspected Acute Diverticulitis: Initial Results of a Prospective Study**
Johannes Heverhagen, Andreas Zielke, Natascha Ishaque, Thomas Bohrer, Klaus J Klose.
University Hospital Marburg, Marburg, Germany and Philipps University, Marburg, Germany.
- 2084. In vivo and ex vivo MRI of rat testis: A comparison with some conventional measurements.**
David G. Reid, K. Kumar Changani, Albert L. Busza, Paul D. Hockings, Nadeem Saeed, Colin Fish, Robert W. Greenhill, Alan White and David Templeton.
SmithKline Beecham Pharmaceuticals, The Frythe, Welwyn, UK.
- 2085. MR imaging spectrum of clear cell carcinoma of the ovary**
Yui Kumatoriya, Shinji Hirohashi, Megumi Takewa, Sachiko Miura, Shoko Hara, Takahiro Ito, Satoru Kitano, Takehiro Tanaka, Akio Fukusumi, Hajime Ohishi and Hideo Uchida
Nara Medical University, Koryo, Japan;
- 2086. Gonadal Veins: MR Imaging findings in an unselected population.**
Alessandra Bettega Nascimento, Donald Mitchell, George Holland.
Thomas Jefferson University, Penn Valley, PA, USA.

Musculoskeletal MRI: Arthritis

- 2087. Meniscal Displacement of the Knee Between Extension and Flexion states of the Weight-bearing Knee: Evaluation with Open MRI.**
Jin-Suck Suh, Sang-Hoon Lee, Gabrielle Bergman, Garry E. Gold and Kim Butts.
Stanford University, School of Medicine, Stanford, CA USA.
- 2088. MR Evaluation of Meniscal Allografts**
Randall M Mapes, Stephen Hushek, Albert Seow, Robert Moser, Neil Hoerter, Sue Barber-Westin 5, Frank R Noyes.
Cincinnati Sportsmedicine Research and Education Foundation, Cincinnati, OH USA and University of Louisville, School of Medicine, Louisville, KY USA.
- 2089. Magnetic Resonance Microimaging of Murine Arthritis**
Bernard Dardzinski, Vincent J. Schmithorst, Scott K. Holland, Gregory P. Boivin, Tomoyuki Imagawa, Shohei Wantanabe, Raphael Hirsch, Jerome M. Lewis.
University of Cincinnati College of Medicine, Cincinnati, OH USA and Advanced Magnetix, Inc., Cambridge, MA, USA.

- 2090. MR microscopy of articular cartilage using a 1.0 T permanent magnet portable MR system**
Hiroshi Yoshioka, Tomoyuki Haishi, Takaaki Uematsu, Yoshimasa Matsuda, Yuji Itai, Katsumi Kose.
University of Tsukuba, Tsukuba, Japan.
- 2091. In Vivo Contrast-Enhanced Micro MRI of Experimental Osteoarthritis in the Rabbit Knee Joint**
Lydia Wachsmuth, Hans-Paul Juretschke, Ruth Raiss, Rolf Keiffer, Nicole Kimmel, Elmar Lindhorst.
Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany;
Universitätsklinik Frankfurt Germany.
- 2092. Fast, High Resolution, High Contrast Magnetic Resonance Imaging of Articular Cartilage with 3D Fast Spin Echo Spirals**
L. Frank, E. Wong, C. Chung and D. L. Resnick.
University of California, San Diego, CA, USA and University of San Diego, San Diego, CA, USA.
- 2093. Three Dimensional Driven Equilibrium Imaging of the Knee: Initial Clinical Experience**
Garry E. Gold, Brian A. Hargreaves, Christopher F. Beaulieu, Dwight G. Nishimura
Stanford University, Stanford, CA USA.
- 2094. Potential use of T2 as a measure of articular cartilage degeneration and Osteoarthritis**
Srinka Ghosh, Vikas Patel, Lydia Kirstin Wachsmuth, Michael Ries, Sharmila Majumdar
Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany;
- 2095. Assessment of Articular Cartilage Composition by T2, Diffusion and Magnetization Transfer Measurements at 1.5 T**
Lydia Wachsmuth, Lubos Budinsky, Srinka Ghosh, Denis Grenier, Sharmila Majumdar
University of Erlangen, Institute for Medical Physics, Erlangen, Germany and University of California, San Francisco, Magnetic Resonance Science Center, San Francisco, USA.
- 2096. Intermodality Registration of Articular Cartilage and Underlying Bone in the Knee**
Kevan Saidi, David Wholdsworth, Terry M. Peters, Hua Qian, Ravi S. Menon, Lisa M.F. Thain, Alison R Spouge, Alexandra Kirkley.
The John P. Robarts Research Institute, London, ON Canada and University of Western Ontario, London, ON Canada;
- 2097. Reproducibility of in vivo Cartilage T2 Profiles: Implication for Longitudinal Studies**
Timothy J. Mosher, Harvey Smith, Christopher Collins, Bernard Dardzinski, Vincent Schmithorst and Michael B. Smith.
Pennsylvania State University, Hershey, PA, USA.
- 2098. Reproducibility of Knee Cartilage Volume Measurements in Arthritis Patients.**
Stephen J. Gandy, Paul A Dieppe, Iain Watt, Alan D Brett, Michael C Keen, Rose Amaciewicz 5 , Christopher J Taylor, John C Waterton.
University of Bristol, Bristol, UK; and University of Manchester, Manchester, UK and AstraZeneca, Alderley Park, Macclesfield, UK;
- 2099. Measurements of Diurnal Variations in Joint Stiffness in Rheumatoid Arthritis.**
Richard Stephen Nicholas, Nigel Davies, Michael Shields, Richard Jacoby, William Vennart.
Addenbrooke's Hospital, Cambridge, United Kingdom; University of Exeter, United Kingdom; Searle Pharmaceuticals, High Wycombe, UK and Pfizer Central Research, Sandwich, England, UK.
- 2100. Navigator Echo Based Motion Corrected Diffusion Imaging of Articular Cartilage In Vivo at 1.5 T.**
Lubos Budinsky, Lydia Wachsmuth, Srinka Ghosh, David Newitt, Sharmila Majumdar
University of California, San Francisco, San Francisco, USA and University of Erlangen, Institute for Medical Physics, Erlangen, Germany.

- 2101. Orientation of Collagenous Network in Articular Cartilage.**
U. Reibetanz, G. Hanke, T. Reinert, T. Butz, W. Gründer.
University of Leipzig, Leipzig, Germany.
- 2102. The Role of Relaxation Times for Evaluation of Osteoarthritic Change and Weight Bearing Effect in Hip Articular Cartilage.**
Takashi Nishii, Atsuomi Kimura, Nobuhiko Sugano, Hideaki Fujiwara, Hideki Yoshikawa
Department of Orthopaedic Surgery, Osaka University Medical School, Osaka Japan and Osaka University, Osaka Japan.
- 2103. A Novel MRI Method for Assessing the Integrity of Articular Cartilage**
U. Duvvuri, S. Kudchodkar, J.S. Leigh and R. Reddy.
University of Pennsylvania, Philadelphia, PA, USA.
- 2104. Quantifying Sodium in the Human Wrist In Vivo using MRI.**
Arijitt Borthakur, Erik M. Shapiro, S.V.S. Akella, R.R. Regatte, J. Bruce Kneeland, H. Ralph Schumacher, Ravinder Reddy
University of Pennsylvania, Philadelphia, PA, USA.
- 2105. Characterisation By MRI of Spontaneous Osteoarthritis Progression in the Guinea Pig**
Jean Tessier, Jonathan Bowyer, Nicola Brownrigg, David Checkley, Rose A Maciewicz and John Waterton.
AstraZeneca Mereside, Cheshire, England, UK.
- 2106. The Effect Detachment from the Bone and Pressure on the Order of the Collagen Fibers in Cartilage**
Keren Keinan Adamsky, Hadassah Shinar, Gil Navon
Tel Aviv University, School of Chemistry, Tel Aviv, Israel.
- 2107. Determination of stress distribution in articular cartilage by means of intensity shifts under load**
G. Hanke, U. Reibetanz and W. Gründer.
University of Leipzig, Leipzig, Germany.
- 2108. Mapping Proteoglycan Changes of Articular Cartilage by T1 ρ Imaging at 4T**
Sarma V.S. Akella, Ravinder Regatte, Arijitt Borthakur, Erik Shapiro, Umamaheswar Duvvuri, J. Bruce Kneeland, John Leigh and Ravinder Reddy.
University of Pennsylvania, Philadelphia, PA, USA
- 2109. A Proton NMR Study of the Molecular Motion of Human Normal and Psoriatic Stratum Corneum**
C. Laule, C.L. Dhia, I. Vavasour, A. Mackay and C.N. Kitson.
University of British Columbia, Vancouver, British Columbia, Canada.

Musculoskeletal MRI: Muscle

- 2110. Comparison of Perfusion Measurement Using Contrast Enhanced MRI with Microsphere Blood Flow Measurement in Rat Hindlimb Muscle**
Yanping Luo, Jerry L. Wessale, Vincent P. Hradil, Jason A. Segreti, Kurt M. Mohning, Merrill E. Nuss, Sandra E. Burke and Bryan F. Cox.
Abbott Laboratories, Abbott Park, IL, USA.

- 2111. Strain Measurements in Human Triceps Surae Muscles-Tendon Complex (TSMC) In-Vivo during Isometric Contraction.**
Shantanu Sinha, Alexander Lai, John Hodgson, Reggie V Edgerton
University of California, Los Angeles, Los Angeles, CA USA;
- 2112. High-resolution MRI to assess skeletal muscle damage after controlled compressive loading**
E.M.H. (Marielle) Bosboom, Carlijn V.C. Bouten, Cees W.J. Oomens, Frank P.T. Baaijens, Klaas Nicolay
Eindhoven University of Technology, Eindhoven, The Netherlands and Utrecht University, Utrecht, The Netherlands;
- 2113. Quantitative Analysis of T1 Weighted MRI of Skeletal Muscle in Autosomal Recessive Limb Girdle Muscular Dystrophy**
Matthew L. Bell, Bharat Biswal, John Ulmer
Medical College of Wisconsin, Milwaukee, WI USA.
- 2114. Early Myositis Ossificans in Spinal Cord Injury**
James L Fleckenstein, Lisa-Ann Wuermsler, Seckin O. Ulualp, Kathy L Norman.
University of Texas Southwestern Medical Center at Dallas, Dallas, TX USA
- 2115. MR Signal Characteristics Of Heterotopic Ossification: Emphasis On Location In Anatomic Bursae**
Hans Peter Ledermann, Mark Schweitzer, William Morrison
Thomas Jefferson University, Philadelphia, PA, USA.

Muculoskeletal MRI: Bone

- 2116. Maximal Entropy as a Predictor of Trabecular Bone Strength from High-Resolution MR Images.**
Laurent Pothuaud, David C. Newitt, Pierre Levitz, Sharmila Majumdar
University of California, San Francisco, San Francisco, CA, USA and Centre de Recherche sur la Matiere Divisee, Orleans, France;
- 2117. Diffusion-weighted MRI and ADC measurement of tumoral bone marrow.**
Antoine Feydy, Jean-Luc Drape, Christophe Argaud, Thierry Diche, Geraldine Revelon, Joël Costes and Alain Chevrot
Service de Radiologie, Hôpital Beaujon, Clichy, France and G. E. Medical Systems, BUC, France;
- 2118. Diffusion of Exchangeable Water in Bone**
M. Fernandez-Seara, S.L. Wehrli and F. Wehrli.
University of Pennsylvania, Philadelphia, PA, USA.
- 2119. Reproducibility of μ -MRI-based Trabecular Bone Structure Measurement in the Distal Radius and Distal Tibia**
F. Wehrli, R.H. Weening, B. Gomberg, S.N. Hwang, H.K. Song and A.C. Wright.
University of Pennsylvania, Philadelphia, PA, USA.
- 2120. Bone Assessment of Men by 1.5T Magnetic Resonance Imaging.**
Jo-Chi Jao, Po-Chou Chen, Yeu-Sheng Tyan, Sin-Kao Chai, Ming-Ming Wu
Kaohsiung Medical University, Kaohsiung, Taiwan Republic of China;
I-Shou University, Kaoshiung, Taiwan ROC; Taichung, Taiwan ROC.
- 2121. Use of 1H MRS of vertebra in vivo in determining bone weakening.**
Chin-Shouo LIN, Hatice Hatipoglu, Dieter Schellinger
Georgetown University, Medical School, Rockville, MD USA;

- 2122. Evaluation of trabecular bone quality in vivo by means of Multiple Spin Echoes Imaging at 1.5 T**
Silvia Capuani, Gisela Hagberg, Fabrizio Fasano, Alessandro Castriota-Scanderbeg, Bruno Maraviglia, Jerome N. Sanes
University La Sapienza, Rome, Italy; Italy; IRCCS, Rome, Italy; Laboratory of Functional Neuroimaging, Rome, Italy; Brown University, Providence, RI, USA.
- 2123. Influence of zero-filling for trabecular structure assessment using high-resolution MRI in lumbar vertebrae.**
Olivier Beuf, Lis Mosekilde, Sharmila Majumdar
Université Claude Bernard Lyon, France; University of Aarhus, Aarhus, Denmark and University of California, San Francisco, San Francisco, CA, USA.
- 2124. The Effects of Corticosteroid on Trabecular Bone Architecture, Growth Plate and Bone Marrow Are Only Partially Reversible: An MRI/MRS in the Rabbit**
M. Takahashi, F. Wehrli, L. Hilaire and B. Zemel.
University of Pennsylvania Medical Center and Children's Hospital of Pennsylvania, Philadelphia, PA, USA.
- 2125. Detection of Subchondral Fractures in Osteonecrosis of the Femoral Head : Comparison of Conventional Radiography, CT and MRI.**
Kathryn Jane Stevens, Caroline TAO, Jan Vandevenne, Shi-uk Lee, Natalie Salem, Calise Cheng, Alexandre Valentin-Opran, Philipp Lang
Stanford University Medical Center, Stanford, CA, USA and Genetics Institute, MA, USA.
- 2126. Endochondral Bone Formation Studied by Proton NMR Microscopy**
Kimberlee Potter, Richard D. Leapman, Peter J. Basser, William J. Landis.
Armed Forces Institute of Pathology, Rockville, MD USA; National Institutes of Health, Bethesda, MD USA and Northeastern Ohio Universities College of Medicine, Rootstown, OH, USA.
- 2127. Relationship between MRI-Derived Bone Volume Fraction and Marrow R2* in the Calcaneus of Patients of Varying Skeletal Status**
L. Hilaire, F. Wehrli, M. Fernandez-Seara, B. Gomberg, P.J. Snyder and B. Zemel.
University of Pennsylvania Medical Center; and Children's Hospital of Philadelphia, Philadelphia, PA, USA.

Musculoskeletal MRI: Clinical

- 2128. Internal Derangement of the Shoulder: Initial Evaluation of the Three Point Dixon Technique**
Sanjaya Viswamitra, William B. Morrison, Mark E. Schweitzer
University of Arkansas for Medical Sciences, Little Rock, AR USA and Thomas Jefferson University Hospital, Philadelphia, PA USA.
- 2129. Diagnostic Axial MRI of Rotator Cuff Injuries**
Kirk Shane Russell, J. Antoni Parellada, John A. Carrino and Mark E. Schweitzer.
Thomas Jefferson University, Philadelphia, PA, USA.
- 2130. MR of Ulnar Variance.**
Kush Singh, Mark E. Schweitzer and Larry Parker.
Thomas Jefferson University, Philadelphia, PA, USA.
- 2131. Real-Time MRI of Joint Movement with TrueFISP**
Harald H. Quick, Mark E. Ladd, Matthias Hövel, Silke Bosk, Jörg F. Debatin, Gerhard Laub and Tobias Schröder.
University Hospital Essen, Essen, Germany and Siemens Medical Systems, Chicago, IL, USA.

- 2132. MR Imaging of the loaded normal and ACL deficient Knee Joint**
S. Totterman, K. Boyd, J. Houck, J. Tamez-Pena, A. Salo, Wingchi E. Kwok and A. Lerner.
University of Rochester, Rochester, NY, USA.
- 2133. Magnetic Resonance Imaging of the Multiple-Ligament Injured Knee**
Marc Weinstein, Hollis Potter
Hospital for Special Surgery, New York, NY USA;
- 2134. Congenital Anomalies in the Hand: Preoperative Evaluation with MR Imaging and MR Angiography**
Kazuhiro Ichioka, Hisao Tonami, Munetaka Matoba, Itaru Yamamoto, Naotaka Ishikura, Shigehiko Kawakami.
Kanazawa Medical University, Ishikawa, Japan.
- 2135. Malignant vs. Benign Soft Tissue Tumors by Decoupled 31P MR Spectroscopy in vivo**
A. Hashimoto, K. Imamura, H. Nakajima, M. Takagi and Y. Nakajima.
St. Marianna University, Kawasaki, Japan.
- 2136. Non-invasive approaches for monitoring the clinical chronobiology and pathology of acute infection diseases by magnetic Resonance**
J. Ruiz-Cabello, I. Rodriguez, R. Perez de Alejo, Santisteban C. and M. Cortijo.
Universidad Complutense de Madrid, Madrid, Spain.
- 2137. Necrotic Tissue In Pedal Infection: Evaluation by MRI And Its Limitations In The Diagnosis of Abscesses and Osteomyelitis**
Hans Ledermann, William Morrison, Mark Schweitzer
Thomas Jefferson University, Philadelphia, PA USA.
- 2138. Assessment and Minimization of Susceptibility Artifacts from Different Surgical Talus Screws**
Rudolf Stollberger, Franz Seibert, Johann Raith, Franz Ebner.
University of Graz, Magnetresonanz (MR), Graz, Austria and University of Graz, Graz.
- 2139. Altered vasodilatory capacity in arterial hypertension and its' dependence on the body mass as detected by BOLD-MRI**
Matthias G Friedrich, Jeanette Schulz-Menger, Thoralf Niendorf, Rainer Dietz.
Franz-Volhard-Klinik, Berlin, Germany and GE Medical Systems, Leipzig, Germany.
- 2140. Effects of Iodinated Contrast and Field Strength on Gadolinium Enhancement: Implications for Direct MR Arthrography**
Douglas D. Montgomery, William B. Morrison, Mark Schweitzer, Dominik Weishaupt 4 ,Lawrence Dougherty.
Thomas Jefferson University Hospital, Philadelphia, PA, USA.

Basic Science Focus Session (with posters): Intraoperative and Miscellaneous Interventional MR Imaging

- 2141. A Versatile Optical Neuronavigator System for Intraoperative MRI**
John Koivukangas, Sanna Kristiina Yrjänä, Jani Katisko, Veijo Ukkola, Juho Tuominen, Timo Kumpulainen, Esa Heikkinen, Eero Ilkko, Eila Sonkajärvi, Jaakko Heikkilä, Mika Ylihautala, Erkki Vahala.
Oulu University Hospital, Oulu, Finland and Marconi Medical Systems Finland, Vantaa, Finland.

- 2142. Functional neuronavigation using an interventional magnetic resonance imaging (iMRI) system.**
Claudia Dannenberg, Harald Busse, Martin Bublat, Arno Schmitgen, Christos Trantakis, Thomas Kahn
University Clinic, Leipzig, Germany and National Research Center for Information Technology, St. Augustin, Germany;
- 2143. Near Real-time MR-guided Stereotactic Procedure Performed at 1.5T.**
Haiying Liu, Walter A. Hall and Charles L. Truwit.
University of Minnesota, Minneapolis, MN, USA.
- 2144. Using Multiple-Slice CSI to Guide Neurosurgeries.**
Haiying Liu, Walter A. Hall, Charles L Truwit
University of Minnesota, Minneapolis, MN, USA.
- 2145. Extent of high-grade glioma resection for interventional MRI-guided surgery vs. frameless neuronavigation-guided surgery.**
Chris Lycette, Gregory J. Rubino, Julie Byrd, Keyvan Farahani, Pablo Villablanca, Barbara Van De Weile.
UCLA, School of Medicine, Division of Neurosurgery, Los Angeles, CA, USA.
- 2146. MR Guided Percutaneous Cryotherapy of the Facet Joint Syndrome - Clinical Results with up to Two Years of Follow Up**
J.F. Roy, W. Vogt, G. Ahlbäumer, P. Montminy, C. Moisan
iMRI unit, Centre hospitalier universitaire de Québec, Québec City, Québec Canada; and
Klinik Gut, Center of Bone and Joint Surgery, St. Moritz, Switzerland;
- 2147. Cryoablation in Brain - In Vivo Investigation on Sheep Brain.**
W. Gründer, A. Goldammer, H. Barthel, R. Schober, T. Straube 5 , H.-E. Vitzthum
University Leipzig, Leipzig, Germany.
- 2148. MR Imaging with a Biopsy Needle.**
Ananda Kumar, Ergin Atalar
Johns Hopkins University, Baltimore, MD, USA.
- 2149. Heating of Linear Conductive Structures in Interventional MRI.**
Arnulf Oppelt, Ioannis Delakis and Wolfgang R. Nitz
Siemens AG, Erlangen, Germany and University of London, Imperial College of Science, London, UK.
- 2150. Efficacy of registration and subtraction for fat-suppression at 0.5 T for image-guided breast procedures.**
M. Hirose, D. F. Kacher, D.N.Smith, F.A.Jolesz
Brigham and Women's Hospital, Boston, MA, USA.
- 2151. Endoscopic MR Imaging in suspected esophageal cancer**
Umakant Dave, Andreanna Williams, David John Gilderdale, David James Larkman, David N. Harris, Simon D. Taylor-Robinson, Nandita deSouza.
Imperial College of Science, Technology and Medicine, University of London, Hammersmith Hospital, London, UK.
- 2152. Conductivity and Permittivity Changes in Human Calf Tissue Subjected to Temperature Cycling.**
Jeffrey Hand, Alan Preece, Yvonne Johnson, Andrea Williams, Ian Young
Imperial College School of Medicine, Hammersmith Hospital, London, UK.

Inoperative MR Imaging

- 2153. An Asleep Awake Asleep Anesthetic Technique for Intraoperative Language Mapping in the Fringe Fields during Interventional Magnetic Resonance Imaging Guided Neurosurgery**
Barbara Margaret Van de Wiele, Eduardo Rubinstein, Gregory Rubino
UCLA School of Medicine, Los Angeles, CA, USA.
- 2154. Infection control in a multi-use iMR-OR suite**
Gregory J Rubino, Julie Byrd, Dianne V. Moya, Yolanda M. Harris, Maryann Burns, Barbara Van de Wiele
University of California, Los Angeles, Los Angeles, CA, USA.
- 2155. The Synergistic Effect of Paramagnetic Contrast Agents and Absorbable Hemostatic Agents on 1/T1 of Blood in vitro: Implications for MRI**
M. Spiller, M. Tenner and W. Couldwell.
New York Medical College, Valhalla, NY, USA.
- 2156. Considerations about MR-guided Neurosurgery of Patients in Semi-sitting Position**
Timo Schirmer, Christos Trantakis, Klaus Killus, Dominik Fritzsich and Harald Busse.
GE Medical Systems, Munich, Germany and University Leipzig, Neurosurgery, Germany.
- 2157. Assessment of new rotating surgical table and head holder used for iMR-guided neurosurgery**
Gregory J. Rubino, Chris Lycette, Ladan Hadjiaghai, Pablo Villablanca 4 , Jocelyn Villareal 4 , Barbara Van De Wiele.
University of California, Los Angeles, UCLA School of Medicine, Los Angeles, CA, USA.
- 2158. Intra-Operative Image Display and Analysis in MRI-Guided Neurosurgery**
Keyvan Farahani, Gregory J. Rubino, Daniel J. Valentino, Osman Ratib, Pablo Villablanca.
University of California, Los Angeles, Los Angeles, CA USA.
- 2159. Use of Intraoperative MRI for Treatment of Pediatric Neuropathology**
Stephen G Hushek, Lori Russell, Neil Hoerter, Robert Moser, Christopher B Shields, Todd W. Vitaz, Thomas M. Moriarty.
Norton Health Care and University of Louisville, School of Medicine, Louisville, KY USA
- 2160. Intra-operative magnetic resonance imaging (iMR)-guided meningioma resection**
Gregory J. Rubino, Julie Byrd, Dianne Moya, Pablo Villablanca, Yolanda Harris, Barbara Van De Weile
University of California, Los Angeles, UCLA School of Medicine, Los Angeles, CA, USA.
- 2161. Changing Patterns in Neurosurgical MRI Over a Three Year Period**
William Guerin Bradley, Dar-Yeong CHEN, Ivar Szper, David Lampman.
Long Beach Memorial MRI Center, Long Beach, CA USA

Intervention: Vascular and Device Tracking and Visualization

- 2162. Real-Time Incremental Difference Reconstruction for Visualization and Tracking of Switchable Catheters**
Holger Eggers, Steffen Weiss, Tobias Schaeffter, Peter Boesiger
Philips Research, Division Technical Systems, Hamburg, Germany and University of Zurich, Zurich, Switzerland.

- 2163. Development of an MR System Controlled Light Source for Automated Optical Detuning**
Eddy Y. Wong, Jeffrey L. Duerk, Jonathan S. Lewin, Michael Wendt.
Case Western Reserve University, Cleveland, Ohio USA and Siemens Medical Systems, Iselin, New Jersey, USA.
- 2164. Optical Detuning of Parallel-Resonance Circuits in High Field Systems: Initial Experiences**
Eddy Y. Wong, Jeffrey L. Duerk, Kestutis J. Barkauskas, Jonathan S. Lewin, Michael Wendt.
Case Western Reserve University, Cleveland, OH, USA and Siemens Medical Systems, Iselin, New Jersey, USA.
- 2165. Fast Catheter Profiling by Controlled Aliasing.**
Lasse Jyrkinen, Seppo Taivalkoski, Mika Petri Ylihautala, Lasse Haataja, Roberto Blanco Sequeiros, Rauli Klemola, Risto Ojala, Osmo Tervonen, Olli Silven
Oulu University Hospital, Oulu, Finland and Marconi Medical Systems Finland, Vantaa, Finland.
- 2166. A Technique for Active Visualisation of Needles in MR Guided Procedures.**
David J Gilderdale, David J Larkman, Nandita M deSouza, Joseph V Hajnal
Imperial College, School of Medicine, The Robert Steiner MR Unit, Hammersmith Hospital, London, UK;
- 2167. A preliminary study of a loop-less dipole structure incorporating a standard MR needle.**
David J Gilderdale, David J Larkman, Nandita M deSouza, Joseph V Hajnal
Imperial College, School of Medicine, The Robert Steiner MR Unit, Hammersmith Hospital, London, UK;
- 2168. Interventional MRA: Simultaneous Real-time Display of Actively Visualized Catheters and Vascular Morphology with TrueFISP.**
Harald H. Quick, Dirk Hornscheidt, Hilmar Kühn, Silke Bosk, Jörg F. Debatin, Mark E. Ladd
University Hospital Essen, Essen, Germany and Somatex Medical Devices, Berlin, Germany.
- 2169. Real-Time Imaging and Active Device Tracking for Catheter-Based MRI**
J.M. Santos, G.C. Scott and J.M. Pauly.
Stanford University, Stanford, CA, USA.
- 2170. Interstitial RF Coil Incorporating Multiple Micro-Catheters**
N. Konyer, N. Lobaugh, G. Sela, R. Raghavan, G. Mills, M. Brady, R. Viswanathan, W.K. Sootsman and M. Bronskill.
University of Toronto, Toronto, ON, Canada and Image-Guided Neurologics, Melbourne, FL, USA.
- 2171. Micro imaging with an active MRI stent (aMRIs) to realize qualitatively restenosis diagnosis inside the stent.**
Rainer Wetzler, Martin Busch, Andreas Melzer
Simag GmbH, Berlin, Germany and University Witten/Herdecke, Mülheim/Ruhr, Germany.
- 2172. 2D Projection Magnetic Resonance DSA for MR-guided Intravascular Procedures.**
Klaus U Wentz, Markus Pfyffer, Hendrik Lohr, Johannes M Froehlich, Constantin von Weymar, Scheidegger Markus, Zollikofer L Christoph.
Kantonsspital Winterthur, Winterthur, Switzerland and Philips Medical Systems, Moosseedorf, Switzerland;
- 2173. Contrast-Enhanced MR Fluoroscopy: Simultaneous Angiography and Passive Tracking of Devices.**
Clemens BOS, Chris J.G. Bakker, Lambertus W. Bartels, Remko Van der Weide, Hanns-Joachim Weinmann, Max A. Viergever.
Image Sciences Institute, Utrecht, The Netherlands

- 2174. In Vivo Validation of Injection Parameters for Intraarterial Gadolinium-enhanced MR Angiography.**
Reed A. Omary, Kevin P. Henseler, Orhan Unal, Howard B. Chrisman, Scott A. Resnick, Robert K. Ryu, Mark B. Saker, Albert A. Nemcek Jr., Robert L. Vogelzang, Richard Frayne, Charles M. Strother, Thomas M. Grist
Northwestern University Medical School, Chicago, IL USA; University of Wisconsin-Madison, Madison, WI, USA and University of Calgary, Calgary, Alberta Canada.
- 2175. Comparison of Intraarterial and Intravenous Gadolinium-enhanced MR Angiography for the Detection of Renal Artery Stenosis**
Reed A. Omary, Kevin P. Henseler, Orhan Unal, Howard B. Chrisman, Scott A. Resnick, Robert K. Ryu, Mark B. Saker, Lawrence J. Maciolek, Charles M. Strother, J. Paul Finn, Debiao Li, Thomas M. Grist
Northwestern University Medical School, Chicago, IL USA and University of Wisconsin-Madison, Madison, WI, USA.
- 2176. Contrast Enhancement at Long Duration and Multiple Coronary MR Angiography Sessions with Intracoronary Infusion of Gd-DTPA.**
Elena Karp, Nikolaos V. Tsekos, Pamela K. Woodard, Yun Gao and Robert J. Gropler.
Cardiovascular Imaging Lab, Mallinckrodt Institute of Radiology, Washington University, St. Louis, MO, USA.
- 2177. Catheter Tracking for MR Guided Selective Procedures Using Real Time Projection Contrast Enhanced MRA: First in vivo results in a patient.**
R. Strecker, G. G. Paul, K. Scheffler, M. Hering, J. Laubenberger, J. Hennig
University Hospital, Bonn, Germany and University Hospital, Freiburg, Germany.
- 2178. Intra-arterial CO₂ –contrast-enhanced MR angiography in interventional MRI: In-vivo feasibility study to provide road maps for catheterization and comparison of FGRE, Spiral, FGRE-ET, and SSFSE sequences.**
Yi-Xiang J Wang, Franck Lethimonnier, Peter MT Pattynama, Robert Maes, Gabriel P Krestin
Erasmus University Medical Center, Rotterdam, The Netherlands and GE Medical System, Buc, France.
- 2179. MR-compatible intravascular pressure measurement: the Annupres sensor.**
Maurits K. Konings, Lambertus W. Bartels, Chris J.G. Bakker.
University Medical Center Utrecht, Utrecht, The Netherlands.

Interventional MR Imaging: Miscellaneous

- 2180. Operator Exposure to Acoustic Noise in Interventional MRI.**
A Moelker, MW Vogel, M Ouhlous, F Lethimonnier, PMT Pattynama
University Hospital Rotterdam, Rotterdam, the Netherlands and GE Medical Systems, France.
- 2181. Percutaneous MRI-Guided discography.**
Roberto Blanco Sequeiros, Rauli Klemola, Risto Ojala, Lasse Jyrkinen and Osmo Tervonen.
Oulu University Hospital, Oulu, Finland.
- 2182. MR-guided bone biopsy: A new guiding method.**
Risto Ojala, Roberto Blanco Sequeiros, Erkki Vahala, Rauli Klemola 4, Lasse Jyrkinen 5, Osmo Tervonen.
Oulu University Hospital, Oulu, Finland.

- 2183. Registration of Optical Navigator in Staged Musculoskeletal Procedures.**
Erkki Vahala, Riitta Parkkola, Risto Ojala, Teuvo Vaara, Mika Ylihautala, Gösta Ehnholm.
Marconi Medical Systems Finland, Inc., Oulu, Finland.
- 2184. A Hybrid System For MRI Guided Biopsy**
C.A. Piron, D. Plewes and R. Shumak.
University of Toronto, Toronto, ON, Canada.
- 2185. MR-guided implantation of brachytherapy catheters for treatment of recurrences of head and neck tumors.**
Thomas Schulz, Jens Peter Schneider, Annette Weber, Annette Köhler-Brock, Friedrich Bootz, Frank Schmidt and Thomas Kahn.
University of Leipzig, Leipzig, Germany.
- 2186. Saline Injection In Ex-Vivo Liver: Monitoring With Fast Gradient Echo Sequences At 0.2 T.**
Sherif Gamal Nour, Jonathan S. Lewin, Jeffrey L. Duerk
University Hospitals of Cleveland, Case Western Reserve University, Cleveland, OH, USA.
- 2187. Real Time MRI Guided Drug Delivery.**
Jonathan M. Sorger, Michael A. Guttman, Ralf Wassmuth, Elliot McVeigh
Johns Hopkins University School of Medicine, Baltimore, MD USA and National Institutes of Health, Bethesda, MD.
- 2188. Investigation of Electron Trajectories of an X-Ray Tube in a Magnetic Field**
Z. Wen, R. Fahrig and N.J. Pelc.
Stanford University, Stanford, CA, USA.

Temperature MR Imaging

- 2189. Feasibility of Internally-Referenced Temperature Imaging using Metabolite Signals.**
Kagayaki Kuroda, Robert V. Mulkern, Koichi Oshio, Nathan McDannold, Kullervo Hynynen, Toshiharu Nakai, Tomohisa Okada, Akira Matsumura, Kiyoyuki Yanaka and Ferenc Jolesz.
RIST, Tokai University, Hyogo, Japan; Harvard Medical School, Boston, MA ;Fukui Medical University, Yoshidagun, Fukui Japan and University of Tsukuba, Tsukuba, Ibaraki Japan.
- 2190. Is absolute temperature measurement in the breast with H 1 spectroscopic imaging feasible?**
Nathan J. McDannold, Robert V. Mulkern, Kagayaki Kuroda, Kullervo H. Hynynen.
Harvard Medical School, Boston, MA, USA and Tokai University, Tokai, Japan.
- 2191. Temperature monitoring with MRI with multiple phase-encode and slice select dimensions during focused ultrasound surgery.**
Nathan J. McDannold, Lawrence Patrick Panych, Lei Zhao, Ferenc A. Jolesz, Kullervo H. Hynynen.
Harvard University, Boston, Massachusetts USA.
- 2192. The Effects of Local Temperature Increase on the MR Phase Image Obtained with Electrical Current Injection.**
Soo Yeol Lee, Hyun Soo Khang, Min Hyoung Cho, Eung Je Woo and Chi Woong Mun.
Kyung Hee University, Kyungki Korea.

- 2193. Real-Time Motion Correction in MR-Controlled Hyperthermia**
J. de Zwart, F. Vimeux, J. Palussiere, R. Salomir, B. Quesson, C. Delalande and C. Moonen.
Resonance magnetique des Systemes Biologiques, Dieren, Netherlands; Resonance Magnetique des Systemes Biologiques, Bordeaux, France and Universit Victor Segalen Bordeaux 2, Bordeaux CDX, France.
- 2194. Temperature Measurement Using the 129 Xe Chemical Shift.**
Arvind Venkatesh, Daniel F. Kacher, Kagayaki Kuroda, Dilip Balamore, Ferenc A. Jolesz, Mitchell S Albert.
Boston University, Boston, MA, USA; Brigham and Women's Hospital, Boston, MA and Tokai University, Hiratsuka, Japan and Nassau Community College, Garden City, NY.
- 2195. Use of Fast-Spin-Echo MRI for MR Thermometry.**
Mika Vogel, Franck Lethimonnier, Peter Pattynama, Patrick Leroux
Erasmus University Rotterdam, Rotterdam, Netherlands and GE Medical Systems, Buc, France and Erasmus Medical Centre Rotterdam, Rotterdam, Netherlands;
- 2196. PRF Shift Thermometry at 0.2T: A New Background Phase Variation Suppression Scheme and Its Impact On Thermal Lesion Fidelity.**
Kestutis J. Barkauskas, Michael Wendt, Jonathan S. Lewin, Jeffrey L. Duerk.
Case Western Reserve University, Cleveland, OH USA.
- 2197. Stabilized In Vivo Temperature Mapping on an Open 0.3-T MRI System**
T. Takahashi, K. Komura, M. Dohi and J. Harada.
Hitachi Medical Corporation, Kashiwa and The Jikei University School of Medicine, Chiba, Japan.
- 2198. Significant Precision Improvement for Temperature Mapping**
L. Li, E. Shapiro and J. Leigh.
University of Pennsylvania, Philadelphia, PA.
- 2199. Estimating Tissue Conductivity by MR Thermometry and Focused Ultrasound Heating**
H.-L.M. Cheng and D. Plewes.
University of Toronto, Toronto, ON, Canada.
- 2200. In Vivo Temperature Mapping of Frozen Tissue Using R2***
J. Wansapura, B.L. Daniel and K. Butts
Stanford University, Stanford, CA, USA.

Thermal Therapies

- 2201. Performance of a 4-Element Experimental RF-Hyperthermia Applicator Studied by MR-Thermometry.**
W. Hoffmann, F. Seifert, R. Noeske, W. Wlodarczyk and H. Rinneberg.
Charite Medical School-Campus, Virchow-Klinikum, Berlin, Germany.
- 2202. MR-based Temperature Monitoring for Radiofrequency Ablation with Expandable Needle Electrode.**
S. Okuda, K. Kuroda, K. Oshio, H. Fujiwara, T. Kurata, M. Jinzaki, H. Shinmoto, A. Tanimoto, Y. Imai, Y. Yuji
Keio University, Tokyo, Japan and Harvard University, Boston, MS, USA.

- 2203. Combined Thoracoscope-Assisted MR-Guided Microwave Ablation of Liver Tumors.**
Y. Kurumi, T. Tani, S. Naka, S. Morikawa, T. Inubushi, V. Seshan.
University of Medical Science, Seta, Ohtsu, Shiga, Japan.
- 2204. Clinical Experiences with MR-Guided Microwave Ablation for Liver Tumors.**
Y. Kurumi, T. Tani, S. Naka, S. Morikawa, T. Inubushi, V. Seshan.
University of Medical Science, Seta, Ohtsu, Shiga, Japan.
- 2205. MR Guided Laser Thermal Ablation of Renal and Adrenal.**
E. Dick, R. Joarder, J. Vale, W. Gedroyce.
S. Marys Hospital, Paddington, London, UK.
- 2206. Study of In Vivo Laser Ablated Tissue Damage using MA Thermometry**
L. Chen, J. Wansapura, G. Heit and K. Butts.
Stanford University, Palo Alto, CA, USA and Stanford University, Stanford, CA, USA.
- 2207. Optimization of the LITT protocol for Hyperthermia treatment of prostrate by means of simulations and MR-thermometry.**
K.A. Ilyasov, G. Bruggmoser, R. Steberl, V.G. Kiselev and J. Hennig
Freiburg University Hospital, Freiburg, Germany.
- 2208. MRI monitoring of focused ultrasound surgery in tumors with multi-slice echo-planar imaging in rabbits.**
N.J. McDonald, K.H. Hynynen, F.A. Jolssz.
Harvard Medical School, Boston, MS, USA.
- 2209. MR Guided Interstitial Ultrasound Ablation of Experimental Brain Tumors.**
J.D. Hazle, R.E. Price, D.F. Schomer, R. J. Stafford, L.E. Olsson, C.J. Diederich, P.D. Tyreus.
University of Texas, Houston, TX and University of California, San Francisco, CA, USA.
- 2210. Diffusion-Weighted MRI after Cryosurgery of the In Vivo Canine Prostate.**
K. Butts, B.L. Daniel, J. Wansapura, L. Chen, S. Maier, C. Dumoulin and R.D. Watkins.
Stanford University, Stanford, CA, USA; Stanford University, Palo Alto, CA, USA; Harvard University, Boston, MA, USA; G. E. Corporate R & D Center Building K-1, Niskayuna, NY, USA and G. E. Research and Development, Niskayuna, NY, USA.
- 2211. MR Guided Cryosurgery of the Sacroiliac Joint: Technique and Early Clinical Results.**
J.F. Roy, M. Hess, C. Moisan
iMRI unit, Centre hospitalier universitaire de Québec, 10 de l'Espinau Street, Québec City, Québec Canada and Orthopedic Hospital Munich-Harlaching, Klinik M chen-Harlaching, Munich, Germany
- 2212. Percutaneous Renal Cryoablation for Renal tumors using imri guidance**
Patrick Ellison Sewell Jr, W. Bruce Shingleton.
University of Mississippi Medical Center, Jackson, MS, USA.
- 2213. Quantitative Improvement to Image Contrast when Using MnDPDP during MR Guided Percutaneous Cryosurgeries of the Liver**
A.S. Traore, M.-J. Godbout, D. Serre, G. Dionne, M. Dufour, C. Moisan
Centre Hospitalier Universitaire de Québec, Québec City, Canada.

Molecular MRS and MRI of Cancer

- 2214. Ex vivo and In Vivo Evaluation of Tumor Burden in Mouse Lung using MRI: Assessment of Anti-metastatic Drug Properties**
Stasia A. Anderson, Randall K. Rader, Kristen Shannon, Ben Zweifel, Janet O'Neal, William F. Westlin, Alane Koki, Jaime L. Masferrer, John J. Kotyk
Pharmacia Corporation, St. Louis, MO, USA.
- 2215. Evaluation of Breast Cancer Cell Invasion with the 'Metabolic Boyden Chamber'**
Ellen Ackerstaff, Dmitri Artemov, Robert Gillies and Zaver Bhujwalla.
Johns Hopkins University, School of Medicine, Baltimore, MD USA and University of Arizona, Tucson, AZ, USA.
- 2216. ras transformation and metabolism: An MRS investigation**
M. Belouèche, L. E. Jackson, M. O. Leach, S.M.Ronen
CRC Clinical Magnetic Resonance Research Group, Institute of Cancer Research and Royal Marsden NHS Trust, Downs Road, Sutton, Surrey, UK.
- 2217. Ex Vivo and In Vivo Evaluations of Osteolytic Metastases in Mice: Comparison of MRI, Bone Mineral Density, and Fluorescence Microscopy**
John J. Kotyk, John F. Harms, Steve L. Settle, Randall K. Rader, Gabriel Mbalaviele, David W. Griggs, William F. Westlin, Danny R. Welch
Pharmacia Corporation, St. Louis, MO USA and Pennsylvania State University College of Medicine, Hershey, PA, USA.
- 2218. Molecular Imaging Using Functional Genomics: Spatial and Temporal Resolution of Gene Expression Profiles Using Contrast Enhanced MRI.**
Y. Yang, S. Guccione, K.C. Li, M. Bednarski.
Stanford University, Stanford, CA, USA.
- 2219. Correlation of Water Diffusion and Cell Growth in a 3D Perfused Cell Culture System.**
Theodore P. Trouard, Joseph L. Divijak, Norbert W. Lutz, Kathy A. McGovern
University of Arizona, Tucson, AZ USA;
- 2220. MRI and PET Characterization of Abdominal Tumors in a Hamster Model of Colorectal Cancer.**
Joel R. Garbow, Jason S. Lewis, Judith M. Connett, Thomas L. Buettner, Michael J. Welch
Washington University School of Medicine, St. Louis, MO, USA.
- 2221. Performance of Potential Tumor Seeking MR Contrast Agent Mn-porphyrin (HOP-8P) in Mice Model.**
Yasuo Takehara, Harumi Sakahara, Hatsuko Masunaga, Satoshi IsogaI, Nami Kodaira, Masahiro Sugiyama, Hiroyasu Takeda, Tsuneo Saga, Susumu Nakajima and Isao Sakata.
Hamamatsu University School of Medicine, Shizuoka Japan; University Graduate School of Medicine, Kyoto Japan; Obihiro University of Agriculture and Veterinary Medicine, Hokkaido Japan; Photochemical Co. Ltd, Okayama Japan.
- 2222. MR Imaging As a Tool to Monitor Prostate Tumor Growth in Mice with Mutant p53 Gene.**
Pal Kiss, Laszlo Lenard, Tamas Simor, John R. Forder, Roycelynn Mentor-Marcel, Ada Elgavish and Gabriel A. Elgavish
University of Alabama at Birmingham, Birmingham, AL USA.

- 2223. Assessment of Tumor Viability by Diffusion-weighted MRI.**
E. Edmund Kim, X. Joe Zhou, Graeme McKinnon, Haesun Choi, Shreyaskumar R. Patel.
University of Texas M.D. Anderson Cancer Center, Houston, TX, USA.

Lipid and Choline in Cancer

- 2224. In Vivo ^1H and ^{31}P NMR Study of Hepatic Apoptosis in Anti-Fas Treated Mice.**
Michael Skalski, Lesley May Foley, Anne Baggley, Melissa Yau, Manfred Brauer.
University of Guelph, Guelph, Ontario Canada.
- 2225. Malignant cells influence the phospholipid phenotype of human vascular endothelial cells.**
Noriko Mori, Kshama Natarajan, Vadappuram P. Chacko, Dmitri Artemov and Zaver M. Bhujwala
Johns Hopkins University, Baltimore, MD, USA.
- 2226. ^{31}P MRS of Thymoma Cell Extracts Indicates Increased Phospholipase Activity following Dexamethasone Treatment, in Correlation with Apoptotic Parameters.**
Margaret E. Tome, Margaret M. Briehl, Norbert W. Lutz
University of Arizona, AZ, USA.
- 2227. Effects of Apoptosis on the Lipid Metabolism in KB Tumor Cells Studied by One- and Two-dimensional NMR Spectroscopy.**
Touraj Shokati, Joern Engelmann, Wieland Willker and Dieter Leibfritz.
University of Bremen, Bremen, Germany.
- 2228. ^1H and ^{31}P Nuclear Magnetic Resonance Spectroscopy Study of Diamide-Induced Apoptosis in Tumors and Isolated Tumor Cells.**
Angele Viola, Kevin Michael Brindle
Faculte de Medecine la Timone, Marseille, Marseille, France and University of Cambridge, Cambridge, England, UK;
- 2229. Imbalance of CDP Pathways and Up-Regulation of Phosphoethanolamine under CENU Treatment in long Term Cultures of malignant Melanoma Cells. A ^1H -HRMAS MRS Study.**
Daniel Morvan, Aicha Demidem, Janine Papon and Jean Claude Madelmont.
Clermont-Ferrand, France.
- 2230. L-Methionine Supplementation disrupts sequential Activation of Phospholipases during Tumor Growth in a murine Model of malignant Melanoma. A ^1H -HRMAS MRS Study.**
Aicha Demidem, Daniel Morvan, Janine Papon, Jean Claude Madelmont
Clermont-Ferrand, France.
- 2231. Impact of Indomethacin on Phospholipid Metabolism in Malignant Human Mammary Epithelial Cells: ^1H and ^{31}P NMR Spectroscopic Study of Viable Cells**
Kristine Glunde, Ellen Ackerstaff, Kshama Natarajan, Dmitri Artemov, Zaver M. Bhujwala
Johns Hopkins University, Baltimore, MD, USA.

Oxygenation, Hypoxia, and pH Studies of Cancer

- 2232. Effect of Carbogen Breathing on a Chemically Induced Hepatocarcinoma Model in Mice.**
Carole D. Thomas, Evelyne Chenu, Christine Walzcac, Marie-Jose Plessis, Francois Perin, Andreas Volk
Curie Institute—Research, Centre Universitaire, Orsay, France.

- 2233. Analysis of Human Tumor Xenograft Oxygenation and Correlation to Vascular Density, Viability and Necrosis with Functional MRI at 1.5%**
S. Lai, G.-H. Jahng, J. Wang, L. Lynds, G.R. Ramsby, K.P. Claffey, A. Agarwal and M. Keough.
University of Connecticut Health Center, Farmington, CT, USA.
- 2234. Increased Lactate Characterizes Malignant Transformation in Human Prostate Cancer Cells.**
Ellen Ackerstaff, Beth R. Pflug, Joel B. Nelson, Zaver M. Bhujwalla
Johns Hopkins University, School of Medicine, Baltimore, MD, USA and University of Pittsburgh, Pittsburgh, PA, USA.
- 2235. Enhancement of Hyperglycemia-Induced Acidification of Human Melanoma Xenografts by Inhibitors of Respiration and Ion Transport**
R. Zhou, S. Pickup, D.B. Leeper and J. Glickson.
University of Pennsylvania and Thomas Jefferson University, Philadelphia, PA, USA.
- 2236. Effect of insulin on tumor oxygenation and perfusion.**
Bénédict Jordan, Vincent GreGoire, Roger Demeure and Bernard Gallez
Université catholique de Louvain, Brussels, Belgium
- 2237. Indirect Detection of Reactive Oxygen Species by ¹H NMR: Monitoring of Reduced Form of Nitroxyl Spin Probes.**
Hideto Kuribayashi and Hideo Utsumi
Kyushu University, Fukuoka, Japan
- 2238. Heparin-Induced Hemodynamic Alterations: A BOLD Contrast MRI Study.**
G. Tsarfaty, T. Kushnir, R. Abramovitch, M. Shaharabany, R. Ron, J. Horev, Y. Itzhak, I. Tsarfaty
The Chaim Sheba Medical Center, Tel Hashomer, Israel and Tel Aviv University, Sackler School of Medicine, Tel Aviv, Israel.

Tumor Perfusion and Permeability

- 2239. Simulation of the effect of impaired renal function on contrast enhanced MRI measurements in cancer.**
Trevor Ahearn, Thomas W. Redpath and Roger Staff.
University of Aberdeen, Aberdeen, Scotland, UK
- 2240. Dynamic Contrast Enhanced Liver MRI Using a Motion Tracking Algorithm.**
Michael D. Noseworthy, Marshall S. Sussman, Masoom Haider, Sylvain Baruchel.
University of Toronto, Toronto, ON Canada.
- 2241. B₀-Dependence of the CR-Determined Exchange Regime for Equilibrium Transcytlemmal Water Transport: Implications for Bolus-Tracking Studies**
C. Springer and W. Rooney.
Brookhaven National Laboratory, Upton, NY, USA.
- 2242. A Simple Model to Characterise Blood-Brain Barrier Leakage from T2*-weighed Bolus Tracking MRI Data**
P.S. Tofts, G. Johnson and S. Cha.
University College London, London, UK and New York University School of Medicine, New York, NY, USA.

- 2243. Assessing Tumor Angiogenesis with Dynamic Susceptibility Contrast fMRI Which Morphologic Correlates Are Relevant?**
A.P. Pathak, K. (Donahue) Schmainda, B.D. Ward, K.J. Rebro and S. Rand.
Marquette University, Milwaukee and Medical College of Wisconsin, WI, USA.
- 2244. Determination of vascular permeability and extracellular volume fraction in human breast cancer tumors implanted in SCID mice.**
Yael Bergknoff, Raanan Margalit, Dov Grobgeld, Hadassa Degani
Weizmann Institute of Science, Rehovot, Israel;
- 2245. Dynamic contrast-enhanced MRI : image analysis techniques for treatment response studies.**
Carmel Hayes, Anwar R Padhani, Martin O Leach
The Institute of Cancer Research and The Royal Marsden NHS Trust, Sutton, United Kingdom.
- 2246. Identifying Tumor Permeability Heterogeneity with MRI Contrast Agents.**
Michael Aref, Martin Brechbiel and Erik Wiener.
University of Illinois at Urbana-Champaign, Urbana, IL USA and National Cancer Institute, NIH, Bethesda, MD USA.
- 2247. A Marker of Vascular Tortuosity (Relative Recirculation) in Gliomas: Comparison with Blood Volume and Tumor Grade.**
Andrea Kassner, Xiaoping Zhu, Ka-Loh Li and Alan Jackson
Philips Medical Systems, York Road, Leeds, England, UK and University of Manchester, Manchester, England, UK.
- 2248. MR-Derived Cerebral Blood Volume Maps: Issues Regarding Histological Validation and Assessment of Tumor Angiogenesis**
A.P. Pathak, K. (Donahue) Schmainda, B.D. Ward, K.J. Rebro and A.S. Greene.
Marquette University, Milwaukee and Medical College of Wisconsin, WI, USA.
- 2249. Identifying High ‘Metastatic Risk’ Vascular and Physiological Regions in Solid Tumors.**
Zaver M Bhujwala, Dmitri Artemov, Paloma Ballesteros, Sebastian Cerdan, Robert Gillies and Meiyappan Solaiyappan
Johns Hopkins University, School of Medicine, Baltimore, MD, USA; Inst Investigaciones Biomedicas CSIC, Madrid, Spain and University of Arizona, Tucson, AZ, USA.
- 2250. Dynamic Contrast-Enhanced Subtraction and Delayed MRI of Gastric Tumors: Radiologic-Pathologic Correlation.**
Gin Chung Liu, Chien Kuo Wang, Yu Ting Kuo.
Kaohsiung Medical University, Kaohsiung, Taiwan, R.O.C.
- 2251. CR Bolus-Tracking Pharmacokinetic Parameters: The Effects of Equilibrium Transcytolemmal Water Exchange**
T.E. Yankeelov, W. Rooney and C. Springer, Jr.
Brookhaven National Laboratory, Upton, NY, USA.
- 2252. Multi-section Dynamic MR Imaging Covering Whole Volume of the Prostate.**
Masayuki Yamaguchi, Mamoru Niitsu, Yuji Itai.
University of Tsukuba Hospital, Ibaraki Japan.
- 2253. A Model for Mapping Angiogenesis using Dynamic Contrast-Enhanced MRI.**
Q.G. de Lussanet, W.H. Backes, R.G.H. Beets-Tan, J.W. Maas, H.A. Struyker-Boudier, J.L. Evers, J.M.A. van Engelshoven.
University Hospital Maastricht, Maastricht, Netherlands.

- 2254. Saturation Steady-State Weighting of MRI Intensity: tracking Instantaneous T_1 Change**
J.-H. Lee.
Brookhaven National Laboratory, Upton, NY, USA.
- 2255. Comparison of Propeller, Spiral And Variable Density Spiral Trajectories for Dynamic Contrast Enhanced MRI of Cancer.**
Ergun Ahunbay, James Pipe and Jeffrey L. Evelhoch.
Wayne State University, Detroit, MI, USA and MRI Research, Barrow Neurological Institute, Phoenix, AZ, USA.
- 2256. $H_2^{15}O$ PET Validation of Tumor Blood Flow Determined by Double Echo Dynamic Perfusion-Weighted MR Imaging**
S. Muramoto, H. Uematsu, N. Sadato, T. Tsuchida, H. Kimura, T. Matsuda, Y. Yonekura and H. Itoh.
Fukui Medical University, Fukui, Japan and GE Yokogawa Medical Systems Ltd., Tokyo, Japan.
- Cancer Treatment: Anti-angiogenesis and Anti-vascular**
- 2257. Effect of Dexamethasone Treatment on Dynamic Susceptibility CBV Measurements in a Rat Brain Tumor Model**
K.M. (Donahue) Schmainda, A.P. Pathak, M. Badruddoja, S.D. Rand, K. Rebro and H.G. Krouwer.
Medical College of Wisconsin, Milwaukee, WI, USA.
- 2258. Evaluation of the anti-vascular effects of combretastatin in rodent tumours by dynamic contrast enhanced MRI.**
Ross J Maxwell, John Wilson and Gillian M. Tozer.
Mount Vernon Hospital, Middlesex UK.
- 2259. Assessment of tumour response to Matrix Metalloproteinases Inhibitors treatment using dynamic Gd-DTPA enhanced MR imaging.**
Nathalie Just, Carmel Hayes, Ian J Rowland, Suzanne Eccles, Martin O Leach
The Royal Marsden Hospital, Sutton, England, UK;
- 2260. Differential sensitivity of a tumor model to two anti-vascular drugs**
Daniel A. Beaugard, R.Barbara Pedley, Sally A.Hill, Kevin M.Brindle
University of Cambridge, Cambridge ,UK; University College London, London, UK and Gray Laboratory Cancer Research Trust, Middlesex, UK.
- 2261. Contrast Enhanced MRI Perfusion Evaluation of Vascular Response: Results of a Phase I Clinical Trial of Combretastatin A4**
Niusha Rafie, John A. Jesberger, Jeffrey L. Duerk, Matthew M. Mendez, Scott C. Remick, Jonathan S. Lewin.
Case Western Reserve University, Cleveland, Ohio USA
- 2262. Assessing perfusion and capillary permeability changes induced by a VEGF inhibitor in human tumor xenografts using macromolecular MR imaging contrast media**
Clément Pradel, Nathalie Siauve, Charles-André Cuénod, Frédérique Frouin, Gaëlle Bruneteau, Edmond Kahn, Olivier Clément, Guy Frija
Laboratoire d'Imagerie, University of Necker, Paris,France;
- 2263. Changes in Vasculature Detected in a Breast Cancer Model Following Treatment with an Anti-inflammatory Agent.**
Kshama Natarajan, Dmitri Artemov and Zaver Bhujwalla
Johns Hopkins University, Baltimore, MD, USA.

- 2264. Cerebral Blood Flow in Rat is Reduced by Antitumor Agent, Arsenic Trioxide (As₂O₃)**
J.C. Lin, R.J. Griffin, S.-G. Kim and M. Garwood.
Center for Magnetic Resonance Research and University of Minnesota, Minneapolis, MN, USA.
- 2265. Assessment of The Novel Tumour Vascular Targeting Agent ZD6126 By Non-Invasive Multi-Gradient Echo MRI**
S. Robinson, D. McIntyre, F. Howe, J.R. Griffiths, D.C. Blakey and J. Waterton.
St. George's Hospital Medical School, London, England, UK; Alderly Park, Macclesfield, Cheshire, UK and Astrazeneca, Cheshire, England, UK.
- 2266. Dynamic Contrast Enhanced Imaging Assessment of the Effects of Antiangiogenic Agent SU5416 in Inflammatory Breast Cancer: Preliminary Results.**
John A. Jesberger, Niusha Rafie, Matt Mendez, Jeffrey L. Duerk, Scot Remick, Beth Overmoyer and Jonathan S. Lewin.
Case Western Reserve University, Medicine, Cleveland, Ohio USA.

Tumor Response to Therapy

- 2267. Evaluation of Brain Tumor Response to Therapy with 1H MRS, Diffusion and Perfusion MRI: Correlation between Choline Level and ADC, rCBV**
W. Huang, P. Roche, A. Tudorica, S. Madajewicz, T.M. Button, H. Li, J. Manzione and C. Roque.
State University of New York at Stony Brook, Stony Brook, NY, USA.
- 2268. Role of Global Lactate and Dynamic Contrast Imaging in Detecting Response of RIF-1 Tumors to Cyclophosphamide Treatment**
H. Poptani, N. Bansal, R. Graham, D. Nelson and J. Glickson.
University of Pennsylvania, Philadelphia, PA, USA.
- 2269. Early Prediction of Tumor Response to Therapy Using Diffusion Weighted MRI.**
Yael Mardor, Thomas Tichler, Yiftach Roth, Yael Weiss, Raanan Berger, Ami Glicksman, Rafael Pfeffer, Roberto Spiegelman, Jesus Ruiz-Cabello, Stephan E Maier, Arie Orenstein and Jack Cohen.
Sheba Medical Center, Tel-Hashomer, Israel; Universidad Complutense, Madrid, Spain and Harvard University, Harvard Medical School, Boston, MA, USA.
- 2270. Studies of Ifosfamide and Cyclophosphamide using 31 PMRS.**
GS Payne, SVaidya, F Kinnaird, CR Pinkerton, MO Leach
Royal Marsden NHS Trust and Institute of Cancer Research, Downs Road, Sutton, Surrey UK.
- 2271. Early assessment by in vivo 1H-MRS of tumor response to temozolomide in Gliomatosis Cerebri.**
R. Lodi, V. Clementi, P. Cortelli, L. Crinò, S. Iotti, B. Barbiroli.
Università di Bologna, Bologna, Italy; Università di Modena, Italy and Dipartimento di Oncologia, Ospedale Bellaria, Italy.
- 2272. The relationship between P-31 metabolites and oncolytic viral therapy sensitivity in human colorectal cancer xenografts.**
Kristen Zakian, Sandeep Malhotra, Scarlett Karakash, Su Xu, Cornelia Matei, Yuman Fong, Jason Koutcher
Memorial Sloan Kettering Cancer Center, New York, NY, USA.

- 2273. Magnetic resonance imaging in vivo-evaluation of hepatocellular carcinomas (HCC) post gene therapy (adenoviral transfection of Interleukin-12 / B7.1) in woodchucks.**
Christoph U. Herborn, Brigitte M. Puetzer, Jörg F. Debatin, Stefan G. Ruehm.
University Hospital Essen, Essen, Germany.
- 2274. Cryo Destruction of Hepa-1 Multicellular Spheroids: a Diffusion Weighted MRI and MR Spectroscopy Study.**
Catherine Tempel Brami, Rinat Abramovitch, Uri Nevo, Aviv Barzilai, Yacov Itzchak, Michal Neeman and Tammar Kushnir
The Chaim Sheba Medical Center, Tel Hashomer, Israel; Tel Aviv University, Tel-Aviv, Israel; Kaplan Medical Center, Rehovot, Israel and Weizmann Institute of Science, Rehovot, Israel.
- 2275. Chemotherapy Treatment Assessment using Apparent Diffusion Coefficient Maps.**
Liz Moore, Louis Viviers, Juliet Britton, Charlotte Absen, Martin Leach and Micheal Brada
The Institute of Cancer Research and The Royal Marsden NHS Trust, Sutton, Surrey UK;
- 2276. 19 F MRS study of the pharmacokinetics of 5-fluorouracil (5-FU) in the liver of patients with colorectal cancer and liver metastases.**
Yvonne Kamm, Adrianus Van Den Bergh, Theo Wagener, Hanneke Van Laarhoven, Dennis Klomp and Arend Heerschap.
University Medical Centre Nijmegen, Nijmegen, The Netherlands.
- 2277. Correlation Between the Longitudinal Changes of Tumor Size and the Enhancement Kinetics in Tumors Receiving Gene Therapy.**
M.Y. Su, J. Wang, J.A. Taylor, L.P. Villarreal, O. Nalcioglu.
University of California, Irvine, CA USA.
- 2278. Monitoring early response of Human Breast Cancer xenografts to Taxotere chemotherapy via 31 PMRSand Diffusion MRI.**
D. Morse, N. Raghunand, J.-P. Galons, R. Gillies.
University of Arizona, Tucson, AZ, USA.

Brain Cancer

- 2279. Triple Quantum Filtered 23Na MR Spectroscopy of 9L Glioma in the Presence of Shift Reagent**
P.M. Winter and N. Bansal.
Washington University School of Medicine, St. Louis, MO, USA and University of Pennsylvania, Philadelphia, PA, USA.
- 2280. Classification of Cerebral Infection and Tumour by Linear Discriminant Analysis of Biopsy Spectra**
Theresa Dzendrowskyj, Roger Bourne, Uwe Himmelreich, Carolyn Mountford and Tania C. Sorrell.
University of Sydney, Sydney, Australia.
- 2281. Characterization of Intracranial 9L Glioma in Rat Using MR Perfusion and BOLD Imaging at 7T with Carbogen Breathing**
Hao LEI, Julia A. O'Hara, Huagang Hou, Carmen M. Wilmot, Harold M. Swartz, Jeffrey F. Dunn
Dartmouth College, Hanover, NH USA.
- 2282. Novel cell labeling strategy for magnetic resonance microimaging of brain tumor invasion in vivo.**
Kenneth Bahk, P. N. Venkatasubramanian, A. M. Wyrwicz.
Center for MR Research, Northwestern University, Evanston, IL, USA.

- 2283. Improved analysis of 1H-MR spectra in the presence of mobile lipids: Impact on grading of malignant gliomas**
Dorothee P. Auer, Christoff Gössl, Timo Schirmer, Michael Czisch.
Max Planck Institute of Psychiatry, Munich, Germany and GE Medical Systems, Buc, France.
- 2284. Differentiating Types of Human Brain Tumours by MRS. A Comparison of Pre-processing Methods and Echo Times.**
A. Rosemary Tate, John R. Griffiths, Franklyn A. Howe, Jesus Pujol, Carles Arús.
St. George's Hospital Medical School, London, United Kingdom; Centre Diagnostic Pedralbes, Barcelona, Spain and Universitat Autònoma de Barcelona, Cerdanyola del Valles, Spain.
- 2285. Diffusion Tensor Imaging at 3 Tesla: A Potential Tool for Assessing Occult White Matter Tract Invasion?**
Stephen J. Price, Jonathan H. Gillard, Neil G. Burnet, Dylan Pritchard, Nikos Papadakis, Kay Martin, T. Adrian Carpenter, Tim Donovan, John D. Pickard.
Addenbrooke's Hospital, Cambridge, UK
- 2286. Intraindividual comparison of contrast enhancement in brain tumors: A blinded reader comparison of a standard Gd-chelate (Gd-DTPA) vs a weak interacting (Gd-BOPTA)**
Michael V. Knopp, Val Runge, Marco Essig, Mathias Hartmann 4, Olaf Jansen, Klaus-Peter Lodemann 5
National Institutes of Health, Bethesda, MD, USA; University of Kentucky, Georgetown, KY; University of Heidelberg, Heidelberg, Germany and Bracco-Byk Gulden GmbH, Konstanz, Germany.
- 2287. Gross-total resection of high-grade gliomas under intraoperative MRI-guidance**
Katharina Eberle, Volker Seifert, Christos Trantakis, Jürgen Dietrich, Thomas Kahn, Thomas Schulz and Jens-Peter Schneider.
University of Leipzig, Leipzig, Germany.
- 2288. Proton MR spectroscopy and FDG-PET for the assessment of suspicious lesions after brain tumor radiotherapy**
Heinz-Peter Schlemmer, Marcus Henze, Klaus Herfarth, Jürgen Debus, Peter Bachert, Gerhard Van Kaick
University Clinic of Heidelberg, Heidelberg, Germany.
- 2289. Semi-Quantative Proton Spectroscopy of Cerebellar Tumor of Childhood**
Dongzhu Jin, Jill V. Hunter, Zhiyue J. Wang, Chunpang Shen, Brendon Tavelli and Robert A. Zimmerman
The Children's Hospital of Philadelphia, Philadelphia, PA, USA.
- 2290. Automatic Independent Component Analysis of 1H Spectroscopic Imaging Data from Human Brain Tumours**
Y. Hiltunen, J. Pukkinen, A.-M. Hukkinen, N. Lundbom and R. Kauppinen.
University of Kuopio, Kuopio, Finland; University of Kuopio, Kuopio, Finland and Department of Radiology, Helsinki, Finland.
- 2291. Correlation Between In vivo and In vitro Proton MRS and Histology of Brain Tumors**
T. Shah, R. Jayasunder, V.P. Singh and C. Sarkar.
All India Institute of Medical Sciences, New Delhi, India.
- 2292. Pure oxygen as a contrast medium in human brain tumor MR imaging.**
Christoph Losert, Michael Peller, Philipp Schneider, Martin Thoma, Martin Busch, Maximilian Reiser
Institut für Klinische Radiologie, Munich, Germany.
- 2293. Cost-effectiveness of MRS in the Management of Recurrent Brain Tumors.**
Alexander Lin, Maureen Brooks, Brian Ross.
Southern California Clinical Spectroscopy Service, Pasadena, California USA;
InSource Medical Solutions, Newport, CA, USA

- 2294. Differentiating Diffuse Brainstem Neoplasms using Proton Magnetic Resonance Spectroscopy.**
Alexander Lin, Frederick Shic and Brian Ross.
Huntington Medical Research Institutes, Pasadena, CA, USA.
- 2295. Analysis of Spatial Extent of the Metabolic Abnormality for Newly Diagnosed Glioma Patients.**
Xiaojuan Li, Ying Lu, Sarah J. Nelson.
University of California, San Francisco, CA, USA.
- 2296. Feature Space Analysis of MRI: Active Brain Tumors versus Radiation Necrosis.**
H. Soltanian-Zadeh, L. Smith, D. J. Peck, D. O. Hearshen, L. Scarpance and T. Mikkelsen.
Henry Ford Health System, Detroit, MI, USA.
- 2297. Diagnostic Value of T1-Weighted Fluid-Attenuated Inversion Recovery Sequence in MR Imaging of Brain Tumors**
Fang Zhu, Liming Xia, Chengyuan Wang, Guang Cao, Jian-Ming Zhu
Tongji Hospital, Wuhan, China; GE Medical Systems China, Hongkong, China and G. E. Medical Systems, Milwaukee, WI, USA.
- 2298. Multi-Slice Proton Spectroscopic Imaging of Delayed Radiation Necrosis Correlated with Intraoperative Histology**
David Hearshen, Lisa Scarpance, Suresh Patel, Jack P. Rock, Donald Peck, Tom Mikkelsen.
Henry Ford Hospital, Detroit, MI, USA.
- 2299. Evaluation of Tumor Oxygenation in Human Brain**
Zerrin Yetkin, Dianne Mendelsohn, Phillip Purdy, Roderick McColl, Ralph P. Mason
University of Texas Southwestern Medical Center at Dallas, Dallas, TX, USA.
- 2300. Correlation of MIB-1 Proliferation Index and Cell density with Choline Level Using a Quantitative 1H-MRS. Discrepancy in Benign and Malignant Glioma.**
Akira Matsumura, Tomonori Isobe, Izumi Anno, Shingo Takano, Yasushi Nagatomo, Takashi Yoshizawa, Yuji Itai, Tadao Nose.
University of Tsukuba, Tsukuba, Ibaraki Japan and Yokohama Shintoshu Neurosurgical Hospital, Saitama, Japan.
- 2301. Diffusion, Perfusion and H1-Spectroscopy in Patients with Newly Diagnosed Gliomas.**
Isabelle Catalaa, Roland G Henry, Edward Graves, Ying LU, Daniel Vigneron, Sarah J. Nelson.
University of California, San Francisco, San Francisco, CA, USA.
- 2302. Assessment of the interest of rCBV mapping for establishing differential diagnosis between high grade gliomas and other enhancing brain tumors**
Stéphane Kremer, Sylvie Grand, Chantal Rémy, Li-Juan Zhou, Basile Pasquier, Alim Louis Benabid, Jean-François Le Bas.
Magnetic Resonance Imaging Unit, Grenoble, France.
- 2303. Estimation of Local Temperature in Brain Tumors**
R. Jayasundar and V.P. Singh.
All India Institute of Medical Sciences, New Delhi, India.
- 2304. Characterization of oligodendrogliomas using short echo time 2D ¹HMRSI**
M. Rijpkema, J. Schuurings and A. Heerschap
University Medical Center Nijmegen, Nijmegen, Netherlands.

- 2305. Incorporation of 1 H Magnetic Resonance Spectroscopic Imaging Data in the Radiation Treatment Planning Process.**
Edward E. Graves, Andrea Pirzkall, Sarah J. Nelson, David Larson, Lynn J. Verhey.
University of California, San Francisco, CA, USA.
- 2306. In vivo and In vitro MRS of Central Neurocytomas**
T. Shah, R. Jayasundar, V.P. Singh and C. Sarkar.
All India Institute of Medical Sciences, New Delhi, India.
- 2307. In patients with brain tumors, can the contralateral brain hemisphere be used as control for single-voxel 1H spectroscopy?**
Dirce Takako Fujiwara, Claudio Campi de Castro, Sergio Rosemberg, Marcos Jose Rotta, Rosa Maria Volpi Piva and Giovanni Guido Cerri.
University of Sao Paulo, Sao Paulo, SP Brazil.
- 2308. How Accurate is 1 H MRS in the Individual Tumor Patient?**
Alexander Lin, Brian Ross.
Huntington Medical Research Institutes, Pasadena, CA, USA.
- 2309. Dynamic, Contrast-Enhanced MRI of Murine Gliomas: Correlation with Histology.**
Soonmee Cha, Glyn Johnson, Youssef Zaim Wadghiri, Olivier Jin, David Zagzag, Daniel Turnbull.
New York University School of Medicine, New York, NY, USA.

Breast Cancer

- 2310. MRI Correlates of Induration in the Irradiated Breast.**
Anwar R Padhani, John Yarnold, Jane Regan, Janet E Husband.
Institute of Cancer Research, Sutton, Surrey UK;
- 2311. Can Magnetic Resonance Mammography of Radial Scars Reduce Benign Biopsy Rates?**
David John Manton and Lindsay W. Turnbull.
YCR Centre for Magnetic Resonance Investigations, Hull, UK
- 2312. Comparison of the Characteristics of Node Negative and Positive Breast Cancers Measured by Dynamic Contrast Enhanced MRI with Three Analysis Methods.**
M. Y. Su, Y. C. Cheung, J. P. Fruehauf, H. Yu, J. Y. Chiou, E. Mechetner, S.S.Chen, O. Nalcioglu, Y. L. Wan.
University of California, Irvine, CA USA and Chang Gung Memorial Hospital, Linkou, Taiwan.
- 2313. Combined Use of Dynamic Contrast Enhancement MRI, 1H MRS, and Perfusion MRI Improves Specificity in Detection of Breast Malignancy**
T.M. Button, K.A. Dulaimy, B. Kandel, P.A. Fisher, B. O'Hea, M. kemeny, C. Geronimo, V. Geronimo and W. Huang.
State University of New York at Stony Brook, Stony Brook, NY, USA.
- 2314. Comparative analysis of dynamic contrast-enhanced T1-weighted and T2*-weighted perfusion magnetic resonance imaging (MRI) in patients with breast lesions. Preliminary study.**
Erica Endo, Su Jin Kim, Maria Concepcion Garcia Otaduy, Luciano Fernandes Chala, Antonio Carlos Nisida, Jose Aristodemo Pinotti, Claudia da Costa Leite, Claudio Campi de Castro, Nestor de Barros and Giovanni Guido Cerri.
University of Sao Paulo Medical School, Sao Paulo, SP Brazil.

- 2315. Phyllodes Tumor of the Breast : MR Imaging Features with Pathologic Correlation.**
Keiko Kishimoto, Katsuyoshi ITO, Nobuhiko Ogasawara, Masayasu Yasui, Shinji Koike, Hisato Kobayashi and Naofumi Matsunaga.
Yamaguchi University School of Medicine, Yamaguchi Japan;
- 2316. MRI Assessment of Breast Cancer Invasion: Skin and Chest Wall.**
Paul T. Weatherall, R. Scott Goodwin, Gregory Evans, Jerri Payne , Gregory Metzger, M. Hossein Saaborian M.D., Tamara Campbell, George Peters.
University of Texas Southwestern Medical Center at Dallas, Dallas, TX, USA
- 2317. High Resolution Spiral Imaging of Breast Cancer**
L. Stables, B.L. Daniel, G.H. Glover and R.J. Herfkens.
Stanford University, Stanford, CA, USA.
- 2318. Optimization of Imaging Parameters and Contrast Agent Dose for Dynamic Contrast-Enhanced MR Imaging of the Breast**
Q. Yuan, S. Englander and M. Schnall.
University of Pennsylvania, Philadelphia, PA, USA.
- 2319. Gadobenate dimeglumine (MultiHance®) in Magnetic Resonance Mammography (MRM).**
Michael Knopp, Michael Bourne, Francesco Sardanelli, Martin Wasser, Isabella Salerio, Anna La Noce, Miles Andrew Kirchin.
Clinical Center NIH, Bethesda, MD, USA, University Hospital of Wales, Wales, England, UK;
Department of Radiology, Leiden, Netherlands and Medical & Regulatory Affairs, Milan, Italy
- 2320. Assessing the Value of Early MR Measurements for Predicting Response to Neoadjuvant Treatment in Locally Advanced Breast Cancer.**
Savannah C Partridge, Laura J Esserman, David C. Newitt, Nola M Hylton
University of California, San Francisco, CA, USA.
- 2321. A 3D Technique to Determine Global Contrast Pharmacokinetics and Parenchyma Volume in Breast**
S. Englander, Q. Yuan and M. Schnall.
University of Pennsylvania, Philadelphia, PA, USA.
- 2322. Choline-Containing Compounds can be Detected with a Choline-Specific Sequence and CSI in Breast Tissue.**
Tore Skjetne, Inger Johanne Bakken and Ingrid Gribbestad.
SINTEF Unimed, Trondheim, Norway.
- 2323. Comparison of In Vivo and In Vitro 1H MR Spectroscopy of Breast Cancer**
S. Hunjan, D. Spielman, A. Sawyer-Glover and D.M. Ikeda.
Stanford University, Stanford, CA, USA.
- 2324. The Fractal Dimension of the Elasticity Tensor in MR-Elastography for the Differential Diagnosis of Breast Tumors.**
Ralph Sinkus, Joern Lorenzen, Dana Schrader, Christoph Leussler, Michael Dargatz, Peter Roeschmann
Philips Research Laboratories, Hamburg, Hamburg Germany.
- 2325. Diagnostic Efficacy of Pre-operative Contrast-enhanced Breast MRI.**
Shih-chang Wang, Bruno Mario Giuffr , Steven Blome, Jeanette Philips, Marjorie B.Kossoff.
National University of Singapore, Singapore; and Royal North Shore Hospital, St. Leonards, NSW Australia;

- 2326. Comparison of Apparent Diffusion Coefficient (ADC) with Histologic Cellularity in Breast Tumors.**
Yong GUO, Fulin Wang, Youquan Cai and Yuanguai Gao
Naval General Hospital, Beijing, P.R.China and P.L.A General Hospital, Beijing, China
- 2327. Lactate Detection in Human Breast Cancer on 2.1T MR System**
Pavel Shkarin and Qihong He
Diagnostic Radiology, Yale University, School of Medicine, New Haven, CT USA and Memorial Sloan-Kettering Cancer Center, New York, NY, USA.
- 2328. Proton Spectroscopic Imaging of Breast Cancer**
D. Spielman, S. Hunjan, A. Sawyer-Glover, E. Adalsteinsson and D.M. Ikeda.
Stanford University, Stanford, CA, USA.
- 2329. Breast MRI in Clinical Practice - Five Year Retrospective**
Frederick Kelcz, Pamela A. Propeck and Katherine A. Bueschel
University of Wisconsin-Madison, Medical School, Madison, WI, USA.
- 2330. Volume Localized 2D ¹H COSY in Human Breast Cancer *In Vivo***
Kenneth Yue, Nader Binesh, Nanette Debruhl, Albert Michael Thomas.
University of California, Los Angeles, CA USA.
- 2331. Perfusion and Diffusion Contributions to ADC: Application to Breast Tumors In-Vivo.**
Shantanu Sinha, Usha Sinha, Flora Lucas-Quesada, Nanette Debruhl, Sarah Englander and Mitchell Schnall.
University of California, Los Angeles, Los Angeles, CA USA and University of Pennsylvania, Philadelphia, PA, USA
- 2332. Characterization of Benign and Malignant Breast Lesions Using 1 HMRSat4 Tesla.**
Eva H Baker, Lance DelaBarre, Patrick J Bolan, Hellmut Merkle, Douglas Yee, Lenore I Everson, Michael Garwood.
Univ. of Minnesota, Minneapolis, MN, USA.
- 2333. Dynamic contrast-enhanced MR imaging used to evaluate response of neoadjuvant chemotherapy of breast cancer.**
Kjell Kvistad, Jana Rydland, Hanne Brit Smethurst, Ingrid S Gribbestad, Gunnar Nilsen, Steinar Lundgren, HansE Fjøsne and Olav Haraldseth.
University Hospital, and Norwegian University of Science and Technology, Trondheim, Norway.
- 2334. An Anthropomorphic Breast Phantom for MRI and Mammography**
D.B. Plewes, M.J. Yaffe, S.J. Graham, L. Little, C.L. Nangini and J.G. Mainprize.
University of Toronto, Toronto, Canada.

Prostate Cancer

- 2335. Resonance Peaks Exhibited in the Upper Field of Citrate on Proton MR Spectra of the Prostate - Assignments and Pathological Correlation.**
Keiko Imamura, Tatsuya Chikaraishi, Akio Kazama, Ichirou Tani, Azuma Hashimoto, Teruaki Iwamoto, Hideo Atari and Yasuo Nakajima.
St. Marianna University, School of Medicine, Kawasaki, Kanagawa Japan
- 2336. ¹H HR-MAS investigation of four potential markers for prostate cancer.**
Mark G. Swanson, Daniel B. Vigneron, Joyce K. James and John Kurhanewicz
University of California, San Francisco, San Francisco, CA, USA and Bruker Instruments, Fremont, CA, USA.

- 2337. Endorectal 2D L-COSY of Citrate, Spermine, Choline and Lipids in Human Prostate in vivo.**
Nader Binesh, Alan Marumoto, Albert Thomas, Kenneth Yue, Jean Dekernion and Zoran Barbaric.
University of California, Los Angeles, Los Angeles, CA USA.
- 2338. Prostate Cancer Pathology: Statistical Classification Strategy Applied to Ex-Vivo Proton MR Spectra.**
Roger Bourne, Ray L. Somorjai, Peter Russell, Peter Swindle, Simon McCredie, Philip Katelaris, Susan Dowd, Carolyn Mountford
University of Sydney, Sydney, NSW Australia; National Research Council, Winnipeg, Manitoba Canada and Sydney Adventist Hospital, Wahroonga, Sydney, Australia.
- 2339. Assessment of the Sensitivity and Specificity of *In-vivo* Proton MRS using External Surface Coil in Differentiating Malignant from Normal Prostatic Tissue**
M. Kumar, R. Kumar, A.K. Hemal and N.R. Jagannathan.
All India Institute of Medical Sciences, New Delhi, India.
- 2340. Characterization of prostate deformation during MR examination using endorectal coil for accurate localization of tumor during brachytherapy.**
Katrina Read, Keyanoosh Hosseinzadeh, Steven J. DiBiase, Rao P. Gullapalli.
University of Maryland, Baltimore, Baltimore, MD, USA
- 2341. Dynamic contrast-enhanced MR imaging of the prostate: correlation with tumour stage, histological grade and PSA.**
Bin Wang, Martin Lowry and Lindsay Wilson Turnbull.
University of Hull, School of Medicine, Hull, England.
- 2342. Quantitative Maps of ADC and Time Course T2 of Human Prostate Xenograft Model in Athymic Nude Mice**
G.-H. Jahng, S. Lai, J. Wang, L. Lynds, G.R. Ramsby, W. Wang and K.P. Claffey.
University of Connecticut Health Center, Farmington, CT, USA.
- 2343. Combined use of Diffusion-Weighted Imaging (DWI) and MR Spectroscopic Imaging (MRSI) in the detection of Prostate Cancer for Disease-Targeted Therapy.**
K. Hosseinzadeh, K. Read, S. DiBiase and R. Gullapalli.
University of Maryland, Baltimore, Baltimore, MD, USA.

Other Cancers

- 2344. Dynamic contrast-enhanced MR imaging and tumour oxygenation measurements in cervical cancer.**
S. M. Todd, A.P. Jones, R.A. Cooper, J.A. Lancaster, C.M. L. West, J.R. Sykes and B.M. Carrington.
Christie Hospital, Manchester, UK.
- 2345. Grading of Head and Neck Tumors by 1H MRS: An Approach with Potential Clinical Utility**
T. Bezabeh, S. El-Sayed, O. Odlum, S.I. Ahing, R. Patel, R.W. Nason, D. Sutherland, I.C.P. Smith.
National Research Council of Canada and University of Manitoba, Winnipeg, MB, Canada.
- 2346. Phase III safety and efficacy study of Ferumoxtran-10 as an MR contrast agent for the evaluation of lymph node metastasis in the neck and body.**
Y. Anzai, L. Loevner, D.M. Yousem, T. McCauley, T. Weber, K. Maravilla and M. Morris.
University of Washington, Seattle, WA USA; Johns Hopkins University, Baltimore, MD, USA and Yale University, New Haven, CT, USA

- 2347. Evaluation of Thyroid Masses Using *In Vivo* ^1H MR Spectroscopy: Correlation with Pathology**
W. Huang, P. Roche, M. Shindo and T.M. Button
State University of New York at Stony Brook, Stony Brook, NY, USA.
- 2348. ^1H MRS of Soft Tissue Sarcoma: A New Approach Towards Improved Diagnosis**
T. Bezabeh, S. El-Sayed, R. Patel, R. Somorjai and I.C.P. Smith.
National Research Council of Canada and University of Manitoba, Winnipeg, MB, Canada.
- 2349. ^{31}P MRS OF Phospholipids' Extracts from Blast Cells of Patients with Acute Leukaemia - Significance of Sphingomyelin.**
M. Kuliszkiwicz-Janus, S. Baczynski, A. Jurczyk, I. Prajs and B. Jazwiec.
Wroclaw Medical University, Wroclaw, Poland and University of Wroclaw, Wroclaw, Poland
- 2350. Rapid Proton Fat-Water Spectroscopy for the Characterization of Non-CNS Lesions *in vivo*.**
G. Riedy
Wake Forest University, Winston-Salem, NC, USA.
- 2351. Evaluation of Ovarian Tumors by Quantitative *in-vivo* Proton MR Spectroscopy.**
T. Okada, M. Harada, K. Matsuzaki, H. Nishitani and T. Aono.
University of Tokushima, Tokushima Japan.


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B3 Metabolism A1 B3 C10 D16 E9 A1 D16

A TYPE OF STUDY

- 0 Not specified
- 1 Methodological and Technical Developments
- 2 Feasibility Studies of MR Methods
- 3 Biomedical Applications of MR
- 4 Clinical Applications of MR

B MAIN TARGET OF STUDY

- 0 Not specified
- 1 Morphology
- 2 Function
- 3 Metabolism
- 4 Interventions
- 5 Administration/Economics
- 6 Patient Handling/Safety
- 7 Miscellaneous

C ORGAN / TISSUE

- 0 Not specified
- 1 Not focused on specific organ/tissue
- 2 Brain
- 3 Brain Vascular
- 4 Head and Neck
- 5 Spine
- 6 Chest
- 7 Breast
- 8 Heart
- 9 Body Vascular
- 10 Gastrointestinal/Hepatobiliary
- 11 Renal
- 12 Gynecology/Obstetrics
- 13 Male GU
- 14 Musculoskeletal/Joints
- 15 Cells/Body Fluids

D PATHOLOGY

- 0 Not specified
- 1 Not focused on specific pathology
- 2 Vascular Diseases
- 3 Infection
- 4 Infarction
- 5 Inflammation
- 6 Malformation
- 7 Inborn Error of Metabolism
- 8 Metabolic or Endocrine Disorders
- 9 Intoxication
- 10 Tumors
- 11 Degeneration
- 12 Seizures
- 13 White Matter Disease
- 14 Trauma
- 15 Psychiatric Diseases
- 16 Healthy Tissue

E METHODS

- 0 Not specified
- 1 Not focused on specific method
- 2 RF Pulses
- 3 Sequences: General Imaging
- 4 Sequences: Fast Imaging
- 5 Sequences: New Sources of Image Contrast
- 6 Sequences: Spectroscopy
- 7 Sequences: Combination MRI/MRS
- 8 Quantitation: MRI
- 9 Quantitation: MRS
- 10 Angiography
- 11 Flow
- 12 Diffusion
- 13 Perfusion
- 14 Data Processing: MRI
- 15 Data Processing: MRS
- 16 Motion and Artifacts
- 17 Contrast Agents
- 18 Contrast Mechanisms
- 19 Gradients and Hardware
- 20 RF Coils
- 21 Microscopy
- 22 Non-proton MRI
- 23 ESR
- 24 Thermotherapy