INTERNATIONAL SOCIETY FOR

ISMRM

MAGNETIC RESONANCE IN MEDICINE

MONDAY

Spin Echoes and Beyond

1. **MR Imaging at Low Field Strengths: Physical Principles, Instrumentation, Clinical Applications, and Limitations.**
Paul M. Parizel.
University of Antwerpe (Universitair Ziekenhuis Antwerpen), Antwerp, Belgium.

2. **More is Usually More: The Future of High Field (1.0-1.5T) MRI.**
Norbert J. Pelc.
Stanford University School of Medicine, Stanford, CA, USA.

3. **More vs. Less: Not a Question of Field Strength, But Cost-Effectiveness.**
G. Scott Gazelle.
Harvard University School of Medicine, Boston, MA, USA.

Fast Imaging – General

4. ***Young Investigator Awards Finalist:*** **Fluctuating Equilibrium MRI.**
S.S. Vasanawala, J.M. Pauly and D.G. Nishimura.
Stanford University, Stanford, CA, USA.

5. ***Young Investigator Awards Finalist:*** **Signal Formation In Echo Shifted Sequences.**
Y.C. Chung and J.L. Duerk.
Case Western Reserve University/University Hospitals of Cleveland, Cleveland, OH, USA.

6. **vGRASE: Separating Phase and T_2 Modulations in 2D.**
K. Oshio.
Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA and Keio University, School of Medicine, Tokyo, Japan.

7. **Progress in Non CPMG Fast Spin Echo.**
P. Le Roux.
GE Medical Systems, Buc, France.

8. **Single-Slab Three-Dimensional FLAIR Imaging of the Brain.**
J.P. Mugler III, S. Bao, R.V. Mulkern, C.R.G. Guttmann, F.A. Jolesz and J.R. Brookeman.
University of Virginia School of Medicine, Charlottesville, VA, USA; Brigham and Women's Hospital and Children's Hospital, Harvard Medical School, Boston, MA, USA.

9. **Simultaneous Water and Fat Three-Dimensional MRI.**
W.E. Kwok, S.M.S. Totterman and J. Zhong.
University of Rochester, Rochester, NY, USA.

10. **Fast 3D Quantitative T_1 Mapping – PURR-DANTE Inversion Recovery Imaging.**
W.D. Rooney.
Brookhaven National Laboratory, Upton, NY, USA.

11. **Linear Combination SSFP.**
S.S. Vasanawala, J.M. Pauly and D.G. Nishimura.
Stanford University, Stanford, CA, USA.

Body MR Angiography and Venography

12. **Assessment of Chronic Thromboembolic Pulmonary Hypertension with Contrast-Enhanced 3D-MR-Angiography of the Pulmonary Arteries.**
K.F. Kreitner, S. Ley, M.B. Pitton, P. Kalden, E. Mayer and M. Thelen.
Johannes Gutenberg-University, Mainz, Germany.

13. **First Pass Perfusion Measurement of Lung Parenchyma with an Ultrafast Time Resolved 2D-Projection Angiography (MR-DSA) in Patients with Pulmonary Arterial Obstruction.**
S. Lehnhardt, J. Laubenberger, R. Strecker, J. Hennig and M. Langer.
University of Freiburg, Freiburg, Germany.

14. **Susceptibility Induced Pseudo-Stenosis of the Great Vessels; A Pitfall of First-Pass Gadolinium-Enhanced 3D MR Angiography.**
J.P. Earls, A. Lantz and A. Halefoglu.
Johns Hopkins Hospital, Baltimore, MD, USA.

15. **Three-Dimensional Gadolinium-Enhanced MR Venography for Evaluation of Central Vein Patency.**
V.S. Lee, T.S. Shinde, N.M. Rofsky, G.A. Krinsky and J.C. Weinreb.
New York University, New York, NY, USA.

16. **Gadolinium Enhanced MR Angiography of the Hand.**
D.A. Connell and H.G. Potter.
Victoria House, Melbourne, Australia and Hospital for Special Surgery, New York, NY, USA.

17. **Differentiating Arteries and Veins by Using Susceptibility Induced Venous Phase.**
Y. Wang, E.M. Haacke, Y. Yu, D. Li and K.T. Bae.
Washington University, St. Louis, MO, USA.

18. **Venous Enhanced Subtracted Peak Arterial (VESPA) Magnetic Resonance Contrast Enhanced Venography.**
A. Moody, D. Fraser, I. Davidson, P. Morgan and A. Martel.
Nottingham University, Nottingham, UK.

19. **2 Station Contrast-Enhanced MR-Venography of Pelvic and Lower Extremity Veins with a Dedicated Vascular Coil.**
S.G. Ruehm, W. Wiesner, A. Meier, B. Romanowski and J.F. Debatin.
University Hospital, Zurich, Switzerland.

20. ***In vitro* Evaluation of Ligating Clips at 1.5 T.**
D. Weishaupt, H.H. Quick, D. Nanz, M. Schmidt and J.F. Debatin.
University Hospital, Zurich, Switzerland.

21. **Superior Diagnostic Strength of Gadolinium Enhanced MR-Angiography Compared to Intra-Arterial DSA in Orthotopic Liver Transplantation Candidates.**
W.J. Boeve, T. Kok, E.B. Haagsma, M.J.H. Slooff, R.A. Prinsze and R.L. Kamman.
University Hospital, Groningen, The Netherlands, and Siemens Netherlands.

Myocardial Mechanics and Ischemia

22. **Respiratory Motion Compensation with a Self-Navigating Trajectory.**
D.R. Thedens and D.G. Nishimura.
University of Iowa, Iowa City, IA, USA and Stanford University, Stanford, CA, USA.

23. **Three-Dimensional Motion Reconstruction of Right Ventricular Contraction from Tagged MRI.**
I. Haber, D.N. Metaxas and L. Axel.
University of Pennsylvania, Philadelphia, PA, USA.

24. **Tracking Cardiac Motion Using Cine Harmonic Phase (HARP) MRI.**
N.F. Osman, A.Z. Faranesh, E.R. McVeigh and J.L. Prince.
Johns Hopkins University, Baltimore, MD, USA.

25. **Three-Dimensional Myocardial Strain Analysis Based on Short- and Long-Axis MR Tagged Images, Using a 1-Dimensional Displacement Field.**
J.P.A. Kuijer, J.T. Marcus, M.J.W. Gotte, A.C. van Rossum and R.M. Heethaar.
Vrije Universiteit, Amsterdam, The Netherlands.

26. **Histologic Correlation of Myocardial Diffusion Tensor MRI: Fibers and Sheets Both Contribute.**
W.Y.I. Tseng, T.G. Reese, R.N. Smith, E. Halprin and V.J. Wedeen.
Massachusetts General Hospital, Boston, MA, USA.

27. **Developmental Changes of Cardiac Function and Mass in Neonatal, Juvenile and Adult Mice Analyzed with High Resolution Magnetic Resonance Imaging.**
F. Wiesmann, J. Ruff, K.H. Hiller, E. Rommel, A. Haase and S. Neubauer.
University of Wuerzburg, Wuerzburg, Germany.

28. **Effect of ACE-Inhibition on Left Ventricular Contractility Following Myocardial Infarction in Rats.**
R.M. Setser, J.S. Allen, K.J. Lunn, D.L. Davis, M.P. Watkins, S.A. Wickline and C.H. Lorenz.
Barnes-Jewish Hospital at Washington University Medical Center, St. Louis, MO, USA.

29. **Detection of Regions of Myocardial Infarction in Pigs, Higher Sensitivity and Specificity Using 3D Velocity-Encoded Cine MR Imaging Compared to Wall Thickening.**
R.J. van der Geest, L.J.M. Kroft, H.W.M. Kayser, E.E. van der Wall, A. de Roos and J.H.C. Reiber.
Leiden University Medical Center, Leiden, The Netherlands and Interuniversity Cardiology Institute of the Netherlands, Utrecht, The Netherlands.

30. **MRI Discrimination of Nonviable from Viable Myocardium by Differential Cellular Uptake of Mn^{++} Released from MnDPDP.**
M.F. Wendland, M. Saeed, J. Bremerich, H. Arheden and C.B. Higgins.
University of California, San Francisco, CA, USA.

31. **Manganese Dipyridoxyl Diphosphate (MnDPDP) - A Functional Contrast Agent for the Ischemic Myocardium?**
P. Jynge, H. Brurok, K. Berg, S. Skarra and J.O.G. Karlsson.
Norwegian University of Science and Technology, Trondheim, Norway and Linkoping University, Linkoping, Sweden.

MR Spectroscopy of Cells, Body Fluids, and Other

32. **Spatially Localized ^{1}H NMR Spectroscopy on Isolated Single Neurons.**
S. Grant, D. Plant, S. Gibbs, N.R. Aiken, A. Webb, T.H. Mareci and S.J. Blackband.
University of Florida, Gainesville, FL, USA; The National High Magnetic Field Laboratory, Tallahassee, FL, USA; University of Illinois, Urbana, IL, USA; University of Chicago, Chicago, IL, USA and University of Arizona, Tucson, AZ, USA.

33. ***Myo*-Inositol is not Exclusively Glial in the Human CNS.**
G.J. Moore, S. Koch, G. Chen, J. Santalucia Jr and H.K. Manji.
Wayne State University School of Medicine, Detroit, MI, USA.

34. **Use of Alanine as Precursor for Transmitter Glutamate and GABA: A Comparative NMR Study with Primary Neurons, Astrocytes and Cocultures.**
C. Zwingmann, C. Richter-Landsberg, A. Brand and D. Leibfritz.
Universitat Bremen, Bremen, Germany.

35. **Extracellular Acidification and Hypoxia in Glial Cell Lines Studied by NMR Spectroscopy: Role of Na^{+}/H^{+} Exchange Subtype 1 Inhibition.**
K. Glunde, H-P. Juretschke and D. Leibfritz.
Universitat Bremen, Bremen, Germany and Hoechst AG, Frankfurt/Main, Germany.

36. **Integrated NMR Measurements of Hepatic Glucose Production and Gluconeogenic Fluxes in Humans.**
J.G. Jones, M.A. Solomon, A.D. Sherry, F.M.H. Jeffrey and C.R. Malloy.
University of Texas Southwestern Medical Center, Dallas, TX, USA.

37. **Hydrogen Turnover in Hepatic Metabolites as Detected by ^{13}C NMR.**
M.L. Garcia-Martin, M.A. Garcia-Espinosa, P. Ballesteros, L.E. Bailey, M. Bruix and S. Cerdan.
C.S.I.C. and UNGD, Madrid, Spain.

38. **A Perfusion System for High Resolution, ^{31}P and ^{13}C-NMR Studies of Intact Perfused Insulin Secreting RINm5F Cells: Effects on Oxygenation.**
K.K. Papas, M.A.C. Jarema, E.S. Roos, M.J. Shapiro and J.S. Gounarides.
Novartis Institute for Biomedical Research, Summit, NJ, USA.

39. **Regional Biochemical Variations in the Normal Uterine Cervix by ^{1}H MRS *Ex Vivo*.**
P.W. So, T. Krausz, W.P. Soutter, A.D. Williams, J.D. Bell and N.M. deSouza.
Imperial College School of Medicine, Hammersmith Hospital, London, UK.

40. **High Resolution Proton MRS of Plasma Provides a Non Invasive Diagnostic of Low Grade Acute Heart Transplant Rejection.**
J. Vion-Dury, A. Mouly-Bandini, P. Viout, M. Sciaky, S. Confort-Gouny, T. Mesana, J.R. Monties and P.J. Cozzone.
Faculte de Medecine and Centre Hospitalo-Universitaire de la Timone, Marseille, France.

41. **^{31}P NMR Evidence for Phosphate Immobilization in Ossifying Cartilage Grown in a Hollow Fiber Bioreactor.**
E. Petersen, K. Fishbein, E. McFarland and R.G.S. Spencer.
National Institutes of Health, Baltimore, MD, USA and University of California, Santa Barbara, CA, USA.

MR Spectroscopy of White Matter Disease and Degeneration

42. **Neuronal Damage in T_1 Hypointense Multiple Sclerosis Lesions Demonstrated *In Vivo* Using ^{1}H-MRS.**
M.A.A. van Walderveen, F. Barkhof, P.J.W. Pouwels, R.A. van Schijndel, C.H. Polman and J.A. Castelijns.
Dutch MR Center for MS-Research and University Hospital, Vrije Universiteit, Amsterdam, the Netherlands.

43. **Quantitative Proton MRS of Cerebral Multiple Sclerosis Lesions: Regression Analysis of Metabolite Concentrations.**
G. Helms, L. Stawiarz, P. Kivisakk, S. Fredrikson, J. Hillert and H. Link.
Karolinska Institutet, Stockholm, Sweden.

44. **3D ^{1}H MRS of "Normal Appearing White Matter" in Patients with Relapsing-Remitting Multiple Sclerosis.**
B.S.Y. Li, A.K. Viswanathan, P. Patriotis, L.J. Manonn, D. Kolson, R.I. Grossman and O. Gonen.
Fox Chase Cancer Center and University of Pennsylvania Medical Center, Philadelphia, PA, USA.

45. **Relation of Brain Metabolite Concentrations to Cognitive Functions in Alzheimer Disease: A Quantitative *In Vivo* ^{1}H MRS Study.**
W. Huang, G.E. Alexander, L. Chang, B. Levine, J. Szczepanik, S.I. Rapoport and M.B. Schapiro.
State University of New York, Stony Brook, NY, USA and National Institute on Aging, Bethesda, MD, USA.

46. **Reference Normalized Quantification of Cerebral Metabolites in Alzheimer's Patients Using an External Standard in Proton Magnetic Resonance Spectroscopic Imaging.**
X. Yu, M.F. Danish, K.R.R. Krishnan and H.C. Charles.
Duke University Medical Center, Durham, NC, USA.

47. **^{1}H MRS in Normal Aging, Pre-Symptomatic and Probable Alzheimer's Disease.**
K. Kantarci, R.C. Petersen, Y.C. Xu, N.G. Campeau and C.R. Jack Jr.
Mayo Clinic, Rochester, MN, USA.

48. **Grade-Dependent Concentration Variation of Cerebral Metabolites in X-Linked Adrenoleukodystrophy: ^{1}H MR Spectroscopy.**
J-J. Seo, H-K. Kang, Y-H. Kim, Y-Y. Jeong, J-G. Park, S-J. Park, H-J. Kim and G-W. Jeong.
Chonnam National University, Kwang-Ju, Korea.

49. **Metabolic, Structural and Neuropsychological Deficits in Mitochondrial Encephalopathies Assessed by ^{1}H MRSI, MRI and Neuropsychological Testing.**
D.C. Shungu, M. Sano, W.S. Millar, Y. Polanco, P. Kaufmann, R.L. DeLaPaz, S. DiMauro and D.C. De Vivo.
Columbia University, New York, NY, USA.

50. **Clinical Outcome and Immune Response to Neurotransplantation.**
B.D. Ross, O. Kopyov, S. Bluml and J. Tan.
Huntington Medical Research Institutes, Pasadena, CA, USA; Rudi Schulte Research Institute, Santa Barbara, CA, USA and Good Samaritan Hospital, CA, USA.

51. **Long-Term MRS Studies on Impact of Surgical Shunting in Hydrocephalic Patients.**
S. Bluml, J. Tan, J.G. McComb and B.D. Ross.
Huntington Medical Research Institutes, Pasadena, CA, USA; Rudi Schulte Research Institute, Santa Barbara, CA, USA and Children's Hospital of Los Angeles, CA, USA.

MR Imaging of Brain - Stroke Models: Thrombolysis and Reperfusion

52. **The Temporal Evolution of the Secondary Decline inWater Apparent Diffusion Coefficient Following Transient Middle Cerebral Artery Occlusion in Rats.**
M.D. Silva, F. Li, M. Fisher and C.H. Sotak.
Worcester Polytechnic Institute, UMass Memorial Health Care and University of Massachusetts Medical School, Worcester, MA, USA.

53. **Secondary/Delayed Energy Failure Depends on the Extent of ADC Recovery. A NMR-Based Analysis in Focal Cerebral Ischemia.**
F. Pillekamp, M. Grune, U. Uhlenkuken, G. Brinker, C. Franke, M. Hoehn and K.A. Hossmann.
Max-Planck-Institute for Neurological Research, Cologne, Germany.

54. **Concomitant Alterations in T_1 and Water Diffusion in Acute Cerebral Ischaemia and Reperfusion in Rats.**
M.I. Kettunen, O.H.J. Grohn, J.A. Lukkarinen, M.J. Silvennoinen and R.A. Kauppinen.
University of Kuopio, Finland.

55. **Secondary or Gradual ADC Decline Following Reperfusion: Origins in Delayed Hypoperfusion.**
M.F. Lythgoe, G.S. Pell, D.L. Thomas, F. Calamante, M.D. King, S.R. Williams, R.J. Ordidge and D.G. Gadian.
University College London, London, UK.

56. **Spreading Patterns of Reduced Cerebral Apparent Diffusion Coefficient in an Animal Model of Perinatal Asphyxia.**
J.S. Thornton, R.J. Ordidge, K. Brooks, E.B. Cady, M. Clemence, Q. Nguyen, M. Noone, F.E. O'Brien, N. Parker, Y. Sakata, M.W. Sellwood, R. Springett, M. Wylezinska and J.S. Wyatt.
University College London, London, UK.

57. **Changes in MR Images and Brain Water During and Following an Episode of Cerebral Hypoxia/Ischemia are Age Dependent.**
M. Qiao, K.L. Malisza, S. Bascaramurty, P. Kozlowski and U.I. Tuor.
National Research Council, Winnipeg, MB, Canada.

58. **Efficacy and Risk of rt-PA Intervention of Embolic Stroke in Rat Evaluated by MRI.**
Q. Jiang, R.L. Zhang, Z.G. Zhang, J.R. Ewing, R.A. Knight, P. Jiang and M. Chopp.
Henry Ford Hospital, Detroit, MI, USA and Oakland University, Rochester, MI, USA.

59. **The Use of ADC and Perfusion as MR Predictors of Outcome After Transient Rat Brain Focal Ischaemia.**
F.A. van Dorsten, M. Grune, W. Schwindt, L. Olah, U. Uhlenkuken, F. Pillekamp, K.-A. Hossmann and M. Hoehn.
Max-Planck-Institute for Neurological Research, Cologne, Germany.

60. **Delayed Postischemic Hyperemia in a Rat Model of Focal Ischemia Observed by MR Perfusion Imaging Using Arterial Spin Tagging.**
H. Lei, J. Dowden, J. Peeling and D. Corbett.
University of Manitoba, Canada and Memorial University of Newfoundland, Canada.

61. **VEGF Antagonism Reduces Ischemic-Reperfusion Injury in the Mouse Brain Demonstrated by High Resolution MRI.**
N. van Bruggen, J.T. Palmer, H. Thibodeaux, B. Cairns, D. Tumas, R. Gerlai, M. van Lookeren, N. Ferrara and S.P. Williams.
Genentech Inc., South San Francisco, CA, USA.

Detection and Characterization of Cancer in the Abdomen

62. **MR Imaging in Staging of Advanced Gastric Cancer: Is it Useful as Compared with Spiral CT?**
A.Y. Kim, C.K. Sung, T.K. Kim, J.K. Han and B.I. Choi.
Seoul National University College of Medicine, Seoul, Korea.

63. **Performance of Unenhanced MRI, SPIO-enhanced MRI, and Spiral-CT for the Detection and Characterization of Focal Hepatic Lesions: Results of a ROC-study with Multiple Observers.**
P. Reimer, N. Jahnke, M. Fiebich, C. Marx, F. Deckers, N. Holzknecht, W. Schima and S. Saini.
Westfalian Wilhelms-University, Munster, Germany.

64. **Double Contrast MRI for the Detection and Characterisation of Hepatocellular Carcinoma in the Cirrhotic Liver.**
J. Ward, J. Scott, J.A. Guthrie, D. Wilson and P.J. Robinson.
St James's University Hospital, Leeds, UK.

65. **Comparison of Contrast for MnDPDP Enhanced MR Imaging and Biphasic CE-CT of the Liver.**
P. van Dijk, R.H. Kruyt, P.E. Sijens and M. Oudkerk.
University Hospital, Rotterdam, The Netherlands.

66. **Early Homogeneously Enhancing Hemangioma versus Hepatocellular Carcinoma: Differentiation using Quantitative Analysis of Multiphasic Dynamic Contrast-Enhanced Magnetic Resonance Imaging.**
M-G. Jeong, J-S. Yu, K.W. Kim, B-J. Jo and J.K. Kim.
Yonsei University College of Medicine, Seoul, South Korea.

67. **MR Imaging of Hepatocellular Carcinoma (HCC): Prospective Evaluation with Explant Correlation.**
G. Krinsky, N. Theise, N.M. Rofsky, V.S. Lee, H. Mizrachi and J. Weinreb.
New York University Medical Center, New York, NY, USA.

68. **Comparative Diagnostic Accuracy of Magnetic Resonance Imaging and Positron Emission Tomography in the Detection of Liver Metastases in Patients with Malignant Melanoma.**
C. Altehoefer, N. Ghanem, S. Hogerle, E. Nitzsche and M. Langer.
University Hospital, Freiburg, Germany.

69. **Preoperative MRI-Staging of Patients with Pancreatic Cancer.**
E. Castillo, U. Fischer, B. Salamat, O. Horstmann and E. Grabbe.
Georg-August-Universitat Gottingen, Germany.

MR Imaging of Acute Stroke

70. **Early Rise in the Apparent Diffusion Coefficient Associated with Resolution of Perfusion Abnormalities in Clinical Stroke.**
C. Beaulieu, M. Moseley, A. de Crespigny, D. Tong, G. Albers and M. Marks.
Stanford University, Stanford, CA, USA.

71. **Diffusion and Perfusion MR Imaging in Stroke: A Comparison of Haemodynamics in Infarcted and Non-Infarcted Brain Tissue.**
A.L. Martel, S.J. Allder, A.R. Moody, R.S. Delay and P.S. Morgan.
University Hospital, Nottingham, UK.

72. **Combined Diffusion and Perfusion MRI in Acute Ischemic Stroke: Correlation to Clinical Outcome.**
J.O. Karonen, J. Nuutinen, R. Vanninen, P. Vainio, Y. Liu, J. Perkio, K. Korhonen, R. Roivainen, K. Partanen, J. Sivenius, E. Vanninen, J. Kuikka, L. Ostergaard and H.J. Aronen.
Kuopio University Hospital, Kuopio, Finland and Aarhus University Hospitals, Aarhus, Denmark.

73. **Differences in Water Diffusion Between Gray Matter and White Matter in Stroke: Diffusion Tensor MR Imaging Experience in Twelve Patients.**
P. Mukherjee, M.M. Bahn, R.C. McKinstry, J.S. Shimony, T.S. Cull, E. Akbudak, A.Z. Snyder and T.E. Conturo.
Washington University School of Medicine, St. Louis, MO, USA.

74. **Extension of MRI-Based Predictive Models of Infarction in Hyperacute Human Cerebral Ischemia.**
O. Wu, W.J. Koroshetz, L. Ostergaard, W.A. Copen, R.G. Gonzalez, B.R. Rosen, M.R.C. Salhus, R.M. Weisskoff and A.G. Sorensen.
Massachusetts Institute of Technology, Cambridge, MA, USA and Massachusetts General Hospital, Boston, MA, USA.

75. **Reversible Decrease of Hemispheric Water Mobility in Hemiplegic Migraine Related to a Missense Mutation of the CACNA1A Gene.**
H. Chabriat, K. Vahedi, C. Clark, A. Ducros, C. Poupon, C. Denier, D. Le Bihan and M.G. Bousser.
Hopital Laiboisiere, Paris, France; SHFJ-CEA-DSV, Orsay, France and Faculte de Medecine Necker, Paris, France.

76. **Hemodynamic and Metabolic Changes of Acute Cerebral Infarction Evaluated by Flow-Sensitive Alternating IR (FAIR) Image and Spectroscopic Imaging (CSI), and Comparison with Dynamic Cerebral Perfusion SPECT.**
M. Harada, T. Okada, S. Hisaoka, K. Yoneda, H. Nishitani, M. Uno and T. Matsuda.
University of Tokushima, Tokushima, Japan and GE-YMS, Tokyo, Japan.

77. **Multislice Continuous Arterial Spin Labeled Perfusion MRI in Patients with Acute Stroke.**
J.A. Detre, J.A. Chalela, J. Gonzalez-Atavales, R.L. Wolf, J.A. Maldjian and D.C. Alsop.
University of Pennsylvania, Philadelphia, PA, USA.

78. **Selection of Stroke Therapy by Comparison of Cerebral Blood Volume and Cerebral Blood Flow Maps in Acute Patients.**
F.O. Zelaya, J.B. Chalk, N. Flood, S.E. Rose, W. Strugnell, D.M. Doddrell and J. Semple.
University of Queensland and Princess Alexandra Hospital, Brisbane, Australia and SmithKline Beecham Pharmaceuticals, Cambridge, UK.

79. **Intracerebral Hemorrhage: Evaluation with Diffusion, Perfusion MRI and Proton MR Spectroscopic Imaging.**
P.Y. Wang, J.R. Carhuapoma, N.J. Beauchamp, J.A. Ulatowski, D.F. Hanley and P.B. Barker.
Johns Hopkins University, Baltimore, MD, USA.

Vessel Wall Imaging

80. ***In Vivo* MR Characterization of Human Aortic Atherosclerotic Plaques.**
Z.A. Fayad, T. Nahar, J.T. Fallon, M. Goldman, J.G. Aguinaldo, J.J. Badimon and V. Fuster.
Mount Sinai School of Medicine, New York, NY, USA.

81. **MR Imaging of Atherosclerotic Plaque with Ultrasmall Super Paramagnetic Iron Oxide (USPIO) in Hyperlipidemic Rabbits.**
S.G. Ruehm, H.H. Quick, C. Corot, B. Marincek and J.F. Debatin.
University Hospital, Zurich, Switzerland and Laboratoire Guerbet, Paris, France.

82. **Real-Time Intravascular Magnetic Resonance Receiver Probe: *In Vivo* Observations in the Rabbit Aorta.**
P.A. Rivas, M.V. McConnell, K. Nayak, G. Scott, C. Meyer, J.M. Pauly, D.G. Nishimura, A. Macovski and B.S. Hu.
Stanford University, Stanford, CA, USA.

83. **Multispectral Analysis of MR Images of Atherosclerotic Plaque: Correlation with Histology.**
S. Clarke, B. Rutt, S. Lownie, R. Hammond and J.R. Mitchell.
University of Western Ontario, John P. Robarts Research Institute and London Health Sciences Centre, London, Ontario, Canada.

84. **A T_2 Classification for the Discrimination of Atheromatous Primary and Restenotic Coronary Plaques at 1.5T by High-Resolution MRI.**
J-F. Toussaint, H. Gouya, D. Glutron, P. Fornes, G. Berger, M. Paillard and J. Bittoun.
Broussais Hospital and Bicetre Hospital, Paris, France.

85. **Lesion Index: A Quantitative Measure of Atherosclerotic Lesion Complexity and Progression in MR Images.**
C. Yuan, X. Kang, D. Xu and T.S. Hatsukami.
University of Washington, Seattle, WA, USA.

86. **3D MRI of Atherosclerosis Progression in Transgenic Mice.**
P.D. Hockings, T.J. Roberts, D.G. Reid, M. Vidgeon-Hart, P.H.E. Groot, K.E. Suckling and G.M. Benson.
SmithKline Beecham Pharmaceuticals, Welwyn, Herts, UK.

87. **Lumen Size Measurement in MR Angiography.**
O.S. Aassar, A. Troyer, R. van Tyen and D. Saloner.
VA Medical Center, San Francisco, USA.

88. **Angiographic Determination of Vessel Distensibility *In Vivo*: Effects of Eprosartan (AII Antagonist) in a Severe Hypertension Model.**
S. Chandra, R.N. Willette, C.F. Sauermelch, S. Heron, F.C. Barone, E.H. Ohlstein and S.K. Sarkar.
SmithKline Beecham Pharmaceuticals, King of Prussia, PA, USA.

89. **Estimation of Compliance in Aortic Aneurysms Using Pulse Wave Velocity Measurements.**
J.M. Boese, S.O. Schoenberg, M. Bock, F. Kallinowski, K. Gaase, M.V. Knopp and L.R. Schad.
Deutsches Krebsforschungszentrum (DKFZ) and Chirurgische Universitatsklinik, Heidelberg, Germany.

Faster Reconstruction Methods

90. ***Young Investigator Awards Finalist:*** **UNFOLD used to Speed Up Cardiac Imaging and fMRI.**
B. Madore, G.H. Glover and N.J. Pelc.
Stanford University School of Medicine, Stanford, CA, USA.

91. **Use of Multi-Coil Arrays for Separation of Signal from Multiple Slices Simultaneously Excited.**
D.J. Larkman, J.V. Hajnal, A.H. Herlihy, G.A. Coutts, I.R. Young and G. Ehnholm.
Imperial College School of Medicine, Hammersmith Hospital, London, UK and Picker Nordstar, Helsinki, Finland.

92. **Considerations for Using the Voronoi Areas as a k-space Weighting Function.**
A.M. Takahashi.
Stanford University School of Medicine, Stanford, CA, USA.

93. **Gridding Reconstruction Using Optimal, Shift-Variant Interpolating Kernels.**
H. Sedarat and D.G. Nishimura.
Stanford University, Stanford, CA, USA.

94. **Spiral SENSE: Sensitivity Encoding with Arbitrary K-Space Trajectories.**
K.P. Pruessmann, M. Weiger, P. Boernert and P. Boesiger.
University and ETH, Zurich, Switzerland and Philips Research, Hamburg, Germany.

95. **Multiprocessor System for Real-Time Convolution Interpolation Reconstruction.**
H. Eggers and R. Proksa.
Philips Research, Hamburg, Germany.

96. **Comparison of Nearest Neighbor and Linear Interpolation in Segmented k-space Reconstruction.**
T.B. Salido and C.A. Hamilton.
Wake Forest University School of Medicine, Winston-Salem, NC, USA.

97. **Holographic Running Reconstruction of MR Imaging in Phase Scrambled Fourier Imaging Technique.**
S. Ito, Y. Kamimura and Y. Yamada.
Utsunomiya University, Utsunomiya, Japan.

98. **Real-Time Spiral Image Reconstruction Using Fixed-Point Calculations.**
J-R. Liao.
National Chung Hsing University, Taichung, Taiwan, R.O.C.

Safety and Bioeffects

99. **Measurement of Peripheral Nerve Stimulation Caused by Fast Magnetic Field Gradients by Means of Electromyography.**
A. Hoffmann, S.C. Faber, K. Werhahn, L. Jager and M. Reiser.
Ludwig-Maximilians-University, Munich, Germany.

100. **Does Spiral-EPI Change Nerve Stimulation Thresholds?**
D.J. Schaefer and K.F. King.
General Electric Medical Systems, Milwaukee, WI, USA.

101. **Evaluation of Various Materials for Acoustic Noise Attenuation in MRI.**
J.W. Monroe, R. Holtman, K. Holtman, P. Schmalbrock and B.D. Clymer.
The Ohio State University, Columbus, OH, USA.

102. **Skin Temperature Increase during Local Exposure to High Power RF Levels.**
A.J. van den Bergh, H.J. van den Boogert and A. Heerschap.
University Hospital, Nijmegen, The Netherlands.

103. **Heating Effects of Magnetic Resonance Imaging on Pacemaker Leads: Effect of Lead Types and Positioning.**
R. Luechinger, F. Duru, M.B. Scheidegger, R. Candinas and P. Boesiger.
University and ETH and University Hospital, Zurich, Switzerland.

104. **A 0.7mm Triaxial Cable for Significantly Reducing RF Heating in Interventional MR.**
M.E. Ladd and H.H. Quick.
University Hospital, Zurich, Switzerland and GE Medical Systems, Kriens, Switzerland.

105. **Acoustic Noise Levels in Head Gradient Coils During EPI as a Function of Frequency Encoding Direction.**
T.E. Prieto.
Medical College of Wisconsin, Milwaukee, WI, USA.

106. **Local Thermal Safety in Intravascular MR Imaging: An *in vivo* Evaluation.**
X. Yang, H. Ji and E. Atalar.
Johns Hopkins University School of Medicine, Baltimore, MD, USA and Kuopio University Hospital, Kuopio, Finland.

107. **SAR and the B_1 Field Homogeneity Study at High-Field MRI: 3T-9T.**
T.S. Ibrahim, R. Lee, B.A. Baertlein, A. Kangarlu and P.M.L. Robitaille.
The Ohio State University, Columbus, OH, USA.

108. **Generalization to Complex Stimulus Shape of the Nerve Stimulation Threshold Based on Existing Knowledge of its Relation to Stimulus Duration for Rectangular Stimuli.**
J.A. den Boer, R. Bakker, C. Ham and J. Smink.
University of Maastricht, Maastricht, The Netherlands and Philips Medical Systems, Best, The Netherlands.

MR Spectroscopy of the Abdomen and Pelvis

109. Evaluation of Iron Overload by Single Voxel MRS Measurement of Liver T_2.
Z.J. Wang, J.C. Haselgrove, S. Li, M.B. Martin, J.R. Moore, A.M. Hubbard, H. Zhao and A.R. Cohen.
The Children's Hospital of Philadelphia and University of Pennsylvania, Philadelphia, PA, USA and Siemens Medical Systems, Iselin, NJ, USA.

110. ^{13}C Magnetic Resonance Spectroscopy Study of Hepatic Glycogen Metabolism in Children and Adolescents with IDDM Compared to Normals.
J. Slotboom, C.E. Fluck, J.M. Nuoffer, P.E. Mullis and C. Boesch.
Inselspital Bern, Switzerland.

111. Hepatic Glycogenolysis is Suppressed by Intravenous Lipid Infusion in Fasting Humans: A ^{13}C NMR Spectroscopy Study.
M. Krssak, H. Stingl, M. Bischof, M. Krebs, E. Moser, W. Waldhausl and M. Roden.
University of Vienna, Vienna, Austria.

112. Assessment of Metabolites in the Regenerating Rat Liver for Adjuvant Chemotherapy Planning Using 3D Phosphorus Chemical Shift Imaging.
K.L. Zakian, S. Challa, D. Kooby, C.M. Matei, J.P. Dyke, H.H. Yoo, M. Ercolani, Y. Fong and J.A. Koutcher.
Memorial Sloan-Kettering Cancer Center, New York, NY, USA.

113. A Creatine Kinase Isoform Effect on Endotoxin Tolerance in Transgenic Mouse Liver.
F. Kernec, C. Calisti, T.C-C. Hu and A. Koretsky.
Carnegie Mellon University, Pittsburgh, PA, USA.

114. Examining Human Prostate Specimens with HRMAS ^{1}H MR Spectroscopy.
L.L. Cheng, C.L. Wu, M.R. Smith and R.G. Gonzalez.
Massachusetts General Hospital and Harvard Medical School, Boston, MA, USA.

115. Monitoring Effects of Prostate Cancer Brachytherapy Using Combined MRI/MRSI.
R. Males, W. Okuno, D. Vigneron, P. Wood, S. Nelson, M. Roach III and J. Kurhanewicz.
University of California, San Francisco, CA, USA.

116. Prostate MRI and MRS at 3 Tesla using a Transceive Phased-Array Pelvic Coil.
H-W. Kim, D.L. Buckley, D. Peterson, R. Duensing, P. Narayan and S.J. Blackband.
University of Florida, Gainesville, FL, USA and National High Magnetic Field Laboratory, Tallahassee, FL, USA.

117. Evaluation of Local Prostate Recurrence after Radical Prostectomy using Magnetic Resonance Spectroscopic Imaging.
V.L.M. Scharen-Guivel, R.G. Males, S.J. Nelson, U.G. Mueller-Lisse, J. Scheidler, D.B. Vigneron and J. Kurhanewicz.
University of California, San Francisco, CA, USA.

118. Differential ^{31}P Spectral Patterns of Human Spleen in Health and Disease Using 3D-Localized ^{1}H-Decoupled ^{31}P MR Spectroscopy.
F. Arias-Mendoza, F. Berardocco, C.W. Li, G.W. Negendank and T.R. Brown.
Fox Chase Cancer Center, Philadelphia, PA, USA.

Segmentation and Registration in the Brain

119. Evaluation of MR Segmentation Algorithms.
W.J. Niessen, K.L. Vincken and M.A. Viergever.
Utrecht University/University Hospital, Utrecht, The Netherlands.

120. Fast Tissue Segmentation Based on a 4D Feature Map in Characterization of Intracranial Lesions.
S. Vinitski, T. Iwanaga, S. Madi, J. Nissanov, R. Knobler, H. Ortega and C.F. Gonzalez.
duPont Hospital for Children, Wilmington, DE, USA and Thomas Jefferson University, Philadelphia, PA, USA.

121. Highly Accurate, Reproducible and Reliable Automatic Segmentation of the Brain in T_1-Weighted Volume MRI Data.
L. Lemieux, G. Hagemann, K. Krakow and F.G. Woermann.
University College London, London, UK and Heinrich-Heine University, Duesseldorf, Germany.

122. A Self-Adaptive Vector Quantization Algorithm for MR Image Segmentation.
D. Chen, L. Li and Z. Liang.
State University of New York, Stony Brook, NY, USA.

123. T_1-Based Segmentation of Brain Tissue with a Surface Coil.
G.F. Mason.
Yale University, New Haven, CT, USA.

124. Retrospective Motion Correction of fMRI by Mapping-Slice-to-Volume Approach Using Mutual Information Based Registration.
B. Kim, J.L. Boes, P.H. Bland, T.L. Chenevert and C.R. Meyer.
The University of Michigan, Ann Arbor, MI, USA.

125. Multimodality Image Registration by Gradient Enhanced Generalized Clustering.
J. Tsao.
University of Illinois at Urbana-Champaign, IL, USA.

126. The Windowed Correlation; Minimizing the Adverse Effects of the Windowing Function.
J.B. Weaver, S. Periaswamy, D.M. Healy Jr and P.J. Kostelec.
Dartmouth-Hitchcock Medical Center and Dartmouth College, Hanover, NH, USA.

127. COCGV: A Method for Multi-Modality 3D Volume Registration.
J.L. Ostuni, B.A. Chodkowski, N.D. Richert, L. Hsu and J.A. Frank.
National Institutes of Health, Bethesda, MD, USA and George Washington University, Washington, DC, USA.

128. Fast 3D Registration Using the Patch Algorithm.
P. Zhilkin and M.E. Alexander.
National Research Council Canada, Winnipeg, Canada.

MR Imaging of Pulmonary Ventilation

129. Ultrafast Imaging of Lung Ventilation Using Hyperpolarized Helium-3.
W.G. Schreiber, K. Markstaller, H.U. Kauczor, R. Surkau, B. Eberle, T. Grossmann, N. Weiler, E. Otten and M. Thelen.
Johannes Gutenberg-University, Mainz, Germany.

130. Detection of Elastase-Induced Emphysema in Rat Lungs by Measuring Diffusion of Hyperpolarized 3He.
X.J. Chen, L.W. Hedlund, M.S. Chawla, H.E. Moller and G.A. Johnson.
Duke University Medical Center, Durham, NC, USA and Westfalische Wilhelms-Universitat, Munster, Germany.

131. Comparison of Different Sequences for Imaging Human Lungs with Hyperpolarised ^{3}He at 0.1 T.
E. Durand, D. Vattolo, L. Darrasse, G. Guillot, P.J. Nacher and G. Tastevin.
U2R2M, Orsay, France and Laboratoire Kastler-Brossel, Paris, France.

132. Combined CINE/Radial-Sampling Techniques for Functional Imaging of Guinea Pig Lungs using Hyperpolarised 3He.
M. Viallon, G.P. Cofer, S.A. Suddarth, H.E. Moller, J.X. Chen, M.S. Chawla, L.W. Hedlund, Y. Cremillieux and G.A. Johnson.
Duke University Medical Center, Durham, NC, USA and Universite LYON I-CPE, Villeurbanne, France.

133. Determination of Regional Intrapulmonary Oxygen Concentrations by 3He-MRI.
A.J. Deninger, B. Eberle, M. Ebert, T. Grossmann, K. Markstaller, E. Otten, W. Schreiber, R. Surkau and N. Weiler.
University of Mainz, Germany.

134. A Compact Compressor for Application of Metastability-Exchange Optical Pumping of ^{3}He to Human Lung Imaging.
T.R. Gentile, G.L. Jones, A.K. Thompson, R.R. Rizi, I.E. Dimitrov, D.A. Roberts, D. Lipson, R. Reddy, W. Gefter, M.D. Schnall and J.S. Leigh.
NIST, Gaithersburg, MD, USA and University of Pennsylvania, Philadelphia, PA, USA.

135. Noninvasive MRI Ventilation/Perfusion Scanning using Helium-3 and Arterial Spin-Tagging in Orthotopic Lung Transplant Patients.
D.A. Lipson, I.E. Dimitrov, R.R. Rizi, T.R. Gentile, G. Jones, A.K. Thompson, D.A. Roberts, H. Palevsky, W. Gefter, M.D. Schnall, J.S. Leigh and J. Hansen-Flaschen.
University of Pennsylvania, Philadelphia, PA, USA and NIST, Gaithersburg, MD, USA.

136. Measurements of ^{3}He Diffusivity in Human Lung: Preliminary Results from an Emphysema Patient.
B. Saam, D.A. Yablonskiy, D.S. Gierada, J.D. Cooper and M.S. Conradi.
Washington University, St. Louis, MO, USA.

137. Noninvasive Ventilation-Perfusion MR Imaging Using Oxygen and FAIRER in Humans and in a Porcine Model of Airway Obstruction.
V.M. Mai, Q. Chen, S. Gladstone, W. Li, H. Hatabu and R.R. Edelman.
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

138. Evaluation of Lung Lobar Ventilation Dynamics Using MR Imaging - Comparison of Patients with Interstitial Pneumonia and Normal Subjects -.

H. Seo, Y. Mori, K. Satoh, M. Ohkawa, J. Fujita and S. Bandou.
Kagawa Medical University, Kagawa, Japan.

TUESDAY

Angiogenesis: Principles and Importance in Cancer and Ischemic Heart Disease

139. **Angiogenesis: Fundamentals and Medical Applications.**
Judah Folkman.
Harvard University Medical School, Boston, MA, USA.

140. **MR Evaluation of Angiogenesis in Oncology.**
Michal Neeman.
Weizmann Institute of Science, Rehovot, Israel.

141. **Angiogenic Therapy in Ischemic Heart Disease.**
Stephen E. Epstein.
Cardiovascular Research Foundation at Washington Hospital Center, Washington, D.C., USA.

Tumor Angiogenesis and Vascularity

142. ***In Vivo* Prediction of Vascular Response to VEGF Withdrawal: Tracking Vascular Maturation by MRI.**
R. Abramovitch, H. Dafni, E. Smouha, L.E. Benjamin and M. Neeman.
Weizmann Institute of Science, Rehovot, Israel; Hebrew University and Hadassah Medical School, Jerusalem, Israel.

143. **What is the Effect of Tumoral VEGF Overproduction on MR Imaging?**
M. Lewin, S. Bredow, N. Sergeyev, E. Marecos, A. Bogdanov Jr and R. Weissleder.
Massachusetts General Hospital, Charlestown, MA, USA.

144. **Rapid, One-Step Antibody-Targeted Magnetic Resonance Contrast Enhancement of Neovascular [alpha]v[beta]$_3$ Epitopes using a Nanoparticulate Emulsion.**
S.A. Anderson, R.K. Rader, W.F. Westlin, C. Null, G.M. Lanza, S.A. Wickline and J.J. Kotyk.
Monsanto Company and Washington University, St. Louis, MO, USA.

145. **Prediction of Gene Therapy Induced Volumetric Changes by Intravascular Volume Changes Measured Using Dynamic Contrast Enhanced MRI.**
M-Y. Su, J.A. Taylor, L.P. Villarreal and O. Nalcioglu.
University of California, Irvine, CA, USA.

146. **Comparison of Vascular Volume and Permeability for Tumors Derived from Metastatic Human Breast Cancer Cells With and Without the Metastasis Suppressor Gene nm23.**
Z.M. Bhujwalla, D. Artemov, M. Solaiyappan, D. Mao and J.P. Backer.
The Johns Hopkins University School of Medicine, Baltimore, MD, USA and New York Medical College, Valhalla, NY, USA.

147. Gd-DTPA Uptake Rates are Linearly Related to the Perfused Microvessel Density and Surface-Area in 9L-Glioma Rat Models.
B.P.J. van der Sanden, T.H. Rozijn, P.F.J.W. Rijken, H.P.W. Peters, A. Heerschap, A.J. van der Kogel and W.M.M.J. Bovee.
Academic Hospital, Nijmegen, The Netherlands and Delft University of Technology, Delft, The Netherlands.

148. Measurement of Blood Flow, Blood Volume and Capillary Permeability in a Canine Spontaneous Breast Tumour Model Using Two Different Contrast Agents.
E. Henderson, J. Sykes, D. Drost, H-J. Weinmann, B.K. Rutt and T-Y. Lee.
St. Joseph's Health Centre, The University of Western Ontario and Robarts Research Institute, London, ON, Canada and Schering Research Laboratories, Berlin, Germany.

149. Utility of Acquiring Vascular Blood Volume, Permeability and Morphology Information from Dynamic Susceptibility Contrast Agent Studies in Patients with Brain Tumors.
K.M. Donahue, A. Pathak, S. Rand, R. Prost and H. Krouwer.
Medical College of Wisconsin, Milwaukee, WI, USA.

150. Quantitative CBF Mapping on Brain Tumor Patients Using Multislice Perfusion Imaging with Pulsed Arterial Spin-Labeling.
Y. Yang, B.K. Lewis, S. Xu, J.A. Frank and J.H. Duyn.
National Institutes of Health, Bethesda, MD, USA.

151. Abnormalities of the Contrast Re-circulation Phase in Cerebral Tumours Demonstrated using Dynamic Susceptibility Contrast-enhanced MR Imaging: A Possible Marker of Vascular Tortuosity.
A. Kassner, D. Annesley, X.P. Zhu, K.L. Li, I.D. Kamaly-Asl, Y. Watson and A. Jackson.
Philips Medical Systems, London, UK; University of Manchester, and Central Manchester Healthcare Trust, Manchester, UK.

New MRA Techniques

152. SMASH Contrast-Enhanced 3D MR Angiography.
D.K. Sodickson, W. Li, K.V. Kissinger, W.J. Manning and R.R. Edelman.
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

153. Undersampled Projection Reconstruction Applied to MR Angiography.
D.C. Peters, T.M. Grist, F.R. Korosec, J.E. Holden, W.F. Block, K.L. Wedding, T.J. Carroll and C.A. Mistretta.
University of Wisconsin, Madison, WI, USA.

154. 3D Gd-Enhanced Carotid MRA with High Spatial and Temporal Resolution: An Application of a New Class of K-space Sampling Theorems.
S.K. Nagle and D.N. Levin.
University of Chicago, Chicago, IL, USA.

155. High Resolution Contrast-Enhanced MR Angiography of the Renal Arteries Using Point Spread Function Analysis.
S.B. Fain, B.F. King and S.J. Riederer.
Mayo Clinic, Rochester, MN, USA.

156. Phase Contrast with Interleaved Undersampled Projections.
A.V. Barger, D. Peters, W.F. Block, K. Vigen, T.M. Grist, F.R. Korosec and C.A. Mistretta.
University of Wisconsin, Madison, WI, USA.

157. Periodically Rotated Overlapping ParallEL Lines with Enhanced Reconstruction (PROPELLER) MRI: Application to Contrast-Enhanced MRA.
J.G. Pipe.
Wayne State University, Detroit, MI, USA.

158. Fast 3D Spiral Time-Of-Flight Angiography.
M. Amann, M. Bock and L.R. Schad.
Deutsches Krebsforschungszentrum (DKFZ), Heidelberg, Germany.

159. Sliding Interleaved Projection Reconstruction Acquisition (SLIPR).
J.A. Roberts, D.L. Parker, K.C. Goodrich, H.R. Buswell, A.L. Alexander and J. Tsuruda.
University of Utah and LDS Hospital, Salt Lake City, UT, USA.

160. Breathhold 3D Pulmonary MRA with Single and Double-VUSE RF Pulses.
S.S. Halliburton, C.B. Paschal and J. Rothpletz.
Vanderbilt University, Nashville, TN, USA.

161. High Resolution Pulmonary Arterio- and Venography Using Multiple-Bolus Multiphase 3D-Gd-MRA.
S.O. Schoenberg, M. Bock, F. Flomer, A. Grau, H. Hawighorst and M.V. Knopp.
German Cancer Research Center and University Hospitals, Heidelberg, Germany and University of Michigan, Ann Arbor, MI, USA.

RF Coil Developments for Clinical MR

162. Specific Coil Design for SENSE: A Six-Element Cardiac Array.
M. Weiger, K.P. Pruessmann, R. Gosele, C. Leussler, P. Roschmann and P. Boesiger.
University and ETH, Zurich, Switzerland and Philips Research, Hamburg, Germany.

163. A Phased Array Coil Optimized for Carotid Artery Imaging.
F. Bernstein, G. Slavin, R.A. Day, F. Macaluso and S.D. Wolff.
Integrated Cardiovascular Therapeutics, Woodbury, NY, USA and GE Medical Systems, Milwaukee, WI, USA.

164. A Three Coil Comparison for MR Angiography.
J.R. Hadley, B.E. Chapman, J.A. Roberts, D.C. Chapman, K.C. Goodrich, H.R. Buswell, A.L. Alexander, J. Tsuruda and D.L. Parker.
University of Utah and LDS Hospital Salt Lake City, UT, USA.

165. A Multimode, Single Frequency Birdcage Coil for High Sensitivity Multichannel Whole Volume Imaging.
E.C. Wong and W-M. Luh.
University of California, San Diego, CA, USA.

166. A Transmit-Only/Receive-Only (TORO) RF System for High Field MRI/MRS Applications.
E.A. Barberi, J.S. Gati, B.K. Rutt and R.S. Menon.
University of Western Ontario and The John P. Robarts Research Institute, London, ON, Canada.

167. **An Improved Volume Coil for High Field MRI.**
J.T. Vaughan.
Massachusetts General Hospital, Harvard Medical School, Charlestown, MA, USA.

168. **A Volume Coil Transmit, Surface Coil Receive System for Brain Imaging at 3T.**
P.J. Ledden, L.L. Wald and J.T. Vaughan.
Massachusetts General Hospital, Charlestown, MA, USA and Enon Microwave Inc., Topsfield, MA, USA.

169. **A TiO_2 Dielectric-Filled Toroidal Resonator.**
E.J. Butterworth, E.G. Walsh and J.W. Hugg.
University of Alabama at Birmingham, AL, USA.

170. **A Transceive Coil Assembly for Hetero-Nuclear Investigations of Human Breast at 4 T.**
H. Merkle, H. Liu, L. DelaBarre, L. Everson and M. Garwood.
The University of Minnesota Medical School, Minneapolis, MN, USA.

171. **Superconducting MR Surface Coils for Human Imaging.**
Q.Y. Ma, E. Gao, J.R. Miller, H. Xu, K.C. Chan, K.K. Wong, E.S. Yang, D.F. Kacher, G.S. Young, F.A. Jolesz, D.W. Face and D.J. Kountz.
Columbia University, New York, NY, USA; University of Hong Kong, Hong Kong, China; Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA and DuPont, Wilmington, DE, USA.

Image Filtering

172. **Real Time Adaptive Filtering for Radial MR Fluoroscsopy.**
T. Schaeffter, M. Grass and V. Rasche.
Philips Research, Hamburg, Germany.

173. **Enhancement of Signal-to-Noise Ratio in Magnetic Resonance Imaging Using Adaptive Template Filtering.**
C.B. Ahn, Y.C. Song, Y. Yi, H.K. Lee, K.J. Jung and D.J. Park.
Kwangwoon University, Korea University, Catholic University Medical College and Medison MRI Research Center, Seoul, Korea.

174. **De-Noising of MR Images to Improve Signal-to-Noise Ratio.**
M.E. Alexander, R. Baumgartner, R.L. Somorjai, A.R. Summers, C. Windischberger and E. Moser.
National Research Council Canada, Winnipeg, Canada and University of Vienna, Austria.

175. **Enhancement of Anisotropic Diffusive Filtering of MR Images Using Approximate Entropy.**
G.J.M. Parker and J.A. Schnabel.
University College London, London, UK and University Hospital, Utrecht, The Netherlands.

176. **Enhancement of HF-EPI Velocity Maps with the Biorthogonal Wavelet.**
A. Rodriguez-Gonzalez, R. Bowtell and P. Mansfield.
UAM-Iztapalapa, Mexico City, Mexico and The University of Nottingham, Nottingham, England.

177. **Angular Dependence of Spatial Resolution in Images Interpolated with Zero-filling.**
M.A. Bernstein.
Mayo Clinic and Foundation, Rochester, MN, USA.

178. **Truncation Artifact Reduction in MRI with a New Class of Filters.**
Mahesh, R.K. Gupta, R. Kalyanaraman, S.B. Rao, V.S.N. Kaliprasad, P.V.K. Reddy and R.K.S. Rathore.
IIT, Kanpur, India and SGPGI, Lucknow, India.

179. **A Fast Model Independent Method for Automatic Correction of Intensity Non-Uniformity in MRI Data.**
E. Vokurka, N. Thacker and A. Jackson.
University of Manchester, Manchester, England.

180. **Static Field Inhomogeneity Correction Using A 3D High Pass Filter.**
Y. Yu, Y. Wang, E.M. Haacke and D. Li.
Washington University, St. Louis, MO, USA.

181. **Re-Normalised Sinc Interpolation For Rapid Reslicing of MRI Data.**
N. Thacker, E. Vokurka and A. Jackson.
University of Manchester, Manchester, England.

Flow and Function in the Abdomen

182. **Absolute Renal Blood Flow Quantification by Dynamic MRI: Clinical Comparison of Two Methods.**
J.P. Vallee, H.G. Khan, F. Lazeyras and F. Terrier.
Geneva University Hospital, Geneva, Switzerland.

183. **Significance of Renal Flow and Volume Measurements in Patients with Renal Artery Stenosis.**
J.G. Baden and T.M. Grist.
University of Wisconsin, Madison, WI, USA.

184. **Changes in Intra-Renal Oxygenation Post Furosemide as Evaluated by BOLD MRI: Effects of Age and Inhibition of Prostaglandin Synthesis.**
P.V. Prasad and F.H. Epstein.
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

185. **Changes in Intrarenal Oxygenation as Evaluated by BOLD MRI in a Rat Kidney Model for Radiocontrast Nephropathy.**
A. Priatna, F.H. Epstein, K. Spokes and P.V. Prasad.
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

186. **MR Imaging of Intrarenal Macrophagic Activity in an Experimental Model of Autoimmune Glomerulopathy Using USPIO.**
O. Hauger, C. Delalande, H. Trillaud, C. Deminiere, B. Fouquray, C. Ohayon, C. Combe, P. Canioni and N. Grenier.
Universite Victor Segalen-Bordeaux2, Bordeaux, France and INSERM, Paris, France.

187. **Effect of Propanolol Treatment on the Hemodynamic Changes in the Azygous and Portal Veins in Cirrhotic Patients - Assessment on Cine Phase-Contrast MR Angiography.**
Y.L. Chan, Y.T. Lee, J.Y.L. Ching, S.C.H. Yu, S.C.S. Chung and J.J.Y. Sung.
Prince of Wales Hospital, The Chinese University of Hong Kong, Hong Kong, China.

188. **Efficient Characterization of Mesenteric Blood Flow Using Color-Flow Real-Time Interactive MRI.**
F.P. Chan, K.C.P. Li, K.S. Nayak, P.R. Hilfiker and J.M. Pauly.
Stanford University, Stanford, CA, USA.

189. **Cocaine Transiently Constricts Human Spleen and Alters Hemoglobin Levels and Hematocrit.**
M.J. Kaufman, A.J. Siegel, J.H. Mendelson, S.L. Rose, T.J. Kukes, M.B. Sholar, S.E. Lukas and P.F. Renshaw.
McLean Hospital, Belmont, MA, USA.

190. **Dynamic EPI Monitoring the Intragastric Secretion, Mixing and Emptying of Viscous Meals in Man: Influence on Satiety.**
L. Marciani, P. Manoj, P. Young, R.J. Moore, S. Al-Sahab, A. Fillery-Travis, R.C. Spiller and P.A. Gowland.
University of Nottingham, Nottingham, UK; Institute of Food Research, Norwich, UK and Queen's Medical Centre, University Hospital, Nottingham, UK.

191. **Defecography in a 1.5 T Magnet Using an Interactive Reduced Field of View Radial MR Fluoroscopic Sequence.**
J. Tacke, G. Adam, A. Glowinski, T. Schaffter and R.W. Gunther.
University of Technology, Aachen, Germany and Philips Research Laboratories, Hamburg, Germany.

Musculoskeletal MR Spectroscopy

192. **Noninvasive Measurement of Gene Expression in Skeletal Muscle.**
G. Walter, E. Barton-Davis, D.I. Shoturma and H.L. Sweeney.
University of Pennsylvania, Philadelphia, PA, USA.

193. **Dipolar Coupling of Creatine and Taurine in Proton MRS of Mouse Skeletal Muscle.**
H.J.A. in't Zandt, D.W.J. Klomp, F. Oerlemans, B. Wieringa and A. Heerschap.
University Hospital Nijmegen and Nijmegen University, Nijmegen, the Netherlands.

194. **^{31}P MRS Studies of Skeletal Muscle Energetics and Ionic Balance in a New Mouse Model of Duchenne Muscular Dystrophy.**
M.A. Cole, J.A. Rafael, M. Carr, D.J. Taylor, R. Lodi, K.E. Davies and P. Styles.
University of Oxford, Oxford, UK.

195. **Carnosine Compartmentation in Muscle: pHi Determinations in Fast and Slow Fibers.**
B.M. Damon, H.J. Stark and M.J. Dawson.
University of Illinois at Urbana-Champaign, IL, USA.

196. **Unraveling the Magnetization Transfer Effect on the ^{1}H-Signal of Creatine in Rat Skeletal Muscle.**
M.J. Kruiskamp and K. Nicolay.
Utrecht University, Utrecht, The Netherlands.

197. **Kinetic Controls in Homeostasis of ATP Free Energy Potential in Skeletal Muscle.**
J.A.L. Jeneson, H.V. Westerhoff and M.J. Kushmerick.
University of Washington School of Medicine, Seattle, WA, USA and Free University and University of Amsterdam, Amsterdam, The Netherlands.

198. **Deficit of Skeletal Muscle Energy Metabolism in Huntington's Disease.**
R. Lodi, T.T. Warner, D. Manners, P. Styles, D.J. Taylor and A.H.V. Schapira.
University of Oxford, UK; University of Bologna, Italy; Royal Free and University College School of Medicine, London, UK.

199. Relation of Skeletal Muscle Triglyceride Stores to Central Obesity and Insulin Sensitivity in European and South Asian Men.
G. Jenkinson, E.L. Thomas, N. Forouhi, S. Mierisova, P. McKeigue and J.D. Bell.
Imperial College School of Medicine, Hammersmith Hospital and London School of Hygiene & Tropical Medicine, London, UK.

200. Effect of G-CSF Therapy on Central and Peripheral Bone Marrow: Evaluation by MRI and ^{1}H MRS.
G. Layer, F. Traber, W. Sander, W. Block, M. Vahlensieck, Y. Ko, C.G. Ziske and H.H. Schild.
University of Bonn, Germany.

201. Age- and Gender-Specific Diffeences in the ^{1}H Spectrum of Vertebral Bone Marrow.
C. Jung, H. Kugel and W. Heindel.
University of Cologne, Koln, Germany.

MR Angiography of the Central Nervous System

202. Time-Resolved High-Resolution Multiple Projection MR-DSA of the Carotid Arteries.
R.M. Hoogeveen, C.J.G. Bakker, O.E.H. Elgersma, P.C. Buijs and M.A. Viergever.
University Hospital, Utrecht, The Netherlands.

203. When is a Good Time (Velocity) for a Gd-MRA?: Correlation of Spectral Ultrasound Peak Systolic Velocities with Focal Flow Gaps on Carotid Gd-MRA.
A.K. Marumoto, G.M. Hathout, S.M. El-Saden, A.J. Duerinckx, P. Zimmerman and E.G. Grant.
West-LA Veterans Affairs Medical Center, Los Angeles, CA, USA.

204. Initial Blinded Comparison of First Pass Centric 3D Gd-MRA, 2DTOF MRA and IADSA of the Carotid Arteries.
J.K. Kim, R.I. Farb, J.A. Derbyshire, J.A. Stainsby, G. Cheung, W. Montanera, P. Cooper and G.A. Wright.
Sunnybrook and Women's College Health Science Centre and The Toronto Hospital, Toronto, ON, Canada and GE Medical Systems, Baltimore, MD, USA.

205. Time-Resolved CE-MRA of the Carotid Bifurcation.
T.J. Carroll, F.R. Korosec, W.F. Block, T.M. Grist, C.A. Mistretta and P.A. Turski.
University of Wisconsin, Madison, WI, USA.

206. High Resolution Contrast Enhanced Magnetic Resonance Angiography of the Intracranial Arteries.
A. Auer, C. Wolf, C. Schmidauer, P. Waldenberger and S. Felber.
University of Innsbruck, Innsbruck, Austria.

207. Evaluation of Cranial MRA Using the Novel Technique SLINKY and Comparison with Standard 3D Time of Flight MRA.
A.M. Obuchowski, D.L. Lefkowitz, L.S. Kode, K. Liu and R.P. Gullapalli.
University of Maryland School of Medicine, Baltimore, MD, USA and Picker International, Highland Heights, OH, USA.

208. Dynamic MRA: Imaging of Intracranial Vascular Malformations Before and After Endovascular Treatment – Preliminary Results.
J. Klisch, R. Strecker, J. Hennig and M. Schumacher.
University of Freiburg, Freiburg, Germany.

209. **Quantitative Cerebral Perfusion MRI in Occlusive Internal Carotid Artery Disease.**
E.P.A. Vonken, J. van der Grond, C.J.G. Bakker and M.A. Viergever.
University Hospital, Utrecht, The Netherlands.

210. **Longitudinal Diffusion and Perfusion Study of Stroke: Evolution of Lesion Volume and Correlation with Clinical Outcome.**
C. Beaulieu, A. de Crespigny, M. Moseley, G. Albers, D. Tong and M. Marks.
Stanford University, Stanford, CA, USA.

211. **Follow-Up Study of Ischemic Human Cerebral Tissue Using Combined Diffusion-Weighted Imaging and Relaxometry.**
J. Bernarding, J. Braun, J. Hohmann, C. Koennecke, K.J. Wolf and T. Tolxdorff.
Medical Center Benjamin Franklin, Free University of Berlin, Berlin, Germany.

Myocardial Viability

212. **High Resolution 3D ^{1}H Contrast Enhanced MR Imaging in Reperfused Myocardial Infarction: A Histopathologic Correlation.**
H.B. Hillenbrand, L.C. Becker, C.E. Rochitte, R.H. Hruban and J.A.C. Lima.
Johns Hopkins Medical Institutions, Baltimore, MD, USA.

213. **Peri-infarction Zone is the Difference in Size of Hyperenhanced Zone Displayed by Standard Extracellular and Necrosis Specific MR Contrast Media.**
M. Saeed, M.F. Wendland, J. Bremerich, R. Wyttenbach, H-J. Weinmann and C.B. Higgins.
University of California, San Francisco, CA, USA and Schering AG, Berlin, Germany.

214. **MRI during a Constant Infusion of Gd-DTPA to Determine Myocardial Viability in a Canine Model of Chronic Occlusion.**
R.S. Pereira, F.S. Prato, K. Lekx, J. Sykes and G. Wisenberg.
Lawson Research Institute, St. Joseph's Health Centre and University of Western Ontario, London, Ontario, Canada.

215. **Relation Between Intramural Mechanics and Change of Ejection Fraction 3 Months After First Myocardial Infarction.**
M.J.W. Gotte, J.T. Marcus, J.P.A. Kuijer, P.A.G. Vriend, C.A. Visser and A.C. van Rossum.
University Hospital VU, Amsterdam, The Netherlands.

216. **Quantitative Prediction of Cardiac Functional Improvement after Myocardial Revascularization using Cine MRI and Mechanical Modeling.**
J.N. Oshinski, H. Han, D.N. Ku and R.I. Pettigrew.
Emory University School of Medicine and Georgia Institute of Technology, Atlanta, GA, USA.

217. **Myocardial Blood Flow - Function Relationship in Normal Hearts Assessed by an Integrated Magnetic Resonance Approach.**
J. Schwitter, S. Kneifel, A. von Smekal, M.C. Jorg, S. Ruhm, K. Stumpe, A. Buck, T.F. Luscher and G.K. von Schulthess.
University Hospital, Zurich, Switzerland.

218. **Complementary Utility of Dobutamine Tagged and Contrast Enhanced MRI for Assessment of Viability after Myocardial Infarction.**
C.M. Kramer, W.J. Rogers, S. Mankad, T.M. Theobald, D. Pakstis, D. Vido and N. Reichek.
Allegheny General Hospital, Pittsburgh, PA, USA.

219. **Stress Magnetic Resonance Imaging for the Evaluation of Hibernating Myocardium: A One-Stop Assessment of Regional Left Ventricular Function and Perfusion.**
P.R. Sensky, A. Jivan, G.R. Cherryman, N. Hudson, R.P. Keal, B. Morgan and N.J. Samani.
University of Leicester and Glenfield General Hospital NHS Trust, Leicester, UK.

220. **The Prevalence, Utility and Relationship to First Pass Regional Hypo-Enhancement of Boundary Zone Equilibrium-Phase Hyper-Enhancement in Patients with Acute Myocardial Infarction.**
G.R. Cherryman, A. Jivan, J. Tranter, P. Sensky, B. Morgan, M. Horsfield, K. Woods, D.B. Barnett, A. de Roos, P. Dendale and G. Pirovano.
University of Leicester, UK and Bracco SpA, Milan, Italy.

221. **Fast High Resolution ^{23}Na MRI with Twisted Projections: Imaging Myocardial Infarction in 3D.**
C. Constantinides, F. Boada, J. Gillen, D. Kraitchman, M. Solaiyappan and P. Bottomley.
Johns Hopkins University, Baltimore, MD, USA and University of Pittsburgh, Pittsburgh, PA, USA.

MR Spectroscopy of Brain

222. **^{1}H MRS of Brain Hemangiopericytomas: High Concentration of *myo*-inositol Allows Their *in vivo* Discrimination from Meningiomas.**
I. Barba, I. Martinez-Perez, A. Moreno, M. Cabanas, A.R. Tate, M. Baquero, A. Capdevila and C. Arus.
Universitat Autonoma de Barcelona and Centre Diagnostic Pedralbes (CDP), Barcelona, Spain and St. George's Hospital Medical School, London, UK.

223. **Quantitative Evaluation of Brain Tumor Response to Gamma Knife Radiosurgery Using ^{1}H-Spectroscopic Imaging.**
E.E. Graves, S.J. Nelson, D.B. Vigneron, T.R. McKnight, C. Chin, S. Chang, L. Verhey and W.P. Dillon.
University of California, San Francisco, CA, USA.

224. **Neuronal Injury Demonstrated by Early Quantitative Magnetic Resonance Spectroscopy Following Acute Brain Injury.**
C.S.A. Macmillan, J.M.Wild, J.M. Wardlaw, P.J.D. Andrews, I. Marshall, V.J. Easton and P.A. Armitage.
University of Edinburgh, Western General Hospital, Edinburgh, UK.

225. **Identification of Cerebral Acetone by ^{1}H MRS in Patients with Seizures Controlled by Ketogenic Diet.**
K.J. Seymour, S. Bluml, J. Sutherling, W. Sutherling and B.D. Ross.
Huntington Medical Research Institutes, Pasadena, CA, USA; Schulte Research Institutes, Santa Barbara, CA, USA and Huntington Memorial Hospital, Pasadena, CA, USA.

226. **Correlation of ADC Values with Creatine Levels in Acute Ischemic Stroke.**
H. Rumpel, J. Khoo, H.M. Chang, C. Chen, W. Lim, M.C. Wong and K.P. Tan.
Singapore General Hospital, Singapore.

227. **Spectroscopy as an Endpoint in Multisite Clinical Trials: Dichloroacetate Reduces Cerebral Lactate After Stroke.**
G.D. Graham, P.B. Barker, W.M. Brooks, D.C. Morris, D.O. Hearshen, J.A. Sanders, W. Ahmed, B.A. Holshouser and C.C. Turkel.
University of New Mexico, Albuquerque, NM, USA; Henry Ford Hospital, Detroit, MI, USA; Loma Linda University, Loma Linda, CA, USA and Cypros Pharmaceutical Corp., Carlsbad, CA, USA.

228. **Topiramate Increased GABA, Homocarnosine, and Pyrrolidinone in Patients with Complex Partial Seizures.**
O.A.C. Petroff, F. Hyder, T.L. Collins, D.L. Rothman and R.H. Mattson.
Yale University, New Haven, CT, USA.

229. **Spectroscopic Changes in Normal Appearing Brain Provide Evidence of Diffuse Damage and Possible Subsequent Repair Following Head Injury.**
M.R. Garnett, T.A.D. Cadoux-Hudson, A.M. Blamire, B. Rajagopalan and P. Styles.
University of Oxford and Radcliffe Infirmary, Oxford, UK.

Coronary Artery Imaging

230. ***Young Investigator Awards Finalist:*** **Coronary Venous Oximetry using MRI.**
W.D. Foltz, N. Merchant, E. Downar, J.A. Stainsby and G.A. Wright.
University of Toronto and Toronto General Hospital, Toronto, Ontario, Canada.

231. **High-Resolution Coronary Artery Imaging by Adaptive Averaging.**
C.J. Hardy, G.C. McKinnon and M. Saranathan.
GE Corporate Research & Development, Schenectady, NY, USA and GE Medical Systems, Milwaukee, WI, USA.

232. **Tracking Three-Dimensional Zonal Echo-Planar Coronary Artery Imaging.**
P.D. Gatehouse, G.Z. Yang, J. Keegan, R.H. Mohiaddin and D.N. Firmin.
Royal Brompton Hospital and Imperial College, London, UK.

233. **Free-Breathing 3D Coronary MRA with a Fast TFE-EPI Acquisition Technique.**
R. Botnar, M. Stuber, K.V. Kissinger, P.G. Danias and W.J. Manning.
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA and Philips Medical Systems, Best, The Netherlands.

234. **Cardiac Motion of Coronary Arteries: Variability of Rest Period and Implication for Coronary MR Angiography.**
Y. Wang, E. Vagdani and G. Bergman.
Weill Medical College of Cornell University, New York, NY, USA.

235. **Interleaved Spiral Cine Coronary Artery Velocity Mapping.**
J. Keegan, P.D. Gatehouse, G.Z. Yang and D.N. Firmin.
Royal Brompton and Harefield NHS Hospital Trust, London, UK.

236. **Coronary Artery Bypass Graft MR Flow Measurements: High Temporal Resolution and Respiratory Compensation.**
J. Doornbos, S.E. Langerak, P. Kunz, H.W. Vliegen, H.J. Lamb, E.E. van der Wall and A. de Roos.
Leiden University Medical Center, Leiden, The Netherlands and Interuniversity Cardiology Institute of the Netherlands, Utrecht, The Netherlands.

237. **Measurement of Flow Reserve in Coronary Bypass Grafts.**
W.G. Schreiber, T. Voigtlander, K.F. Kreitner, T. Wittlinger, J. Scharhag, N. Abegunewardene, M. Thelen and J. Meyer.
Johannes Gutenberg-University, Mainz, Germany.

Motion and Artifacts

238. Reduced Aliasing Artifacts Using Variable-Density Spiral Trajectories.
C-M. Tsai and D.G. Nishimura.
Stanford University, Stanford, CA, USA.

239. Fast Ghost Suppression Using 1.5 or Fewer Excitations.
S. Chavez and Q-S. Xiang.
University of British Columbia, Vancouver, BC, Canada.

240. Ghost Artifacts Related to Gradient-System Fidelity in Spin-Echo-Train Imaging.
J.P. Mugler III and K. Ruppert.
University of Virginia School of Medicine, Charlottesville, VA, USA.

241. Correction for EPI Distortions using Multi-Echo Gradient-Echo Imaging.
N-K. Chen and A.M. Wyrwicz.
ENH Research Institute and Northwestern University, Evanston, IL, USA.

242. Periodically Rotated Overlapping ParallEL Lines with Enhanced Reconstruction (PROPELLER) MRI: Application to Motion Correction.
J.G. Pipe.
Wayne State University, Detroit, MI, USA.

243. Reducing Motion and Off-Resonance Effects with Half-Cartesian K-Space Sampling.
Q-S. Xiang.
University of British Columbia, Vancouver, BC, Canada.

244. Reducing Off-Resonance Artifacts by Summing Over All Resonant Frequencies.
G.T.L. Pat, T.S. Sachs and D.G. Nishimura.
Mount Sinai School of Medicine, New York, NY, USA and Stanford University, Stanford, CA, USA.

245. A Quantitative Model for Susceptibility Induced Dephasing in EPI Images.
G. Johnson, J.L. Tanabe and Y.Z. Wadghiri.
New York University Medical Center, New York, NY, USA; The Nathan S. Kline Institute, Orangeburg, NY, USA and Skirball Institute, New York, NY, USA.

246. MR Validation of Soft Tissue Deformation as Modeled by Non Linear Finite Element Analysis.
J. Sciarretta, J. Bishop, A. Samani and D.B. Plewes.
University of Toronto, Toronto, Ontario, Canada.

247. A Post Processing Method for Correction of Acceleration-Induced Displacement Artifacts.
P. Thunberg, L. Wigstrom, B. Wranne and M. Karlsson.
Linkoping University, Linkoping, Sweden.

Spectroscopy Localization and Imaging

248. Very Selective Suppression Pulses for Clinical MRSI Studies of Brain and Prostate Cancer.
T-K. Tran, D. Vigneron, N. Sailasuta, J. Tropp, P. Le Roux, J. Kurhanewicz, S. Nelson and R. Hurd.
University of California, San Francisco, CA, USA and General Electric Medical Systems, Fremont, CA, USA.

249. **Proton Magnetic Resonance Spectroscopic Imaging without Water Suppresion.**
J.W.C. van der Veen, D.R. Weinberger, J.A. Frank and J.H. Duyn.
National Institutes of Health, Bethesda, MD, USA.

250. **Incorporation of T_2 Measurements into Volumetric CSI.**
E. Adalsteinsson, L. Hanson, C.H. Meyer and D.M. Spielman.
Stanford University, Stanford, CA, USA and Hvidovre Hospital, Copenhagen, Denmark.

251. **Method to Correlate NAA and CMRglu from Coregistered ^{1}H MRSI and 18FDG-PET Data.**
J. O'Neill, N. Schuff, G. Soto, F. Ezekiel, J.L. Eberling, G.J. Klein, W.J. Jagust and M.W. Weiner.
DVA Medical Center and University of California, San Francisco, CA, USA; Lawrence Berkeley Laboratory, Berkeley, CA, USA and University of California, Davis, CA, USA.

252. **Detection of Glutathione in the Human Brain *in vivo* by Means of Double Quantum Coherence Filtering.**
A.H. Trabesinger, C.O. Duc, O.M. Weber, D. Meier and P. Boesiger.
University and ETH, Zurich, Switzerland.

253. **Phosphorus-31 NMR Signal Enhancement *in vivo* by Means of ^{31}P-{^{1}H} Cross Polarization in the Rotating Frame.**
S. Sammet and P. Bachert.
German Cancer Research Center, Heidelberg, Germany.

254. **A Combination of 2D Correlation Spectroscopy and Multi-Slice Proton Echo Planar Spectroscopic Imaging: Application to the Rat Brain *In Vivo*.**
D. Mayer, W. Dreher and D. Leibfritz.
Universitat Bremen, Bremen, Germany.

255. **Localized *in vivo* ^{1}H NMR Detection of Neurotransmitter Labeling in Rat Brain During Infusion of [1-^{13}C] D-Glucose.**
J. Pfeuffer, I. Tkac, I-Y. Choi, H. Merkle, K. Ugurbil, M. Garwood and R. Gruetter.
University of Minnesota Medical School, Minneapolis, MN, USA.

256. **Spectroscopic GRASE - A New Method for Fast ^{1}H Spectroscopic Imaging Combining Reduced Minimum Total Measuring Time and Effective Homonuclear Decoupling.**
W. Dreher and D. Leibfritz.
Universitat Bremen, Bremen, Germany.

257. **High-Speed Spectroscopic Imaging at 4T for R_2* Measurement of Individual Spectral Components.**
L. Hilaire, F.W. Wehrli, H.K. Song and J.A. Hopkins.
University of Pennsylvania Medical Center, Philadelphia, PA, USA.

Measuring the Previously Unmeasured

258. **"Palpation of the Brain" Using Magnetic Resonance Elastography.**
S.A. Kruse, M.A. Dresner, P.J. Rossman, J.P. Felmlee, C.R. Jack and R.L. Ehman.
Mayo Clinic, Rochester, MN, USA.

259. **MR-Elastography Applied to *In-Vivo* MR-Mammography.**
R. Sinkus, J. Lorenzen, D. Schrader, M. Lorenzen, M. Dargatz and D. Holz.
Philips Research Laboratories and Universitats-Krankenhaus Eppendorf, Hamburg, Germany.

260. **MRI Elastography Reconstruction Using A Harmonic Elastodynamic Model.**
E. Van Houten, M.I. Miga, F.E. Kennedy, J.B. Weaver and K.D. Paulsen.
Dartmouth College, Hanover, NH, USA.

261. **Real-Time MRI Guided Optical Biopsy.**
A.F. Gmitro, Y. Sabharwal, A. Rouse and L. Donaldson.
University of Arizona, Tucson, AZ, USA.

262. **3D Radiation Dose Mapping Using Echo-Planar MR Imaging of a Superheated Emulsion Chamber at 3T.**
M. Lamba, S.K. Holland, H.R. Elson, F. d'Errico and R. Nath.
Children's Hospital Medical Center and University of Cincinnati College of Medicine, Cincinnati, OH, USA and Yale University School of Medicine, New Haven, CT, USA.

263. **Three-dimensional static displacement stimulated-echo NMR strain imaging.**
T.L. Chenevert, D.D. Steele, S.Y. Emelianov and A.R. Skovoroda.
The University of Michigan, Ann Arbor, MI, USA and Russian Academy of Sciences, Pushchino, Russia.

264. **Experimental MRI/MRS Examination on Seasonal Fat Deposition during Stork Migration.**
D. Elverfeldt, U. Querner, W. Fiedler, P. Berthold and J. Hennig.
University Freiburg, Germany and MPI of Habit Survey, Radolfzell, Germany.

265. **Slice Selective Imaging of Short T_2* Rigid Biological Tissues.**
I.V. Mastikhin, B.J. Balcom and N.J. Shah.
University of New Brunswick, Fredericton, N.B., Canada; Forschungszentrum, Juelich, Germany.

266. **Magnetization Prepared Projection Encoding (MaPPE) and Spinlocking.**
A.C. Nugent and G.A. Johnson.
Duke University Medical Center, Durham, NC, USA.

267. **^{1}H MRS of Human Stool: A Simple, Non-Invasive Approach for Diagnosing Colorectal Cancer?**
T. Bezabeh, B. Levin, C. Johnson and I.C.P. Smith.
National Research Council, Winnipeg, Canada and University of Texas M.D. Anderson Cancer Center, Houston, TX, USA.

fMRI Noise: Head Motion and Physiological Fluctuation

268. **The Effects of Motion on Correlation Based FMRI Analysis Techniques.**
N. Thacker, E. Burton, A.J. Lacey and A. Jackson.
University of Manchester, Manchester, England.

269. **Real Time Head Motion Correction for Functional MRI.**
H. Eviatar, B. Schattka, J.C. Sharp, J. Rendell and M.E. Alexander.
National Research Council Canada, Winnipeg, Manitoba, Canada.

270. **Real-Time Prospective Correction of Complex Multiplanar Motion in fMRI.**
H.A. Ward, R.C. Grimm, P.J. Rossman, J.P. Felmlee, R.L. Ehman, S.J. Riederer and C.R. Jack.
Mayo Clinic, Rochester, MN, USA.

271. Comparison of the Center of Mass and Navigator Echo Corrections of Image Shift Induced by Central Frequency Shift in EPI fMRI.
H.L. Liu, P. Kochunov, J.L. Lancaster, T. Andrews, J. Roby, P.T. Fox and J.H. Gao.
University of Texas Health Science Center, San Antonio, TX, USA.

272. Real-Time 3D Image Registration for fMRI.
R.W. Cox, B.D. Ward and A. Jesmanowicz.
Medical College of Wisconsin, Milwaukee, WI, USA.

273. Low Frequency Haemodynamic and Metabolic ~0.1 Hz Oscillations in Brain Tissue.
J. Mayhew, Y. Zheng, Y. Hou, J. Berwick, S. Askew and P. Coffey.
University of Sheffield, Sheffield, UK.

274. Pixel-Wise Correlation of fMRI Signal With Low-Frequency Physiological Fluctuation Intensity.
B.B. Biswal and J.S. Hyde.
Medical College of Wisconsin, Milwaukee, WI, USA.

275. Bayesian Analysis of Temporal Correlation in fMRI Data.
J. Kershaw, B.A. Ardekani and I. Kanno.
Research Institute for Brain and Blood Vessels, Akita, Japan.

276. Validation of Resting State Interregional Connectivity Map via TMS/PET Map.
J. Xiong, J. Collins, S. Pridgen, L.M. Parsons, J.H. Gao and P.T. Fox.
University of Texas Health Science Center, San Antonio, TX, USA.

277. Detection of Physiological Noise Fluctuations From Undersampled Multislice fMRI Data.
L.R. Frank, R.B. Buxton and E.C. Wong.
University of California at San Diego, CA, USA.

Cardiac MRS and MRSI

278. Phased-Array Metabolic Imaging of Nuclei Other-than-Hydrogen.
R.F. Lee, R. Giaquinto, C. Constantinides, S. Souza, R.G. Weiss and P.A. Bottomley.
Johns Hopkins University, Baltimore, MD, USA and GE, CRD Center, Schenectady, NY, USA.

279. Fast Low-Angle ^{31}P MRSI of the Human Heart at 4.1 Tesla.
J.A. den Hollander, S.D. Buchthal and G.M. Pohost.
University of Alabama at Birmingham, AL, USA.

280. Acquisition-Weighted ^{31}P-CSI of the Human Heart.
R. Pohmann and M. von Kienlin.
University of Wurzburg, Wurzburg, Germany.

281. Human *In Vivo* Cardiac Imaging and Phosphorus DRESS Spectroscopy of Women with Suspected Microvascular Dysfunction Using the 1.5T GE Signa.
A. Bruner, H-W. Kim, A. Boyette, C. Pepine, S. McGorray, S. Buchthal, J. den Hollander and K. Scott.
University of Florida and the Veterans Affairs Medical Center, Gainesville, FL, USA and University of Alabama, Birmingham, AL, USA.

282. **^{31}P-MRS Shows Reduced Cardiac PCr/[gamma]-ATP in Patients with Friedreich's Ataxia in the Absence of Left Ventricular Dysfunction.**
R. Lodi, A.M. Blamire, J.M. Cooper, C.H. Davies, J.L. Bradley, P. Styles, A.H.V. Schapira and B. Rajagopalan.
University of Oxford, UK; University of Bologna, Italy; Royal Free and University College School of Medicine, London, UK and John Radcliffe Hospital, University of Oxford, UK.

283. **Anatomical Correlation of High Energy Phosphate and Wall Motion during Occlusion of a Coronary Artery in the Closed-Chest Canine Heart.**
N.V. Tsekos, H. Merkle, Y. Zhang, X. Hu and K. Ugurbil.
University of Minnesota, Minneapolis, MN, USA.

284. **Effect of NO on Ischemia-Reperfusion Injury in Isolated Perfused Hearts of eNOS Knockout Mice Studied by ^{31}P NMR Spectroscopy.**
U. Flogel, U.K.M. Decking, A. Godecke and J. Schrader.
Heinrich-Heine-Universitat, Dusseldorf, Germany.

285. **Paradoxical Increases in Intensities of ^{87}Rb Images and Spectra in Ischemic Areas of Pig Hearts.**
V.V. Kupriyanov, B. Xiang, J. Sun, G. Dai, V. Dao, O. Jilkina and R. Deslauriers.
National Research Council of Canada, Winnipeg, Canada.

286. **Relationship Between Cardiac Hypertrophy and Impaired Fatty Acid Oxidation.**
S.N. Allo, C.J. Storey, E.E. Babcock, A.D. Sherry and C.R. Malloy.
University of Texas Southwestern Medical Center, Dallas, TX, USA.

287. **Myocardial Carbon Metabolism and Substrate Selection as Observed Non-Invasively by *in vivo* ^{13}C-NMR Spectroscopy of Intact Rats.**
A. Ziegler, P.T. Buser, J. Seelig and B. Kunnecke.
Biocenter of the University and University Hospital, Basel, Switzerland.

WEDNESDAY

Imaging Issues In Women's Health

288. **Current Challenges and Potential Contributions of MR.**
Susan Ascher.
Georgetown University Medical Center, Washington, D.C., USA.

289. **Obstetric MRI.**
Deborah Levine.
Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, USA.

290. **Spectroscopy Rediscovered: The Gold Standard of the Next Millennium.**
Carolyn Mountford.
University of Sydney, Sydney, NSW, Australia.

Metabolic Responses Underlying fMRI

291. ***Young Investigator Awards Finalist:*** **Investiation of BOLD Signal Dependence on CBF and $CMRO_2$: The Deoxyhemoglobin Dilution Model.**
R.D. Hoge, J. Atkinson, B. Gill, G.R. Crelier, S. Marrett and G.B. Pike.
McGill University, Montreal, Quebec, Canada.

292. **Hyperpolarized ^{129}Xe NMR Lineshape as a Sensitive Probe for Blood Oxygenation.**
J. Wolber, A. Cherubini, M.O. Leach and A. Bifone.
The Royal Marsden NHS Trust, Sutton, Surrey, UK and University of Rome "La Sapienza", Roma, Italy.

293. **Significant Increases of CBF and $CMRO_2$ during Visual Stimulation.**
S-G. Kim, E. Rostrup, H.B.W. Larsson, S. Ogawa and O.B. Paulson.
University of Minnesota, Minneapolis, MN, USA; University of Copenhagen, Copenhagen, Denmark and Bell Laboratories, Lucent Technologies, Murray Hill, NJ, USA.

294. **Relationship between Cerebral Blood Flow and Oxygen Delivery in Rat Brain: A 7T NMR Study.**
F. Hyder, R.P. Kennan, I. Kida, N.R. Sibson, G.F. Mason, K.L. Behar, R.G. Shulman and D.L. Rothman.
Yale University, New Haven, CT, USA.

295. **Simultaneous Determination of the Rate of Krebs Cycle, Malate-Aspartate Shuttle, Glycolysis, Pyruvate Carboxylase and Glutamatergic Action in the Human Visual Cortex.**
R. Gruetter, E.R. Seaquist and K. Ugurbil.
University of Minnesota, Minneapolis, MN, USA.

296. **Spectroscopic Imaging of Glutamate C4 Turnover in Human Brain in Photic Stimulation.**
J.W. Pan, G.F. Mason, J. Shen, F. Telang, J.H. Lee, P. Brown, G.I. Shulman, D.L. Rothman and H.P. Hetherington.
Brookhaven National Laboratory, Upton, NY, USA and Yale University, New Haven, CT, USA.

297. **Quantification of the BOLD Effect During Changes in Arterial Carbon Dioxide Tension.**
P. van Zijl, J. Oja, R. Kauppinen, R. Traystman and J. Ulatowski.
Johns Hopkins University Medical School, Baltimore, MD, USA and University of Kuopio, Kuopio, Finland.

298. **Vascular Filters of fMRI: Spatial Localization using BOLD and CBV Contrast.**
J.B. Mandeville and J.J.A. Marota.
Massachusetts General Hospital, Charlestown, MA, USA.

299. **Comparison of Bulk CBF/$CMRO_2$ Coupling in Human V1 during Monocular and Binocular Stimulation.**
R.D. Hoge, J. Atkinson, B. Gill, G.R. Crelier, S. Marrett and G.B. Pike.
McGill University, Montreal, Quebec, Canada.

Myocardial Perfusion

300. **Simultaneous Detection of Myocardial Perfusion and Function by Contrast Agent Enhanced Perfusion MRI.**
T. Simor, G. Hild, N. Saab, M. Doyle, R.J. van der Geest, G.M. Pohost and G.A. Elgavish.
University of Alabama at Birmingham and Elgavish Paramagnetics Inc., Birmingham, AL, USA and Leiden University Medical Centre, Leiden, The Netherlands.

301. **Evidence that Accumulation of GdDTPA-Albumin in Postischemic Myocardium is Associated with Myocardial Edema Rather than Infarction.**
M.F. Wendland, M. Saeed, G.K. Lund, N. Shafaghi and C.B. Higgins.
University of California, San Francisco, CA, USA.

302. **Quantitative Assessment of Myocardial Flow Reserve in a Porcine Model of LAD Stenosis.**
B.P. Poncelet, M.K. Atalay, H.L. Kantor, T.G. Reese, T.J. Brady and R.M. Weisskoff.
Massachusetts General Hospital NMR Center, Charlestown, MA, USA and Cardiac Unit, Boston, MA, USA.

303. **Myocardial Perfusion Quantification Using Dynamic MRI and Gd-DTPA in Patients after PTCA and Brachytherapy.**
J.P. Vallee, G. Rouault, D. Didier, V. Verin, P. Chatelain, F. Lazeyras, L. Bidaut and A. Righetti.
Geneva University Hospital, Geneva, Switzerland.

304. **Dipyridamole Stress MRI Perfusion: Clinical Evaluation using High Contrast Dose, Multislice Imaging, and a Novel Read Technique.**
A.E. Arai, F.H. Epstein, J. London, C.R. Weiss, N. Kansel, A. Moalemi, V. Dilsizian and R.S. Balaban.
National Institutes of Health, Bethesda, MD, USA.

305. **Assessment of First-Pass Myocardial Perfusion Imaging during Rest and Adenosine Stress: Comparison with Cardiac Catheterization.**
S.D. Wolff, R.A. Day, L. Santiago, F. Macaluso, R. Carey, D. Chalmers, G. Slavin, S.J. Gulotta and R.A. Hershman.
Integrated Cardiovascular Therapeutics, Woodbury, NY, USA and GE Medical Systems, Milwaukee, WI, USA.

306. **Assessment of Regional Myocardial Perfusion during Low-Dose Dobutamine Infusion – Differences between Hypokinetic, Akinetic and Infarcted Myocardial Sectors.**
K. Lauerma, P. Niemi, H.A. Hanninen, K. Virtanen, L. Toivonen, L.M. Voipio-Pulkki, J. Knuuti, T. Helle and H.J. Aronen.
Helsinki University Central Hospital, Helsinki, Finland and University of Turku, Turku, Finland.

307. **Optimal Characterization of Coronary Stenosis with an Intravascular Contrast Agent.**
D.L. Kraitchman, A.W. Heldman, B.B. Chin, C.L. Steinert and D.A. Bluemke.
Johns Hopkins University, Baltimore, MD, USA.

308. **BOLD-MRI in Patients with Coronary Artery Disease: Another Step to a 'One-Stop Shop' in Cardiology?**
C.M. Wacker, A.W. Hartlep, M. Bock, G. van Kaick, G. Ertl, W.R. Bauer and L.R. Schad.
Deutsches Krebsforschungszentrum (DKFZ), Heidelberg, Germany and Universitat Mannheim/Heidelberg, Mannheim, Germany.

309. **T_2 Imaging Using ^{17}O for Detection of Viability in Myocardial Infarction.**
W.J. Rogers, C.M. Kramer, D.A. Vido and N. Reichek.
Allegheny General Hospital, Pittsburgh, PA, USA.

Non-Proton Imaging and Quantitation

310. **Three Dimensional Triple-Quantum-Filtered ^{23}Na Imaging of *in vivo* Human Brain.**
I. Hancu, F.E. Boada and G.X. Shen.
University of Pittsburgh, Pittsburgh, PA, USA.

311. **^{23}Na Imaging and Quantitation of Skeletal Muscle at 1.5T.**
C.D. Constantinides, J. Gillen, F. Boada and P.A. Bottomley.
Johns Hopkins University, Baltimore, MD, USA and University of Pittsburgh, Pittsburgh, PA, USA.

312. **Assessment of Chemotherapeutic Effects Using Intracellular Sodium Weighted MRI.**
E.X. Wu, R.P. Kline, D. Petrylak, K.K. Wong, Q.Y. Ma, R.L. DeLaPaz, P.O. Alderson and J. Katz.
Columbia University, New York, NY, USA.

313. ***In Vivo* Solid State ^{31}P MRI of Human Tibia at 1.5 T.**
Y. Wu, J.L. Ackerman, D.A. Chesler, J. Wang and M.J. Glimcher.
Children's Hospital, Boston, MA, USA; Massachusetts General Hospital, Charlestown, MA, USA and Harvard Medical School, Boston, MA, USA.

314. **Three Dimensional Spectrally Selective Trajectories for ^{31}P Spectroscopic Imaging.**
F.E. Boada, D.C. Noll, I. Hancu and G.X. Shen.
University of Pittsburgh Medical Center, Pittsburgh, PA, USA.

315. **Real Time Monitoring of $H_2{}^{17}O$ Concentration in a Rat Brain Using Proton Detected ^{17}O -MRI Combined with EPI.**
I. Ronen, H. Merkle, K. Ugurbil and G. Navon.
Tel Aviv University, Tel Aviv, Israel and University of Minnesota, Minneapolis, MN, USA.

316. **Xenon-Protein Interaction and Competitive Binding: A Hyperpolarized ^{129}Xe NMR Study.**
J. Wolber, A. Cherubini, A.S.K. Dzik-Jurasz, M.O. Leach and A. Bifone.
The Royal Marsden NHS Trust, Sutton, Surrey, UK and University of Rome "La Sapienza", Roma, Italy.

317. Measurement of Surface Area to Volume Ratio with ^{129}Xe Exchange.
J.P. Butler, S. Patz, D. Hoffmann, R.W. Mair, G.P. Topulos and R.L. Walsworth.
Harvard School of Public Health, Brigham & Women's Hospital and Harvard Medical School, Boston, MA, USA and Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, USA.

318. Resolving the Conflict over the T_1 Values of ^{129}Xe in Blood.
M.S. Albert, D. Balamore, D. Kacher, A. Venkatesh and F.A. Jolesz.
Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA.

319. Temporal Dynamics of Hyperpolarized ^{129}Xe in the Dog Chest during a Breath-Hold Period.
K. Ruppert, J.R. Brookeman, M.J. Spellman, K.D. Hagspiel, B. Driehuys, T. Munger and J.P. Mugler III.
University of Virginia Health Sciences Center, Charlottesville, VA, USA; Northwestern University, Chicago, IL, USA and Magnetic Imaging Technologies, Inc., Durham, NC, USA.

Diffusion Tensor MRI of Animal and Human Brain

320. 3D Reconstruction of Axonal Fibers from Diffusion Tensor Imaging using Fiber Assignment by Continuous Tracking (FACT).
S. Mori, R. Xue, B. Crain, M. Solaiyappan, V.P. Chacko and P.C.M. van Zijl.
Johns Hopkins University, School of Medicine, Baltimore, MD, USA.

321. High Angular Resolution Diffusion Imaging of the Human Brain.
D.S. Tuch, R.M. Weisskoff, J.W. Belliveau and V.J. Wedeen.
Massachusetts General Hospital, Charlestown, MA, USA.

322. "Decahedral" Gradient Encoding for Increased Accuracy in the Estimation of Diffusion Anisotropy.
S. Skare and B. Nordell.
Karolinska MR Research Center, Stockholm, Sweden.

323. *In Vivo* 3D Fiber Reconstruction in the Rat Brain using Rapid Diffusion Tensor Imaging.
R. Xue, P.C.M. van Zijl and S. Mori.
The Johns Hopkins University, Baltimore, MD, USA.

324. Tracking Neuronal Fibers in the Living Human Brain with Diffusion MRI.
N.F. Lori, T.S. Cull, E. Akbudak, A.Z. Snyder, J.S. Shimony, H. Burton, M.E. Raichle and T.E. Conturo.
Washington University School of Medicine, St. Louis, MO, USA.

325. Tracking White Matter Fascicles with Diffusion Tensor Imaging.
C. Poupon, C.A. Clark, V. Frouin, I. Bloch, D. LeBihan and J.F. Mangin.
Service Hospitalier Frederic Joliot, Orsay, France and ENST, Paris, France.

326. A Technique for Functional Localization of the Sensory Motor Cortex with Diffusion Anisotropy.
A.L. Alexander, R.B. Burr, J. McDonald, K. Hasan, G. Jones, B. Chong and J.S. Tsuruda.
University of Utah, Salt Lake City, UT, USA.

327. Diffusion Tensor Imaging of the Injured Spinal Cord of a Rat *in vivo*. A Comparison with *in vitro* Experiments.
A.T. Krzyzak, A. Jasinski, P. Kozlowski, D. Adamek, P. Sagnowski and J. Pindel.
Jagiellonian University, Krakow, Poland and National Research Council, Winnipeg, Manitoba, Canada.

328. Multiple Component Diffusion Tensor Imaging in Excised Fixed CNS Tissue.
E.L. Bossart, B.A. Inglis, D.L. Buckley, E.D. Wirth III and T.H. Mareci.
University of Florida, Gainesville, FL, USA and the National High Magnetic Field Laboratory. Tallahassee, FL, USA.

329. Cerebral Blood Flow, T_2, Relaxation Time and the Trace of the Diffusion Tensor in Graded Ischaemia in the Rat.
O.H.J. Grohn, M.I. Kettunen, M. Penttonen, P.C.M. van Zijl and R.A. Kauppinen.
University of Kuopio, Finland and Johns Hopkins University Medical School, Baltimore, MD, USA.

Pediatric MR Spectroscopy

330. Reversible Loss of Brain Creatine Detected by ^{1}H MRS: A New Inborn Error of Metabolism.
M. Tosetti, M.C. Bianchi, F. Fornai, M.G. Alessandri, P. Cipriani, G. De Vito and R. Canapicchi.
Stella Maris Scientific Institute, S. Chiara Hospital and University of Pisa, Pisa, Italy.

331. Elevated Citrulline Detected in the Brain Tissue of Children Suffering from Citrullinemia: Spectra with Different Echo Times Facilitate Identification of Citrulline Signals.
H. Kugel, B. Roth, B. Schwahn, U. Wendel, W. Heindel and K. Lackner.
University of Cologne, Koln, Germany and University of Dusseldorf, Dusseldorf, Germany.

332. Monitoring Effects of a Gene Therapy of Canavan Disease by ^{1}H Magnetic Resonance Spectroscopy.
Z.J. Wang, L.T. Bilaniuk, S.F. Dreha, M.J. During, R.A. Zimmerman, E. Kolodny and P. Leone.
The Children's Hospital of Philadelphia, University of Pennsylvania and Thomas Jefferson University, Philadelphia, PA, USA and New York University, New York, NY, USA.

333. Brain *Myo*-Inositol in Children with Down Syndrome -- an *in vivo* Proton MRS Study.
S.F. Dreha, G.T. Berry, Z.J. Wang and R.A. Zimmerman.
The Children's Hospital of Philadelphia and University of Pennsylvania, Philadelphia, PA, USA.

334. Proton MR Spectroscopy in Children with Acute Brain Injury: Comparison of Short and Long Echo Time Acquisitions.
B.A. Holshouser, S. Ashwal, S. Shu and D.B. Hinshaw Jr.
Loma Linda University Medical Center, Loma Linda, CA, USA.

335. Sources of the Dilution of the 4-^{13}C Glutamate Label in the Human Brain after Intravenous 1-^{13}C Glucose Infusion.
S. Bluml, J.H. Hwang and B.D. Ross.
Huntington Medical Research Institutes, Pasadena, CA, USA and Rudi Schulte Research Institutes, Santa Barbara, CA, USA.

336. Neuro-Developmental Abnormalities of Newborn Infants with Transposition of the Great Arteries (TGA) by Localized ^{1}H MR Spectroscopy.
I.S. Park, J-Y. Min, Y.H. Kim, J.K. Ko, K-S. Kim, S-T. Kim, J.H. Lee and T-H. Lim.
Asan Medical Center, University of Ulsan College of Medicine and Asan Institute for Life Sciences, Seoul, Korea.

337. Proton MR Spectroscopy of the Human Fetal Brain *in utero*.
A. Heerschap, A. van den Bergh, H. van den Boogert, R. Kok and P. van den Berg.
University Hospital Nijmegen, Nijmegen, The Netherlands.

338. ***In vivo*** **^{1}H NMR Spectroscopy of the Developing Rat Hippocampus.**
I. Tkac, R. Rao, M. de Ungria, J. Pfeuffer, M.K. Georgieff and R. Gruetter.
University of Minnesota Medical School, Minneapolis, MN, USA.

339. **^{31}P and ^{1}H MRS Studies of Cerebral Metabolism in Newborn Piglets Following Hypoxia Ischemia, The Effects of Allopurinol and Deferoxamine.**
C.M.P.C.D. Peeters, K.P.J. Braun, R.A. de Graaf, K. Nicolay and F. Groenendaal.
Wilhelmina Children's Hospital and University of Utrecht, Utrecht, the Netherlands.

Contrast Agents – New Developments and Applications

340. **Paramagnetic Relaxation Enhancement in Off-Resonance Rotating Frame.**
H. Zhang, L.H. Bryant Jr and A.M. Wyrwicz.
Northwestern University, Evanston, IL, USA and National Institutes of Health, Bethesda, MD, USA.

341. **A Novel pH Sensitive MRI Contrast Agent.**
S. Zhang, K. Wu and A.D. Sherry.
University of Texas at Dallas, Richardson, TX, USA and University of Texas Southwestern Medical Center, Dallas, TX, USA.

342. **High-Generation Dendrimer-Based Gadolinium Chelates: Relaxometry, Biodistribution, and MR Angiography.**
L.H. Bryant Jr, E.K. Jordan, J.W.M. Bulte, V. Herynek, K. Garmestani and J.A. Frank.
National Institutes of Health, Bethesda, MD, USA.

343. **A Calcium Sensitive Magnetic Resonance Contrast Agent.**
W-H. Li, S.E. Fraser and T.J. Meade.
California Institute of Technology, Pasadena, CA, USA.

344. **An Intelligent MRI Contrast Agent for Tumor Sensing.**
M. Mikawa, N. Miwa, T. Akaike and A. Maruyama.
Tokyo Institute of Technology, Yokohama, Japan and Nihon Schering K.K., Osaka, Japan.

345. **Neurotransplantation of Magnetically Labeled Oligodendrocyte Progenitors: 3D MR Microscopy of Cell Migration and Myelination.**
J.W.M. Bulte, S.C. Zhang, P. van Gelderen, V. Herynek, E.K. Jordan, I.D. Duncan and J.A. Frank.
National Institutes of Health, Bethesda, MD, USA and University of Wisconsin, Madison, WI, USA.

346. **Paramagnetic Metalloporphyrins: There Exist Avid and Nonavid Species for Necrosis.**
Y. Ni, Y. Miao, E. Cresens, P. Adriaens, J. Yu, H. Bosmans, W. Semmler and G. Marchal.
University Hospitals KUL, Leuven, Belgium and Institut fur Diagnostikforschung GmbH, Berlin, Germany.

347. **Interstitial MR Lynphography with Gd-DOTA: Assessment in Rabbits and Human Volunteers.**
S.G. Ruehm, J. Frohlich, C. Corot, B. Marincek and J.F. Debatin.
University Hospital, Zurich, Switzerland and Laboratoire Guerbet, Paris, France.

348. **Improved Mapping of Pharmacologically Induced Neuronal Activation using Superparamagnetic Iron Blood Pool Agents.**
Y.I. Chen, J.B. Mandeville, T.V. Nguyen, F. Cavagna and B.G. Jenkins.
Massachusetts General Hospital, Charlestown, MA, USA and Bracco, S.p.A., Milan, Italy.

349. Experimental Functional MRI using Dynamic Activity-Induced Manganese Dependent Contrast (DAIM).
I. Aoki, C. Tanaka, T. Takegami, T. Ebisu, M. Umeda, M. Fukunaga, Y. Someya, Y. Watanabe and S. Naruse.
Meiji University of Oriental Medicine and Kyoto Prefectural University of Medicine, Kyoto, Japan.

Peripheral MR Angiography

350. Image Interpretability of Peripheral MR Angiography Using the MoBI-Track Technique.
K.Y. Ho, T. Leiner, M.W. de Haan, A. Kessel, M. Kouwenhoven and J.M.A. van Engelshoven.
University Hospital and University of Maastricht, Maastricht, The Netherlands and Philips Medical Systems, Best, The Netherlands.

351. Clinical Experience of Peripheral Contrast Enhanced MRA: Integrated 3D & 2D MRDSA, Venous Contamination in Bolus Chase 3D MRDSA and Its Elimination using 2D MRDSA.
Y. Wang, H.M. Lee, P.A. Winchester, R. Watts, L. Yu, N.M. Khilnani and D.W. Trost.
Weill Medical College of Cornell University, New York, NY, USA.

352. 3D Contrast-Enhanced MRA of the Runoff Vessels: Value of Image Subtraction.
S.G. Ruehm, T. Pfammatter, M. Schmidt, E. Schneider and J.F. Debatin.
University Hospital, Zurich, Switzerland.

353. Gadolinium-Enhanced Magnetic Resonance Angiography, Digital Subtraction Angiography and Duplex of the Iliac Arteries Compared with Intraarterial Pressure Gradient Measurments.
J. Wikstrom, A. Holmberg, L. Johansson, A. Lofberg, O. Smedby, S. Karacagil and H. Ahlstrom.
Uppsala University Hospital, Uppsala, Sweden.

354. Patency of Peripheral Arterial Bypass Grafts: Correlation Between Conventional Angiography (DSA) and Single Injection, 2-Station 3D MR Angiography.
K. Bertschinger, S.G. Ruehm, T.F. Hany, M. Schmidt and J.F. Debatin.
University Hospital, Zurich, Switzerland.

355. Dual-Phase Injection for Automated Bolus Pursuit Gadolinium-Enhanced Peripheral 3D MRA.
J.M. Czum, V.B. Ho, M.N. Hood, T.K.F. Foo and P.L. Choyke.
Uniformed Services University and National Institutes of Health, Bethesda, MD, USA and GE Medical Systems, Milwaukee, WI, USA.

356. MRA of the Aorta, Renal and Pelvic Arteries: Extracellular vs. Intravascular Contrast Agents.
M. Schmidt, D. Weishaupt, S.G. Ruehm, C. Binkert, M.A. Patak, F. Steybe and J.F. Debatin.
University Hospital, Zurich, Switzerland and Nycomed Amersham COMET, Ismaning Munich, Germany.

357. Assessment of Reactive Hyperaemia using Zonal Echo Planer Imaging.
R.H. Mohiaddin, P.D. Gatehouse, G.Z. Yang, M. Yousufiddin, D.N. Firmin and D.J. Pennell.
Royal Brompton and Harefield NHS Trust, London, UK.

Women's Imaging

358. **Cost-Effectiveness of Breast MRI for Screening Women Ages 40 to 49 for Invasive Breast Cancer.**
S.K. Plevritis and A.M. Garber.
Stanford University, Stanford, CA, USA; VA Health Medical, Palo Alto, CA, USA and Stanford University, Stanford, CA, USA.

359. **Validation of MRI Architectural Feature Based Interpretation Model.**
M.D. Schnall, S.G. Orel, J. McDermott and S. Englander.
University of Pennsylvania, Philadelphia, PA, USA.

360. **Breast MRI on Patients Taking Tamoxifen.**
M.D. Schnall, S.G. Orel, J. McDermott and S.A. Englander.
University of Pennsylvania, Philadelphia, PA, USA.

361. **Functional MRI to Monitor Response During Neoadjuvant Chemotherapy. Assessment in Breast Cancer Patients.**
M.V. Knopp, H. Junkermann, H.P. Sinn, J. Marz, S. Weinmann, J. Radeleff, S. Delorme, G. Brix and G. van Kaick.
German Cancer Research Center and University Hospitals, Heidelberg, Germany.

362. **MRI Directed Interstitial Thermal Ablation of Breast Fibroadenomas.**
S. Harms, H. Mumtaz, T. Hronas, C. Cowan, S. Klimberg, B. Hyslop and K. Westbrook.
University of Arkansas for Medical Sciences, Little Rock, AR, USA.

363. **Utero-Placental Blood Movement *In vivo* Using IVIM Echo-Planar MRI.**
R.J. Moore, B. Strachan, D.J. Tyler, P.N. Baker, B. Worthington and P.A. Gowland.
University of Nottingham, Nottingham, UK.

364. **The Effect of Magnetic Resonance Imaging on Fetal Heart Rate.**
S. Vadeyar, R.J. Moore, D. James, D.J. Tyler, P.N. Baker, I. Johnson, B. Worthington and P.A. Gowland.
University of Nottingham, Nottingham, UK.

365. **Transcatheter Uterine Artery Embolization: Assessment by Magnetic Resonance Imaging.**
R.C. Jha, I. Imaoka, S.M. Ascher, A.R. Scialli, K.H. Barth and J.B. Spies.
Georgetown University Medical Center, Washington, DC, USA.

366. **The MR Appearances of Uterine Fibroid Embolization.**
P.R. Burn, R.J. Chinn, J.M. McCall and J.C. Healy.
Chelsea and Westminster Hospital, London, UK.

367. **MR Based 3-Dimensional Modeling of the Normal Female Pelvic Floor with Quantification of Muscle Mass.**
J.R. Fielding, H. Dumanli, R. Kikinis and F.A. Jolesz.
Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA.

MR Imaging of Epilepsy and Other Intracranial Disease

368. Hippocampus Volume Measurement in Children with Febrile Convulsion History.
W-C. Wu, C-Y. Chen and H-W. Chung.
National Taiwan University and Tri-Service General Hospital, Taipei Taiwan, ROC.

369. Volumetric MRI of Cerebellar Atrophy in a Prospective Study of a Community Based Population with Epilepsy.
G. Hagemann, A.D. Everitt, L. Lemieux, K. Krakow, S.L. Free, B.E. Kendall, J.M. Stevens, J.S. Duncan and S.D. Shorvon.
National Society for Epilepsy, Bucks, UK; Institute of Neurology, London, UK and Heinrich-Heine-University, Duesseldorf, Germany.

370. Tissue Segmentation Analysis in 3D ^{31}P Spectroscopic Imaging for Enhanced Accuracy in Lateralization of Focal Epilepsy.
H.P. Hetherington, J.W. Pan and D.D. Spencer.
Brookhaven National Laboratory, Upton, NY, USA and Yale University School of Medicine, New Haven, CT, USA.

371. Detection of Mesial Temporal Lobe Hypoperfusion in Patients with Temporal Lobe Epilepsy using Multislice Continuous Arterial Spin Labeled Perfusion MRI.
R.L. Wolf, D.C. Alsop, J.A. French, J. Gonzalez-Atavales, I.L. Reis, J.A. Maldjian and J.A. Detre.
University of Pennsylvania, Philadelphia, PA, USA.

372. Ictal Diffusion and Perfusion Weighted MRI in Focal Epilepsy.
A. Gass, J. Hirsch, B. Pohlmann-Eden, M. Fritzinger, M.G. Hennerici and J. Gaa.
University of Heidelberg, Germany.

373. Quantitation of Brain and Ventricular Size in Pregnancy and Pre-Eclampsia.
A. Oatridge, N. Saeed, J.V. Hajnal, B.K. Puri, A. Holderoft, L. Fusi and G.M. Bydder.
Imperial College School of Medicine, Hammersmith Hospital, London, UK.

374. MR Microscopy of Senile Plaques in Alzheimer's Disease by T_2* Contrast.
H. Benveniste, G. Einstein, K. Kim, C. Hulette and G.A. Johnson.
Duke University Medical Center, Durham, NC, USA.

375. Intensity Changes in Brain After Oxygen Inhalation Using MRI in Patients with Sickle Cell Disease.
G. Liu, G. Lantos, A. Kassim, R.L. Nagel and M.E. Fabry.
Georgetown University, Washington, DC, USA and Albert Einstein College of Medicine, Bronx, NY, USA.

Aspects of the BOLD Effect

376. *Young Investigator Awards Finalist:* Titration of the BOLD Effect: Separation and Quantitation of Blood Volume and Oxygenation Changes in the Human Cortex During Neuronal Activation and Ferumoxide Infusion.
K. Scheffler, E. Seifritz, R. Haselhorst and D. Bilecen.
University of Basel, Switzerland.

377. Relationship of Blood Flow and Oxygen Consumption with Blood Volume: A 7T NMR Study.
F. Hyder, R. Renken, I. Kida, K.L. Behar, D.L. Rothman and R.P. Kennan.
Yale University, New Haven, CT, USA.

378. Comparison of Spatial Localization between Synaptic Activity and Hemodynamic Responses following Somatosensory Stimulation: An MRI Study at 9.4 Tesla.
T.Q. Duong, A.C. Silva, S-P. Lee and S-G. Kim.
University of Minnesota School of Medicine, Minneapolis, MN, USA.

379. Stimulus-Dependent Response Waveforms in Human V1: Detection of BOLD and Perfusion Overshoot.
R.D. Hoge, J. Atkinson, B. Gill, G.R. Crelier, S. Marrett and G.B. Pike.
McGill University, Montreal, Quebec, Canada.

380. Linear Aspects of the BOLD Response in Object Related Visual Areas: An fMRI Study.
T. Kushnir, K. Grill-Spector, R. Mukamel, R. Malach and Y. Itzchak.
Chaim Sheba Medical Center, Tel Hashomer, Israel and Weizmann Institute of Science, Rehovot, Israel.

381. The Linearity of the Cerebral Blood Flow Response to Brief Motor Tasks.
K.L. Miller, R.B. Buxton, E.C. Wong and L.R. Frank.
University of California, San Diego, CA, USA and Stanford University, Stanford, CA, USA.

382. Investigation of the Early Temporal Characteristics of CBF and BOLD during Somatosensory Stimulation.
A.C. Silva, S-P. Lee, C. Iadecola and S-G. Kim.
University of Minnesota, Minneapolis, MN, USA.

383. A Multi-Parametric Approach to BOLD Signal Calibration at 7 Tesla for Rat Brain: Implications for Functional MRI.
I. Kida, R.P. Kennan, K.L. Behar, D.L. Rothman and F. Hyder.
Yale University, New Haven, CT, USA and Hokkaido University, Sapporo, Japan.

384. The Negative BOLD fMRI Response in Children: Evidence of Perfusion Decrease During Visual Stimulation.
A.P. Born, E. Rostrup, M.J. Miranda, H.B.W. Larsson and H.C. Lou.
Hvidovre Hospital, Copenhagen, Denmark and The John F. Kennedy Institute, Glostrup, Denmark.

Real Time Cardiac Imaging

385. High Performance Cardiac Real-Time Imaging using SENSE.
M. Weiger, K.P. Pruessmann and P. Boesiger.
University and ETH, Zurich, Switzerland.

386. Real-Time Data Acquisition for LV Function.
J.M. Bundy, G. Laub, R. Kim, J.P. Finn and O.P. Simonetti.
Siemens Medical Systems, Inc. and Northwestern University, Chicago, IL, USA.

387. SMASH Real-Time Cardiac MR Imaging at Echocardiographic Frame Rates.
D.K. Sodickson, M. Stuber, R.M. Botnar, K.V. Kissinger and W.J. Manning.
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA and Philips Medical Systems, Best, The Netherlands.

388. **Fast Left Ventricular Volume Measurement Using a Multiple-Slice 'Real-Time' Acquisition: A Pilot Study.**
J.P. Ridgway, A. Kassner, D.J. Beacock and U.M. Sivananthan.
United Leeds Teaching Hospitals, Leeds, UK and Philips Medical Systems, Hammersmith, London, UK.

389. **Spiral Cardiac Imaging with High-Performance Gradients.**
C.H. Meyer, B.S. Hu, P.C. Yang, M.V. McConnell, A.B. Kerr, J.H. Brittain, J.M. Pauly, A. Macovski and D.G. Nishimura.
Stanford University, Stanford, CA, USA.

390. **Real Time Interactive Spiral Imaging.**
O. Heid.
Siemens AG, Erlangen, Germany.

391. **A Reduced-FOV Method for CINE MRI.**
B. Madore, M.T. Alley, J.O. Fredrickson and N.J. Pelc.
Stanford University School of Medicine, Stanford, CA, USA.

392. **Dobutamine Stress MR Imaging of Heart Function Using Real-Time Respiratory Navigator Gating Without Breath-Holding.**
H.J. Lamb, P. Salverda, H.P. Beyerbacht, P. Kunz, J. Doornbos and A. de Roos.
Leiden University Medical Center, Leiden, The Netherlands and Philips Medical Systems, Best, The Netherlands.

393. **Imaging Valvular Regurgitation with Real-Time Color Flow MRI.**
K.S. Nayak, J.M. Pauly, P.A. Rivas, B.S. Hu, A.B. Kerr and D.G. Nishimura.
Stanford University, Stanford, CA, USA.

394. **Fast Velocity Mapping of Myocardial Motion with k-Space Segmented Black Blood Echo Planar and Gradient Echo Imaging.**
M. Markl and J. Hennig.
University of Freiburg, Freiburg, Germany.

Interventional MRI: Thermal Methods

395. **High Resolution Transesophageal MRI Guided Atrial Radiofrequency Ablation.**
A.C. Lardo, H.R. Halperin, P. Jumrussirikul, R.D. Berger, H. Calkins, N.M. Fried and E.R. McVeigh.
Johns Hopkins School of Medicine, Baltimore, MD, USA.

396. **MR-Guided Radiofrequency Thermal Ablation of the Kidney in a Porcine Model with a Modified Clinical C-Arm System.**
E.M. Merkle, J.R. Shonk, J.L. Duerk, G.H. Jacobs and J.S. Lewin.
University Hospitals of Cleveland/Case Western Reserve University, Cleveland, OH, USA.

397. **Temperature Quantitation and Mapping of Frozen Tissue.**
K. Butts, B. Daniel, J. Sinclair and J. Wansapura.
Stanford University, Stanford, CA, USA.

398. **Experimental MR-Guided Cryoablation of the Bone.**
J. Tacke, G. Adam, B. Sellhaus, I. Heschel, S. Grosskortenhaus, L. Niessen, G. Rau and R.W. Gunther.
University of Technology, Aachen, Germany.

399. Simultaneous Measurements of Temperature and pH Changes using Two Non-Equivalent Protons in $TmDOTP^{5-}$.
Y. Sun, M. Sugawara, K. Hynynen and C. Zuo.
Beth Israel Deaconess Medical Center, Brighan & Women's Hospital and Harvard Medical School, Boston, MA, USA and University of Tokyo, Japan.

400. Assessment of the Influence of *In-vivo* Thermal Response to Interstitial Laser Coagulation on MR-Temperature Quantification Using the Phase Method.
R. Stollberger, P.W. Ascher, K. Leber, F. Ebner, G. Fuchs, A. Baumgartner, G. Litscher and M. Hubmer.
University of Graz, Austria.

401. Rapid MR Temperature Imaging for Real-Time Visualization and Control of Focused Ultrasound Tissue Heating.
J.A. de Zwart, F.C. Vimeux, J. Palussiere, C. Delalande and C.T.W. Moonen.
Universite Victor Segalen and Institut Bergonie, Bordeaux, France.

402. Spatial and Temporal Control of Transgene Expression with a Heat-Sensitive Promoter and MRI Guided Focused Ultrasound.
C. Moonen, A. Vekris, P. Voisin, J. de Zwart, C. Maurange, F. Vimeux and P. Canioni.
University of Bordeaux, Bordeaux, France.

403. MR Elastography of Focused Ultrasound Induced Thermal Lesions.
T. Wu, J.P. Felmlee, S.J. Riederer and R.L. Ehman.
Mayo Clinic, Rochester, MN, USA.

404. MRI Guided Focused Ultrasound Ablation of VX2 Tumors in Rabbits.
J.D. Hazle, R.J. Stafford and R.E. Price.
University of Texas M.D. Anderson Cancer Center, Houston, TX, USA.

Musculoskeletal MR Imaging

405. Inversion Recovery MR Imaging of the Shin Splint Syndrome.
T. Voivalin, P. Karjalainen, V. Vuorinen, K. Soila, S. Soimakallio and H.J. Aronen.
University of Kuopio, Kuopio, Finland; Helsinki University Central Hospital, Helsinki, Finland and Mount Sinai Medical Center, Miami Beach, FL, USA.

406. A Technique for the Dynamical Evaluation of the Acromiohumeral Distance of the Shoulder in the Seated Position Under Open-Field MRI.
M. Dufour, C. Lapierre, H. Moffet, L.J. Hebert, J. Tardif, L. Kirouac and C. Moisan.
Centre Hospitalier Universitaire de Quebec and Laval University, Quebec, Canada.

407. MR Evaluation of Osteochondral Lesions of the Talus.
D.A. Connell, H.G. Potter, D. Mintz, J. Deland and M. O'Malley.
Vicotira House, Melbourne, Australia and Hospital for Special Surgery, New York, NY, USA.

408. Estimation of Erosive Changes in Rheumatoid Arthritis by Temporal Multispectral Analysis.
R.A.D. Carano, S. Ostrowitzki, J. Redei, J.A. Lynch, S. Zaim, Y. Miaux, Y. Lu, D. White, C.G. Peterfy and H.K. Genant.
University of California, San Francisco, CA, USA.

409. **Dynamic MRI and Principal Component Analysis of Finger Joints in Rheumatoid Arthritis, Polyarthritis, and Healthy Controls.**
M. Klarlund, M. Ostergaard, E. Rostrup, H. Skjodt and I. Lorenzen.
Hvidovre Hospital, Copenhagen, Denmark.

410. **Dynamic Gd-DTPA Enhanced MRI as Pharmacological Tool: Application to Treatment Progress Monitoring in RA.**
A. Radjenovic, J.P. Ridgway, P.J. O'Connor, J.F.M. Meaney, P.G. Conaghan, W.W. Gibbon, P. Emery and M.A. Smith.
University of Leeds, UK.

411. **MR Relaxometry of Lumbar Spine, Hip, and Calcaneus in Healthy Premenopausal Women.**
T.B. Brismar.
Karolinska Hospital, Stockholm, Sweden.

412. **Cross-Sectional Study of Osteopenia by Quantitative Magnetic Resonance and Bone Densitometry.**
F.W. Wehrli, J.A. Hopkins, S.N. Hwang, H.K. Song, J.D. Haddad and P.J. Snyder.
University of Pennsylvania, Philadelphia, PA, USA and General Electric Medical Systems, Milwaukee, WI, USA.

413. **Quantitative Measurement of Marrow Water Can Detect Effects of Ovariectomy and Estrogen Treatment in a Rat Model of Osteoporosis.**
J.C. Sharp, J.C. Copps, Q. Liu, L.N. Ryner, R. Sebastian, G.Q. Zeng, S. Smith, J.B. Niere, B.T. Tomanek and M. Sato.
National Research Council of Canada and Canadian Food Inspection Agency, Winnipeg, MB, Canada; GE Medical Systems, Milwaukee, WI, USA and Lilly Research Laboratories, Indianapolis, IN, USA.

414. **MR Microimaging to Quantify the Effects of Corticosteroid Treatment on Trabecular Bone Architecture in a Rabbit Model *in Vitro* and *in Vivo*.**
M. Takahashi, F.W. Wehrli, B. Zemel, S.N. Hwang, H.K. Song and J.L. Williams.
University of Pennsylvania Medical Center and Children's Hospital of Philadelphia, Philadelphia, PA, USA and Truman Medical Center, Kansas City, MO, USA.

RF Modeling and Design

415. **Error-Tolerant RF Litz Coils for Double-Resonance MRI.**
F.D. Doty, G. Entzminger Jr. and C.D. Hauck.
Doty Scientific Inc., Columbia, SC, USA.

416. **The Sensitivity of the High Field Imaging Experiment Involving Human Samples.**
D.I. Hoult.
National Research Council Canada, Winnipeg, Manitoba, Canada.

417. **Calculated B_1 Homogeneity, SNR, and SAR vs. Frequency for the Head in an Idealized Quadrature Birdcage Coil.**
C.M. Collins and M.B. Smith.
The Pennsylvania State University College of Medicine, Hershey, PA, USA and The University of Pennsylvania, Philadelphia, PA, USA.

418. **Calculated SNR and SAR vs. Frequency for a Surface Coil on the Human Chest.**
C.M. Collins and M.B. Smith.
The Pennsylvania State University College of Medicine, Hershey, PA, USA and The University of Pennsylvania, Philadelphia, PA, USA.

419. **Implications of HTS Film Linearity on RF Coil Design and Assessment at 9.4 T.**
S.E. Hurlston, S.A. Suddarth, A.C. Nugent and G.A. Johnson.
Duke University Center for In Vivo Microscopy, Durham, NC, USA.

420. **Visualization of RF Heating Using a $Na_4HTm[DOTP]$ Doped Agarose Phantom.**
E.M. Shapiro, N. Bansal, R.R. Reddy, A. Borthakur, J.S. Leigh and R. Reddy.
University of Pennsylvania, Philadelphia, PA, USA.

421. **The Prospects for Systematic Design of TEM Resonators.**
J. Tropp and J.T. Vaughan.
GE Medical Systems, Fremont, CA, USA and Massachusetts General Hospital, Charlestown, MA, USA.

422. **Quadruple-Tuned (^{23}Na, ^{7}Li, ^{31}P, ^{1}H) Band/Low Pass Birdcage Coil at 3.0 T.**
G.X. Shen.
University of Pittsburgh, Pittsburgh, USA.

423. **Comparison Between Linear, Quadrature, and 4-port Excitations from 1.5 T to 4.7 T.**
T.S. Ibrahim, R. Lee, B.A. Baertlein, A. Kangarlu and P.M.L. Robitaille.
The Ohio State University, Columbus, OH, USA.

424. **A Simple NMR Probe for Magnetic Field Plotting.**
P. Unger and D.I. Hoult.
National Research Council of Canada and University of Manitoba, Winnipeg, Manitoba, Canada.

MR Spectroscopy of Brain Tumors

425. **Improved Non-Invasive Grading of Glial Brain Tumors Using Automated Spectral Pattern Analysis of *In Vivo* Tumor Proton Spectra.**
S. Herminghaus, W. Moller-Hartmann, U. Pilatus, T. Dierks, H. Lanfermann and F.E. Zanella.
University of Frankfurt, Frankfurt, Germany.

426. **Classification of Human Brain Tumors with Quantitative Short Echo ^{1}H MRS.**
S.J. Barton, F.A. Howe, S.A. Cudlip, A.R. Tate, B.A. Bell and J.R. Griffiths.
St George's Hospital Medical School and Atkinson Morley's Hospital, London, UK.

427. **Significance of T_2 Relaxation Time Correction in Quantification of Glioma Patients by Proton MR Spectroscopy. A Clinical Study.**
A. Matsumura, T. Isobe, I. Anno, T. Yoshizawa, Y. Nagatomo, H. Fujimori, Y. Itai and T. Nose.
University of Tsukuba, Tsukuba, Ibaraki, Japan.

428. **Increased Lipid Signal Correlates with Reduced Blood Brain Barrier Integrity and Grade in Human Gliomas.**
P.S. Murphy, A.S.K. Dzik-Jurasz, P. Revell, M. Brada, M.O. Leach and I.J. Rowland.
The Institute of Cancer Research and The Royal Marsden NHS Trust, Sutton, Surrey, UK.

429. Relationships Between Diffusion MRI, ^{1}H-MR Spectroscopic Imaging and Quantitative Histology in Human Glioma.
R.K. Gupta, T.F. Cloughesy, U. Sinha, J. Garakian, J. Lazareff, G. Rubino, D.P. Becker, H.V. Vinters and J.R. Alger.
University of California, Los Angeles, CA, USA.

430. Choline in Proton MR Spectroscopy Correlates with MIB-1 Proliferation Index in Gliomas.
L. Kankaanranta, A.M. Hakkinen, J. Jaaskelainen, A. Paetau, H. Maenpaa, H. Joensuu and N. Lundbom.
Helsinki University Central Hospital, Helsinki, Finland.

431. The Potential of Using MRS to Guide Brain Tumor Biopsy.
H. Liu, A.J. Martin, W.A. Hall and C.L. Truwit.
University of Minnesota, Minneapolis, MN, USA.

432. Differentiation Between Brain Tumor Recurrence and Radiation Effects: Correlation of *In Vivo* MRS at 3T, *Ex Vivo* High-Resolution Magic-Angle Spinning MRS and Histopathology.
P.L. Lee, J. Rabinov, L.L. Cheng, J.W. Henson, D.N. Louis and R.G. Gonzalez.
Massachusetts General Hospital and Harvard Medical School, Charlestown, MA, USA.

433. Differentiation of Progressive Brain Tumor from Radiation Injury: Utility of ^{1}H MR Spectroscopy.
H.P. Schlemmer, M. Wenke, K. Herfarth, P. Bachert, J. Debus, M.V. Knopp, H. Hawighorst and G. van Kaick.
German Cancer Research Center, Heidelberg, Germany.

434. Proton MRS Measurement of p-Boronophenylalanine (BPA): A Potential MRS Application for Boron Neutron Capture Therapy (BNCT).
C.S. Zuo, P.V. Prasad, L. Tang and R.G. Zamenhof.
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

THURSDAY

Hemodynamic and Metabolic Responses to Neuronal Activity

435. Neurotransmitters, Neuro-glia Interactions and Metabolic Coupling in the Brain.
Pierre Magistretti.
Universite de Lausanne, Lausanne, Switzerland.

436. MRS of Neurochemistry in Action.
Rolf Gruetter.
University of Minnesota, Minneapolis, MN, USA.

437. Neurovascular Coupling - The Basis of Functional Brain Imaging.
Arno Villringer.
Humboldt University, Berlin, Germany.

Mapping of Neuronal Function: Spatial Resolution and New Frontiers

438. High-Resolution Echo-Planar fMRI Measures Localized Cortical Microvascular Responses, not just Large Venous Drainage Patterns.
K.R. Thulborn, L.S. Talagala and T. Gindin.
University of Pittsburgh Medical Center, Pittsburgh, PA, USA.

439. Submillimeter Functional Localization in Human V1 Using BOLD Contrast at 4 Tesla: Implications for the Vascular Point-Spread Function.
B.G. Goodyear and R.S. Menon.
University of Western Ontario and The John P. Robarts Research Institute, London, Ontario, Canada.

440. Correlation of Functional Activation Sizes between Lateral Geniculate Nucleus and Primary Visual Cortex in Human Brain: A High-Resolution fMRI Study at 4T.
W. Chen and X-H. Zhu.
University of Minnesota Medical School, Minneapolis, MN, USA.

441. Somatotopic Mapping of the Human Postcentral Gyrus.
S.T. Francis, E. Kelly, R. Dunseath, S. Folger, R.W. Bowtell and F. McGlone.
University of Nottingham, Nottingham, UK; University of North Carolina, Chapel Hill, NC, USA and Unilever Research, Liverpool, UK.

442. Abnormal Digital Representation Within the Sensory Cortex in Writer's Cramp.
S. Butterworth, S. Francis, E. Kelly, R. Dunseath, R.W. Bowtell, F. McGlone and G.V. Sawle.
University of Nottingham, Nottingham, UK; University of North Carolina, Chapel Hill, NC, USA and Unilever Research, Liverpool, UK.

443. Tonotopic Mapping in Humans with a New, Silent Event-Related fMRI Technique.
A. Engelien, Y. Yang, W. Engelien, R. Vuskovic, E. Stern and D.A. Silbersweig.
Cornell University Medical College, New York, NY, USA.

444. **Basal Ganglia and White Matter Activation Using Functional MRI at 4 Tesla.**
J.A. Maldjian, A. Gottschalk, J.A. Detre and D. Alsop.
Hospital of the University of Pennsylvania, Philadelphia, PA, USA.

445. **Spinal fMRI.**
P.W. Stroman and L.N. Ryner.
National Research Council Canada, Winnipeg, MB, Canada.

446. **The Demonstration of Human Fetal Brain Activity *in utero* Using Function Magnetic Resonance Imaging.**
J. Hykin, R. Moore, K. Duncan, P. Baker, I. Johnson, S. Clare, R. Bowtell, P. Mansfield and P. Gowland.
University of Nottingham, Nottingham, UK.

447. **Comparison of BOLD and IVIM Event-Related fMRI.**
A. Darquie, C.A. Clark, P.F. Van de Moortele and D. Le Bihan.
Service Hospitalier Frederic Joliot, Orsay, France.

MR Imaging of Brain: New Experimental Models

448. **Mn^{2+} Enhanced MRI (MEMRI) *In Vivo* Neuronal Tract Tracing in Mouse Mutants and Non-Human Primates.**
R.G. Pautler, C. Olson, D.S. Williams, C. Ho and A.P. Koretsky.
Carnegie Mellon University, Pittsburgh, PA, USA.

449. **MR Microscopy of C57 Black Mouse Brain: Creation of a Neuroanatomical Database.**
H. Benveniste, K.R. Kim and G.A. Johnson.
Duke University Medical Center, Durham, NC, USA.

450. **MR Microscopy of Contrast-Structure in a Rat Model of Parkinson's Disease.**
M. Delnomdedieu, N.M. Appel, P.S. Pine, T. Hayakawa, D.S. Lester and G.A. Johnson.
Duke University Medical Center, Durham, NC, USA; Food and Drug Administration, Laurel, MD, USA and National Institutes of Health, Bethesda, MD, USA.

451. **Longitudinal MRI Studies of Neurological Disease in Mice with a Mutation in the Huntington's Disease Gene.**
Y. Zaim Wadghiri, W. Auerbach, G. Johnson, M.E. MacDonald, A.L. Joyner and D.H. Turnbull.
New York University School of Medicine, New York, NY, USA and Massachusetts General Hospital, Boston, MA, USA.

452. **Magnetic Resonance Imaging Shows a Reduced Expansion of Cerebral Edema and a Reduction in Infarct Size in Mice Overexpressing Metallothionein-1 Following Middle Cerebral Artery Occlusion and Reperfusion.**
M. van Lookeren Campagne, H. Thibodeaux, B. Cairns, J.T. Palmer, S.P. Williams, R. Gerlai, D.G. Lowe and N. van Bruggen.
Genentech Inc., South San Francisco, CA, USA.

453. **Time Evolution of Cerebral Perfusion and Diffusion in a Porcine Stroke Model.**
L. Rohl, L. Ostergaard, M. Sakoh, C.Z. Simonsen, P. Vestergaard-Poulsen, R. Sangill, H. Stodkilde-Jorgensen and C. Gyldensted.
Aarhus University Hospital, Aarhus, Denmark.

454. ABSTRACT WITHDRAWN.

455. Mitigation of Acute Hypoxia in Brain by Infusion of the Acellular Hemoglobin HBOC-201: A BOLD MR Imaging Study.
J.F. Dunn, C. Nwaigwe, M. Roche, H. Zhu, O. Grinberg, B. Pearce and M.S. Gawryl.
Dartmouth Hitchcock Medical Center, Hanover, NH, USA and BIOPURE Corp., Boston, MA, USA.

456. Cytokine Injection (IL-1) Produces Changes in BBB Permeability and ADC in the Rat Brain.
A.M. Blamire, D.C. Anthony, B. Rajagopalan, V.H. Perry and P. Styles.
John Radcliffe Hospital and University of Oxford, Oxford, UK and University of Southampton, UK.

457. Low Signal Intensity Gray Matter on T_2* Weighted Human Brain 8 T Images.
D.W. Chakeres, A.M. Abduljalil, A. Kangarlu, X. Zhang, Y. Yu, P.M. Schmalbrock and P.M.L. Robitaille.
The Ohio State University, Columbus, OH, USA.

Clinical MR Spectroscopy of Brain

458. Analysis of the Causes of ^{1}H Chemical Shift Imaging Detected Differences in Brain Metabolite Levels Between Elderly Women and Men.
P.E. Sijens, T. den Heijer, J.C. de Groot, F.E. de Leeuw, R. Heijboer, E. Achten, A. Hofman, M.M.B. Breteler and M. Oudkerk.
University Hospital Rotterdam and Erasmus University Medical School, Rotterdam, The Netherlands and Ghent University Hospital, Ghent, Belgium.

459. Decreased Brain Glutathione Levels in Schizophrenics. First Findings with *in vivo* Double Quantum Coherence Filtering MRS and with *ex vivo* CSF Analysis.
A.H. Trabesinger, K.Q. Do, M. Kirsten-Kruger, U. Dydak, D. Hell, M. Cuenod and P. Boesiger.
University and ETH, Zurich, Switzerland; University of Lausanne, Switzerland and Psychiatric University Hospital, Zurich, Switzerland.

460. Evidence of a Family History Effect on the Membrane Phospholipid Metabolism in Schizophrenia: A Longitudinal *In Vivo* ^{31}P MRS Study.
J.A. Stanley, M.S. Keshavan, K. Panchalingam and J.W. Pettegrew.
University of Pittsburgh, Pittsburgh, PA, USA.

461. ^{1}H-Magnetic Resonance Spectroscopy Evidence of Reduced Cortical GABA Levels in Depressed Subjects.
G. Sanacora, G.F. Mason, D.L. Rothman, K.L. Behar, F. Hyder, O.A.C. Petroff, R.M. Berman, D.S. Charney and J.H. Krystal.
Yale University School of Medicine, New Haven, CT, USA.

462. Spectroscopic Imaging of the Uptake Kinetics and Visibility of Human Brain Ethanol *in vivo* at 4T.
H.P. Hetherington, F. Telang, J.W. Pan, M. Sammi, D. Schuhlein, P. Molina and N.D. Volkow.
Brookhaven National Laboratory, Upton, NY, USA; State University of New York, Stony Brook, NY, USA and North Shore University Hospital, Manhasset, NY, USA.

463. **Measuring the Minimum Rate of GABA Synthesis in Patients with Complex Partial Seizures.**
O.A.C. Petroff, F. Hyder, T.L. Collins, R.H. Mattson and D.L. Rothman.
Yale University, New Haven, CT, USA.

464. **Normalization of Neurochemical Abnormailities in the Unoperated Temporal Lobe Following Neurosurgery for Unilateral Temporal Lobe Epilepsy.**
G.J. Moore, E.A. da Silva and C. Watson.
Wayne State University School of Medicine, Detroit, MI, USA.

465. **Variations in Proton Metabolite Spin-Spin Relaxation Times in Stroke Patients: Consequences for Absolute Metabolite Concentration Estimation.**
P.M. Walker, A. Lalande, M. Dranssart, M. Lemesle, N. Baudouin, D. Martin, M. Giroud and F. Brunotte.
University Hospital of Dijon, France.

466. **Evidence for Long-Term Neurotoxicity Associated with Methamphetamine Use in Humans: A Proton MRS Study.**
T. Ernst, L. Chang, M. Leonido-Yee and O. Speck.
Harbor-UCLA Medical Center, Torrance, CA, USA.

467. **Abnormal Levels of Cho but not of NAA in the Posterior Internal Capsule of Patients with ALS.**
N. Schuff, W.D. Rooney, D.F. Gelinas, R.G. Miller, D. Amend, A.A. Maudsley and M.W. Weiner.
University of California and Department of Veterans Affairs Medical Center, San Francisco, CA, USA and Brookhaven National Laboratory, Upton, NY, USA.

Gradients, Magnets, and Shims

468. **Multi-Layer Transverse Gradient Coils.**
R. Bowtell, S. Crozier, B. Beck and S. Blackband.
University of Nottingham, Nottingham, UK; University of Queensland, Brisbane, Queensland, Australia and University of Florida, Gainesville, FL, USA.

469. **A 2000mT/m Multilayer Gradient Coil for Mouse Imaging.**
B.A. Chronik, A. Alejski and B.K. Rutt.
University of Western Ontario and John P. Robarts Research Institute, London, ON, Canada.

470. **An Ultra-High Performance Gradient System for Cardio- and Neuro MR Imaging.**
F. Schmitt, W. Arz, C. Becker, R. Bleisteiner, P. Dietz, S. Domalski, E. Eberlein, L. Eberler, M. Gebhardt, O. Heid, P. Heubes, H. Lenz, J. Nistler, S. Nowak, L. Regenfus, W. Renz, L. Simonetti, J. Schuster, S. Stocker, P. Wielopolski, and G. Laub.
Siemens Medical Systems, Erlangen, Germany; Dr. Daniel Den Hoed Kliniek, Rotterdam, The Netherlands and Siemens Medical Systems, Chicago, IL, USA.

471. **Finite Size Disc Gradient Coil Set for Open Vertical Field Magnets.**
L.S. Petropoulos.
Picker International Inc., Highland Heights, OH, USA.

472. **Predicting Magnetostimulation by Central and Edge Gradient Coils.**
B.A. Chronik and B.K. Rutt.
University of Western Ontario and John P. Robarts Research Institute, London, ON, Canada.

473. **A High-Power Pulsing Circuit for Prepolarized MRI.**
S.M. Conolly, N.I. Matter, G.C. Scott and A. Macovski.
Stanford University, Stanford, CA, USA.

474. **Shielded Electromagnet Design with Restricted Volume for Prepolarized MRI.**
P.N. Morgan.
Texas A&M University, College Station, TX, USA.

475. **Fundamental Scaling Relations for Homogeneous Magnets.**
H. Xu, S.M. Conolly, G.C. Scott and A. Macovski.
Stanford University, Stanford, CA, USA.

476. **Exact Analytical Current Density Solutions for Spherical Field Coils for NMR Microscopy.**
H. Liu and L.S. Petropoulos.
University of Minnesota, Minneapolis, MN, USA.

477. **Design of Dedicated Shim Fields.**
E. Adalsteinsson, S.M. Conolly, H. Xu and D.M. Spielman.
Stanford University, Stanford, CA, USA.

Cardiac/MR Angiography Image Processing

478. **Automatic Multi-Slice Short Axis Cardiac Cine-MR Determination of Left Ventricular Ejection Fraction in Patients with Myocardial Infarction. A Comparison with Radionuclide Angiography.**
A. Lalande, Y. Cottin, O. Ressencourt, C. Touzery, M. Dranssart, P.M. Walker, L. Legrand, J.E. Wolf and F. Brunotte.
University Hospital, Dijon, France.

479. **An Improved User Interface for Scan Plane Definition in Cardiac MRI Using Interactive 3-D Graphics.**
M.E. Brummer and R.I. Pettigrew.
Emory University School of Medicine, Atlanta, GA, USA.

480. **Fast Template Based Segmentation of Cine Cardiac MR.**
G. Shechter, J. Declerck, C. Ozturk and E.R. McVeigh.
Johns Hopkins University, Baltimore, MD, USA.

481. **Application of the Walsh Transform to the Automatic Tracing of Radially Tagged Cardiac MR Images.**
H. Azhari, E. Rapps and E.P. Shapiro.
Technion, Haifa, Israel and Johns Hopkins University School of Medicine, Baltimore, MD, USA.

482. **Detection and Quantitative Measurement of Atherosclerotic Fibrous Cap in 3D TOF MR Images.**
D. Xu, T.S. Hatsukami, J-N. Hwang and C. Yuan.
University of Washington, Seattle, WA, USA.

483. **Depth Reconstruction from Projection Images for 3D Visualization of Intravascular MRI Probes.**
M. Solaiyappan, J. Lee and E. Atalar.
Johns Hopkins University School of Medicine, Baltimore, MD, USA.

484. **Functional MRA Combining 2D MR DSA and Correlation Analysis.**
R. Strecker, S. Lehnhardt, J. Klisch and J. Hennig.
University of Freiburg, Freiburg, Germany.

485. **Multi-Slice Line Enhancement Filtering for Intracranial Magnetic Resonance Angiography.**
B.E. Chapman and D.L. Parker.
University of Utah, Salt Lake City, UT, USA.

486. **Artery-Vein Separation in 3D Contrast Enhanced Pulmonary MRA Using Correlation Analysis.**
M. Bock, S.O. Schoenberg, F. Flomer, A. Grau, R. Strecker and L.R. Schad.
Deutsches Krebsforschungszentrum and Neurologische Universitatsklinik, Heidelberg, Germany and Universitatsklinik Freiburg, Freiburg, Germany.

487. **Measurement of Concentration of Gd-DTPA in Multiple Tissues with Applications to MR Renography.**
H. Rusinek, G. Johnson, V. Lee, T. Shinde and L. Rogers.
NYU Medical Center, New York, NY, USA.

Tumor Spectroscopy and Imaging: Models

488. **Detection of Metabolic Changes Associated with Fas- and Chemotherapy-Induced Apoptosis Using MRS.**
N.M. Al-Saffar, P.A. Clarke, F. DiStefano, M.O. Leach and S.M. Ronen.
Royal Marsden Hospital, Sutton, Surrey, UK.

489. **^{1}H MRS of Rat Glioma *in vivo*: Role of Polyunsaturated Fatty Acids in Apoptotic Cell Death as Induced by Gene Therapy.**
J.M. Hakumaki, H. Poptani, A.M. Puumalainen, S. Yla-Herttuala and R.A. Kauppinen.
University of Kuopio, Kuopio, Finland.

490. **The Anti-Inflammatory Agent Indomethacin Reduces the Malignant Phospholipid Phenotype of Metastatic Human Breast Cancer Cells.**
Z.M. Bhujwalla, K. Natarajan, E.O. Aboagye, N. Mori, D. Artemov, U. Pilatus and V.P. Chacko.
The Johns Hopkins University School of Medicine, Baltimore, MD, USA.

491. **Quantiation of Cytosine Deaminase Transgene Expression in Tumors Using ^{19}F -MRS.**
L.D. Stegman, B. Beattie, E. Kievit, T.S. Lawrence, A. Rehemtulla, J.G. Tjuvajev, R.G. Blasberg and B.D. Ross.
University of Michigan, Ann Arbor, MI, USA and Memorial Sloan Kettering Cancer Center, New York, NY, USA.

492. **Measurement of Nitric Oxide in Mice using EPR and Spin Trapping with Fe-$(DETC)_2$ After Irradiation.**
J.A. O'Hara, O.Y. Grinberg and H.M. Swartz.
Dartmouth Medical School, Hanover, NH, USA.

493. **Intracellular Acidification Increases Thermal Sensitivity for the RIF-1 Tumor *In Vivo*.**
W.M. Spees, J.L. Evelhoch and J.J.H. Ackerman.
Washington University, St. Louis, MO, USA and Wayne State University, Detroit, MI, USA.

494. Effect of Hyperglycemia and Inhibition of Mitochondrial Respiration on Intra- and Extracellular pH in a Human Melanoma Xenograft.
R. Zhou, N. Bansal, J.D. Glickson and D.B. Leeper.
University of Pennsylvania and Thomas Jefferson University, Philadelphia, PA, USA.

495. Comparison of Changes in Gradient-Echo ^{1}H MR Image Intensity and pO_2 in Rodent Tumours in Response to Carbogen Breathing.
R.J. Maxwell, S.P. Robinson, D.J.O. McIntyre, J.R. Griffiths and B. Vojnovic.
Gray Laboratory Cancer Research Trust, Northwood, Middlesex, UK and St. George's Hospital Medical School, London, UK.

496. MR Correctly Predicts the Relative Effect of Two Tumor Oxygenating Agents on Hypoxic Fraction in Rodent BA1112 Tumors.
H.A. Al-Hallaq, M. Zamora, J.N. River and G.S. Karczmar.
University of Chicago, Chicago, IL, USA.

497. Delineation of Tumor and Normal Tissue Using Responses to Vasoactive Challenge.
Y. Cao, S.L. Brown, J.R. Ewing, R.A. Knight, Q. Jiang, P. Jiang and A. Kolozsvary.
Henry Ford Health System, Detroit, MI, USA.

Clinical fMRI

498. Functional MRI of the Brain with Vascular Malformation.
J.C. Lin, T.H. Le, D.D. Roman, E.S. Nussbaum and C.L. Truwit.
University of Minnesota, Minneapolis, MN, USA.

499. Visual and Motor Brain Activation Studied with BOLD fMRI and Proton MRS in Patients with Mitochondrial Encephalopathy (MELAS).
R.L. DeLaPaz, D.C. Shungu, W.M. Millar, G.M. Perera, Y. Polanco and D.C. De Vivo.
Columbia University, New York, NY, USA.

500. Cocaine Dose Dependent Activation of Brain Reward Circuitry in Humans Revealed by 3T fMRI.
R. Gollub, H. Breiter, M. Dershwitz, I. Elman, H. Kantor, D. Gastfriend, E. Benson, S. Lazar, S. Krause, N. Makris, D. Kennedy, T. Campbell, R. Weisskoff and B. Rosen.
Massachusetts General Hospital, Charlestown, MA, USA.

501. Spreading BOLD Deactivation During Spontaneous Migraine Aura.
D. Bakker, O. Wu, M. Sanchez del Rio, M. Cutrer, K.K. Kwong, N. Hadjikhani, R.B.H. Tootell, B.R. Rosen, A.G. Sorensen and M.A. Moskowitz.
Massachusetts General Hospital, Boston, MA, USA.

502. Reduced BOLD fMRI Signal Changes in the Primary Visual Cortex of MS Patients with Unilateral Optic Neuritis: Correlation with Visual Evoked Potentials.
P.J. Gareau, J.R. Mitchell, J.S. Gati and S.J. Karlik.
John P. Robarts Research Institute and London Health Sciences Center-University Campus, London, Ontario, Canada.

503. Functional Recovery of Motor Cortex After Stroke: Functional MRI and Transcranial Magnetic Stimulation.
L. Hernandez, Y. Yen, E.P. Bastings, G. Hammond, D.C. Good, J.P. Greenberg, T.P. Pons, P.E. Ricci and D.M. Moody.
Wake Forest University School of Medicine, Winston-Salem, NC, USA.

504. **Expanding Cortical Language Networks during Recovery from Aphasia.**
Y. Cao, K.P. George, E.M. Vikingstad, A.F. Johnson and K.M.A. Welch.
Henry Ford Health Sciences Center, Case Western Reserve University, Detroit, MI, USA Case Western Reserve University, Cleveland, OH, USA.

505. **Functional Connectivity in Patients with Focal Cerebral Lesions.**
M. Quigley, D. Cordes, K. Arfanakis, P.A. Turski, V. Haughton and M.E. Meyerand.
University of Wisconsin, Madison, WI, USA.

506. **EEG-Correlated Diffusion-Weighted fMRI in Epilepsy.**
M.R. Symms, K. Krakow, U.C. Wieshmann, G.J. Barker, D.R. Fish and J.S. Duncan.
National Society for Epilepsy, Chalfont St Peter, Bucks, UK and University College, London, UK.

MR-Guided Operations and Interventions

507. **MR Monitored Brain Tumor Resection: Resection Completeness and Preliminary Outcomes Analysis.**
A.J. Martin, W.A. Hall, H. Liu, E. Michel, S.O. Casey, R.E. Maxwell and C.L. Truwit.
University of Minnesota, Minneapolis, MN, USA and Philips Medical Systems, Best, The Netherlands.

508. **MR-Guided Deep Brain Stimulator Implantation for Treating Tremor in PD Patient.**
H. Liu, A.J. Martin, R.E. Maxwell and C.L. Truwit.
University of Minnesota, Minneapolis, MN, USA.

509. **Visualization of Brain Shift During Interventional MRI-Guided Tumor Removal.**
G.J. Rubino, K. Farahani and D.R. McGill.
UCLA Medical Center, Los Angeles, CA, USA.

510. **Application of Intraoperative MRI in Neurosurgery for Resection Control.**
C. Nimsky, O. Ganslandt, B. Tomandl and R. Fahlbusch.
University Erlangen-Nuremberg, Erlangen, Germany.

511. **Development of a Dedicated C-Arm Intra-Operative MR Imaging Suite with a Rotating, Tiltable Surgical Table: Design and Safety Issues and Preliminary Clinical Results.**
J.S. Lewin, M. Wendt, J.L. Duerk, M.E. Clampitt, A. Oppelt and W.R. Selman.
University Hospitals of Cleveland/Case Western Reserve University, Cleveland, OH, USA and Siemens Medical Engineering Group, Erlangen, Germany.

512. **Intraprocedural MRI of Periurethral Collagen Injection: Report of a New Technique for Treatment of Incontinence.**
B.L. Daniel, B.H. Chen and A.J. Yun.
Stanford University, Stanford, CA, USA.

513. **MR-Guided Laser-Induced Thermotherapy (LITT) of Liver Metastases: Comparison of Colorectal Cancer Mets Versus Breast Cancer Mets and Other Primary Tumors Regarding Survival Rates.**
M.G. Mack, R. Straub, K. Eichler, K. Engelmann, A. Roggan and T.J. Vogl.
University of Frankfurt, Frankfurt, Germany and LMTB GmbH, Berlin, Germany.

514. **Fast T_2 Weighted Imaging by PSIF at 0.2T for Interventional MRI.**
Y.C. Chung, J.S. Lewin, E.M. Merkle and J.L. Duerk.
University Hospitals of Cleveland/Case Western Reserve University, Cleveland, OH, USA.

515. Direct iMRI-Guided Large Gauge Core Needle Breast Biopsy.
B.L. Daniel, R.L. Birdwell, K.W. Nowels, S.G. Heiss, D.M. Ikeda, C. Cooper, K. Butts and R.J. Herfkens.
Stanford University, Stanford, CA, USA.

516. Interventional MR Guided Prostate Brachytherapy: Feasibility and Early Clinical Experience.
C.M.C. Tempany, A.V. D'Amico, R. Cormack, T. Wong, S. Kumar, G. Topolus, S.G. Silverman and F.A. Jolesz.
Brigham & Women's Hospital, Boston, MA, USA.

Body Imaging: Application of New Techniques

517. Optimization of SINOP Sequence with Automatic Subtraction (IP-OP) for Liver Imaging.
K. Honjo, K. Murata, O. Takizawa, K. Ito, S. Koike, K. Takano, H. Awaya, M. Yasui, M. Furukawa and N. Matsunaga.
Yamaguchi University School of Medicine, Ube, Japan; Siemens-Asahi Medical Technologies, Tokyo, Japan and Thomas Jefferson University Hospital, Philadelphia, PA, USA.

518. Clinical Evaluation of 3D Half-Fourier RARE with Short Inter-Echo Train Spacing for T_2-Weighted Pelvic MR Imaging: Comparison of Fast Spin Echo, Single-Shot 2D and 3D-RARE.
H. Sugimura, K. Yamaguchi, Y. Machida, S. Kitane, X.Q. Tong, M. Asato, Y. Yuki, R. Ochiai and S. Tamura.
Miyazaki Medical College, Miyazaki, Japan and Toshiba Nasu Works, Tochigi, Japan.

519. Improved Visualization of the Lung in ^{1}H MR Imaging using Inversion Recovery and Multiple Inversion Recovery by Simultaneously Suppressing Fat and Muscle.
V.M. Mai, J. Knight-Scott, Q. Chen, R.R. Edelman and S.S. Berr.
University of Virginia Health Sciences Center, Charlottesville, VA, USA and Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

520. MR Virtual Colonoscopy using Hyperpolarized Helium 3 as an Endoluminal Contrast Agent.
M.J. Spellman Jr, K.D. Hagspiel, T.A. Altes, J.P. Mugler, J.F. Mata, N.J. Tustison and J.R. Brookeman.
University of Virginia Health Sciences Center, Charlottesville, VA, USA.

521. MR Small Bowel Enteroclysis with a Combined Half-Fourier RARE Technique.
D.J. Lomas, R.R. Sood, M.J. Graves, A.H. Freeman and I. Joubert.
University of Cambridge, Cambridge, UK.

522. Dynamic Magnetic Resonance Imaging of the Anal Sphincter Using Position Tracking of an Endoanal Coil – Appearance in Patients with Fecal Incontinence.
N.M. deSouza, G.A. Coutts, A.D. Williams, D. Larkman and D.J. Gilderdale.
Hammersmith Hospital, London, UK.

523. Echo-Planar Imaging Evaluation of the Forces Produced by the Human Stomach in Fracturing Model Solid Food.
L. Marciani, P. Manoj, A. Smith, R.J. Moore, D.J. Tyler, P. Young, A. Fillery-Travis, R.C. Spiller and P.A. Gowland.
University of Nottingham, UK; Institute of Food Research, Norwich, UK and Queen's Medical Centre, University Hospital, Nottingham, UK.

524. **Biomechanics of Breast Tissue: Preliminary Study of Force – Deformation Relationship.**
C. Williams, B. Clymer and P. Schmalbrock.
The Ohio State University, Columbus, OH, USA.

525. **Assessment of Breast Cancer by Magnetic Resonance Elastography.**
A.J. Lawrence, P.J. Rossman, J.L. Mahowald, A. Manduca, L.C. Hartmann and R.L. Ehman.
Mayo Clinic, Rochester, MN, USA.

526. **MR Elastography of the Prostate.**
M.A. Dresner, P.J. Rossman, S.A. Kruse and R.L. Ehman.
Mayo Clinic, Rochester, MN, USA.

Neonatal CNS Imaging

527. **Hippocampal Volume and Everyday Memory in Adolescents Born Preterm.**
E.B. Isaacs, A. Lucas, W.K. Chong, S.J. Wood, C.L. Johnson, C. Marshall, F. Vargha-Khadem and D.G. Gadian.
University College London Medical School and Great Ormond Street Hospital for Children NHS Trust, London, UK.

528. **MR Diffusion Studies of Term Neonates with Perinatal Asphyxia.**
S.F. Tanner, L.A. Ramenghi, J.P. Ridgway, A. Radjenovic, E. Berry, M.A. Smith and M.I. Levene.
University of Leeds, Leeds, UK.

529. **Timing of Changes on Diffusion Tensor Imaging Following Brain Injury in Full-Term Infants.**
J.J. Neil, R.C. McKinstry, S.I. Shiran, A.Z. Snyder, C.R. Almli, E. Akbudak, B.C.P. Lee and T.E. Conturo.
Washington University School of Medicine, St. Louis, MO, USA.

530. **Profound Impairment of Episodic Memory after Early Hypoxic-Ischaemic Injury.**
D.G. Gadian, J. Aicardi, K.E. Watkins, D.A. Porter, M. Mishkin and F. Vargha-Khadem.
University College London Medical School, London, UK and National Institute of Mental Health, Bethesda, MD, USA.

531. **T_1 and T_2 Measurements of the Preterm Brain.**
A.H. Herlihy, S.J. Counsell, M.A. Rutherford, G.M. Bydder and J.V. Hajnal.
Imperial College School of Medicine, Hammersmith Hospital, London, UK.

532. **Value of Fluid Attenuated Inversion Recovery (FLAIR) Sequences in Early MRI of the Brain in Neonates with a Perinatal Hypoxic-Ischemic Encephalopathy.**
L.T.L. Sie, F. Barkhof, H.N. Lafeber, J. Valk and M.S. van der Knaap.
Vrije Universiteit, Amsterdam, the Netherlands.

533. **MR Imaging and Relaxation Time Measurement of the Gray and White Matter in Postmortem Normal Human Fetal Brain.**
L. Ma, Y.A. Gao, Y.G. Gao and Y. Liang.
PLA General Hospital, Beijing, China.

534. **Comparison of MRI Fetal Lung Volume in Normal and Diseased Fetuses.**
T. Metens, F. Rypens, D. Eurin, F. Brunelle, C. Durant, Y. Robert, L. Guibaud and M.P. Quere.
Hopital Erasme, Bruxelles, Belgium; Hopital C. Nicole, Rouen, France; Hopital Necker Enfants Malades, Paris, France and Hopitaux de Grenoble, Lille, Lyon and Nantes, France.

fMRI: Acquisition Methods

535. Segmented Spin Echoes: A Method to Increase the fMRI Contrast using Repeated Intrinsic Diffusional Enhancement (RIDE).
A.W. Song, H. Mao, R. Muthupillai and W.T. Dixon.
Emory University, Atlanta, GA, USA.

536. 3D Z-Shim Method for Reduction of Susceptibility Effects in BOLD fMRI.
G.H. Glover.
Stanford University, Stanford, CA, USA.

537. Rapid Whole-Brain T_2* Echo Planar Imaging with Removal of Magnetic Susceptibility Artifacts.
Q.X. Yang, R.J. Demeure and M.B. Smith.
The Pennsylvania State University College of Medicine, Hershey, PA, USA and Universite Catholique de Louvain, Brussels, Belgium.

538. Gradient Compensation Method for the Reduction of Susceptibility Artifacts for Spiral fMRI Data Acquisition.
V.A. Stenger, F.E. Boada and D.C. Noll.
University of Pittsburgh, Pittsburgh, PA, USA and University of Michigan, Ann Arbor, MI, USA.

539. High Temporal Resolution fMRI Using 3D Phase Encode Reordered EPI.
L.T. Muftuler and O. Nalcioglu.
University of California, Irvine, CA, USA.

540. One Second Whole Brain fMRI Using a 3D-PRESTO Sequence with SENSE.
X. Golay, K.P. Pruessmann, M. Weiger, G.R. Crelier, S.S. Kollias and P. Boesiger.
University and ETH and University Hospital, Zurich, Switzerland.

541. Distinction of Activation and Noise in fMRI by Multi-Echo Sampling.
V.G. Kiselev, S. Wiese and S. Posse.
Research Center Julich GmbH, Julich, Germany and Institute of Physics, Minsk, Byelorussia.

542. Simultaneous 64 Channel Visual Evoked Potentials and 3T fMRI Recordings.
G. Bonmassar, K. Anami, J.R. Ives and J.W. Belliveau.
Massachusetts General Hospital and Beth Israel Deaconess Medical Center, Boston, MA, USA.

543. Reduction of Gradient-Induced EEG Artifacts.
M. Bock, H. Meyer, K. Baudendistel, F. Floemer, K. Lowenstein and L.R. Schad.
Deutsches Krebsforschungszentrum, Heidelberg, Germany and Schwarzer, NeuroKard, Butzbach, Germany.

544. Evidence of Interictal Epileptic Activity Detection Using Simultaneous BOLD fMRI and EEG.
A.L. Vazquez, S.B. Baumann, M.L. Scheuer and D.C. Noll.
University of Pittsburgh Medical Center, Pittsburgh, PA, USA.

MR Imaging of Articular Cartilage

545. MR Imaging of Articular Cartilage using Driven Equilibrium.
B.A. Hargreaves, G.E. Gold, P.K. Lang, S.M. Conolly, J.M. Pauly, G. Bergman, J. Vandevenne and D.G. Nishimura.
Stanford University, Stanford, CA, USA and University of California, San Diego, CA, USA.

546. MR Imaging of Articular Cartilage: Striations in the Radial Layer Reflect the Fibrous Structure of Cartilage.
D.W. Goodwin, H. Zhu and J.F. Dunn.
Dartmouth Hitchcock Medical Center, Hanover, NH, USA.

547. Quantitative Changes of Articular Cartilage Microstructure During Compression of an Intact Joint.
S.C. Faber, C. Herberhold, T. Stammberger, M. Reiser, K.H. Englmeier and F. Eckstein.
Ludwig-Maximilians-University, Munich, Germany and Institut fur Medizinische Informatik und Systemforschung, GSF, Neuherberg, Germany.

548. *In-Vivo* Evaluation of Human Cartilage Compression and Recovery using ^{1}H and ^{23}Na MRI.
E.M. Shapiro, P.K. Saha, J. Kaufman, R.R. Reddy, A. Borthakur, J.B. Kneeland, J.S. Leigh, J.K. Udupa and R. Reddy.
University of Pennsylvania, Philadelphia, PA, USA.

549. *In Vivo* Triple Quantum Filtered Sodium MRI of Human Articular Cartilage.
A. Borthakur, I. Hancu, F.E. Boada, G.X. Shen, E.M. Shapiro and R. Reddy.
University of Pennsylvania, Philadelphia, PA, USA and University of Pittsburgh Medical Center, Pittsburgh, PA, USA.

550. Early Macromolecular Collagen Changes in Articular Cartilage of Osteoarthritis (OA): An *In Vivo* MT-MRI and Histopathologic Study.
W.B. High, S.S. Nielsen, C. Merkle, H. Merkle and M. Garwood.
University of Minnesota, Minneapolis, MN, USA.

551. T_2 Indicates Incompletely the Biomechanical Status of Enzymatically Degraded Articular Cartilage at 9.4T.
M.T. Nieminen, J. Toyras, J. Rieppo, J.M. Hakumaki, M.J. Silvennoinen, H.J. Helminen and J.S. Jurvelin.
Kuopio University Hospital and University of Kuopio, Kuopio, Finland.

552. Sensitivity of Quantitative NMR Imaging to Matrix Composition in Engineered Cartilage Tissue.
K. Potter, J. Butler, W.E. Horton and R.G.S. Spencer.
National Institute on Aging, Baltimore, MD, USA.

553. Validation of Gadolinium-Enhanced MRI of GAG Measurement in Human Cartilage.
A. Bashir, M.L. Gray, J. Hartke and D. Burstein.
Beth Israel Deaconess Medical Center, Boston, MA, USA.

554. Evaluation of Articular Cartilage with Delayed $Gd(DTPA)^{2-}$ Enhanced MRI: Promise and Pitfalls.
J. Velyvis, R. Boutin, K. Stock, M.L. Gray and D. Burstein.
Beth Israel Deaconess Medical Center, Boston, MA, USA.

Diffusion MR: Methods and Interpretation

555. The Sources of Diffusion Components in Neuronal Tissue: Implications to White Matter Abnormalities.
Y. Assaf and Y. Cohen.
Tel-Aviv University, Tel-Aviv, Israel.

556. Biexponential Diffusion Observed in Myocardial Tissue Slices.
J.D. Bui, D.L. Buckley, S.J. Blackband and J.R. Forder.
University of Florida, Gainesville, FL, USA; The National High Magnetic Field Laboratory, Tallahassee, FL, USA and The Johns Hopkins University School of Medicine, Baltimore, MD, USA.

557. Water Diffusion in Rat Brain *in vivo* as Detected at Very Large *b* Values is Multicompartmental.
J. Pfeuffer, S.W. Provencher and R. Gruetter.
University of Minnesota Medical School, Minneapolis, MN, USA and MPI for Biophysical Chemistry, Gottingen, Germany.

558. Strain-Free Cardiac Diffusion MRI.
V.J. Wedeen, T.G. Reese, W.Y.I. Tseng and R.M. Weisskoff.
Massachusetts General Hospital, Boston, MA, USA.

559. Isotropic Diffusion-Weighted Multishot Imaging using Automatic Reacquisition.
Q. Nguyen, M. Clemence, J. Thornton and R.J. Ordidge.
University College London, London, England and University of Exeter, Exeter, England, UK.

560. Warp Correcting Diffusion-Weighted Echo Planar Images by Mapping Eddy Current Induced Fields.
M.A. Horsfield.
University of Leicester, UK.

561. Navigated Spin Echo and Stimulated Echo Diffusion-Weighted Imaging of the Spine: Potential for Differentiation of Benign and Malignant Bone Marrow Edema.
E. Spuntrup, G. Adam, A. Buecker and R.W. Gunther.
University of Aachen, Aachen, Germany.

562. Correlation of Brain ADC Changes with Long-Term Outcome after Cardiac Arrest.
Y. Xu, S. Liachenko, P. Tang, R. Hamilton and L. Zha.
University of Pittsburgh, Pittsburgh, PA, USA and Toshiba America MRI, Inc., San Francisco, CA, USA.

563. Water Diffusion and Exchange in Rat Brain Measured *in Vivo* at Very High *b*-Values.
C. Meier, W. Dreher and D. Leibfritz.
Universitat Bremen, Bremen, Germany.

564. Diffusion-Weighted ^{1}H NMR Spectroscopy of Glucose in Rat Brain *in vivo* at Very Large *b* Values.
J. Pfeuffer, I. Tkac and R. Gruetter.
University of Minnesota Medical School, Minneapolis, MN, USA.

Flow Quantification

565. A Novel Flow Quantitation Method Using Fourier Velocity Encoding.
C-M. Tsai and D.G. Nishimura.
Stanford University, Stanford, CA, USA.

566. Comparison of PC-MRI to Computational Simulations and Digital Particle Image Velocimetry (DPIV).
K.L. Wedding, M.T. Draney, J.O. Fredrickson, C.A. Taylor and N.J. Pelc.
Stanford University, Stanford, CA, USA.

567. Heart Motion Adapted MR Velocity Mapping of Blood Velocity Distribution Downstream of a Prosthetic Aortic Valve.
S. Kozerke, J.M. Hasenkam, E.M. Pedersen and P. Boesiger.
University and ETH, Zurich, Switzerland and Aarhus University Hospital, Aarhus, Denmark.

568. Effect of Breath Holding on Blood Flow Measurement using Fast Velocity Encoded Cine MR Imaging.
N. Kawada, H. Sakuma, H. Kubo, T. Hirano and K. Takeda.
Mie University School of Medicine and Matsusaka Central Hospital, Mie, Japan.

569. Coronary Sinus Flow Measurement by Velocity-Encoded Cine Phase Contrast MRI: Validation by Doppler Flowmeter.
G.K. Lund, M.F. Wendland, A. Schimakawa, C.B. Higgins and M. Saeed.
University of California, San Francisco, CA, USA and GE Medical Systems, Milwaukee, WI, USA.

570. ACE-Inhibitor-Enhanced Cine Phase-Contrast MR Measurements of Renal Artery Velocity Waveforms in Patients with Suspected Renovascular Hypertension.
V.S. Lee, A.T. Ton, N.M. Rofsky, G. Johnson, G.A. Krinsky and J.C. Weinreb.
New York University, New York, NY, USA.

571. Automated Model-Based Contour Detection and Flow Quantification of Blood Flow in Small Vessels with Velocity Encoded MRI.
F.M.A. Box, A. Spilt, M.A. van Buchem, J.H.C. Reiber and R.J. van der Geest.
Leiden University Medical Center, Leiden, The Netherlands.

572. On-Line Phase-Contrast Blood Flow Monitoring in Small Vessels.
R. van der Weide, E.P.A. Vonken, C.J.G. Bakker and M.A. Viergever.
University Hospital, Utrecht, The Netherlands.

573. Accurate Measurement of Arterial Input Function (AIF) Using a 3D T_1 Gradient Echo Imaging Method.
K.L. Li, J.J.L. Tessier, J.C. Waterton, D. Checkley, X. Zhu and A. Jackson.
University of Manchester, Manchester, UK and Zeneca Pharmaceuticals, Macclesfield, UK.

574. Velocity Profile Fitting Methods in Physiological Pulsatile Flow: Implications for MR Phase Contrast Based Wall Shear Stress Estimates.
S. Ringgaard, S. Oyre, H. Stodkilde-Jorgensen and E.M. Pedersen.
Aarhus University Hospital, Aarhus, Denmark.

Interventional MR Angiography and Device Tracking

575. MR-Guided PTA Applying Radial k-Space Filling and Active Tip Tracking: Simultaneous Real-Time Visualization of the Catheter Tip and the Anatomy.
A. Buecker, G. Adam, J.M. Neuerburg, A. Glowinski, S. Kinzel, S. Grosskortenhaus, T. Schaeffter, V. Rasche, J.J. van Vaals, W. Hurtak and R.W. Guenther.
University of Aachen, Aachen, Germany.

576. Magnetic Resonance-Guided Angioplasty of Renal Artery Stenosis in a Pig Model: A Feasibility Study.
R.A. Omary, R. Frayne, O. Unal, F.R. Korosec, C.A. Mistretta, C.M. Strother and T.M. Grist.
University of Wisconsin, Madison, WI, USA.

577. Vascular Stents as RF-Antennas for Intravascular MR-Guidance and -Imaging.
H.H. Quick, M.E. Ladd, J.F. Debatin and D. Nanz.
University Hospital, Zurich, Switzerland.

578. On the Accuracy of the Insertion of Endovascular Prostheses under Open-field MRI.
C. Boudoux, Y.M. Dion, H. Ben El Kadi and C. Moisan.
Centre Hospitalier Universitaire de Quebec, Quebec, Canada.

579. On-Line Management of Ischemic Disease using Intravascular MR-Guided Intervention Combined with MR Perfusion Imaging and MR Angiography.
X. Yang and E. Atalar.
Johns Hopkins University School of Medicine, Baltimore, MD, USA and Kuopio University Hospital, Kuopio, Finland.

580. MR Evaluation of Signal-Emitting Coatings.
R. Frayne, A. Wehelie, Z. Yang, R.W. Hergenrother, O. Unal, C.M. Strother and H. Yu.
University of Wisconsin, Madison, WI, USA and SurModics, Eden Prairie, MN, USA.

581. TE-Switched Double-Contrast Enhanced Visualization of Vascular System and Instruments for MR-Guided Interventions.
D. Nanz, D. Weishaupt, H.H. Quick, M. Schmidt, M.A. Patak and J.F. Debatin.
University Hospital, Zurich, Switzerland.

582. Catheter Tracking and Micro-Imaging for MR Fluoroscopy: Design of a Transmit/Receive Coil with Integral Nasogastric Tube.
D.J. Herlihy, D.J. Larkman, N.M. deSouza, A.D. Williams, J.V. Hajnal and I.R. Young.
Imperial College School of Medicine, Hammersmith Hospital, London, UK.

583. A Novel Inductively Coupled RF Coil System and Automatic Image Segmentation for Active MR Invasive Device Tip Tracking.
Q. Zhang, M. Wendt, L. Zheng, J.S. Lewin and J.L. Duerk.
Case Western Reserve University and University Hospitals of Cleveland, Cleveland, OH, USA.

584. High-Accuracy Cylindrical Overhauser Marker for MR Tracking of Interventional Devices.
R. Joensuu, R. Sepponen, A. Lamminen and C.G. Standertskjold-Nordenstam.
Helsinki University Central Hospital, Helsinki, Finland and Helsinki University of Technology, Espoo, Finland.

Spectroscopic Quantitation

585. Normalization of Quantitative Metabolite Maps.
M.A. McLean and G.J. Barker.
National Society for Epilepsy, Chalfont St. Peter, Bucks, UK and University College London, UK.

586. Model Fitting of ^{1}H-MR Spectra of the Human Brain: Incorporation of Short- T_1 Components and Evaluation of Parameterized vs. Non-Parameterized Models.
L. Hofmann, J. Slotboom, C. Boesch and R. Kreis.
University of Bern, Switzerland.

587. The Response of Coupled Spins to the STEAM Sequence – Improving Quantification.
R.B. Thompson and P.S. Allen.
University of Alberta, Edmonton, Alberta, Canada.

588. ^{1}H MRS Quantitation Using FIR Filters for Solvent Suppression.
T. Sundin, L. Vanhamme, P. Van Hecke and S. Van Huffel.
Uppsala University, Uppsala, Sweden and Katholieke Universiteit, Leuven, Belgium.

589. Time-Domain Quantification of Multiple-Quantum-Filtered ^{23}Na Signal by Wavelet-Transform Analysis.
H. Serrai, N. Bansal, A. Borthakur, R. Reddy and J.D. Glickson.
University of Pennsylvania, Philadelphia, PA, USA.

590. Alteration of the "Broad" Phospholipid Signal Component in the Brain of Heavy Drinkers is Associated with Drinking Severity.
M.R. Estilaei, G.B. Matson, G. Payne, M.O. Leach, G. Fein and D.J. Meyerhoff.
DVA Medical Center, University of California, San Francisco, CA, USA and Royal Marsden Hospital and Institute of Cancer Research, Sutton, UK.

591. Visibility of Total Creatine by ^{1}H-MRS in Perfused Rat Hearts.
J. Schneider, E. Fekete, S. Neubauer, A. Haase and M. von Kienlin.
Institute of Physics and University Hospital of Wurzburg, Wurzburg, Germany.

592. Magnetic Coupling Between Water and Metabolites in Human Tissues.
R.A. de Graaf, R. Lamerichs, M.J. Kruiskamp and K. Nicolay.
Utrecht University, Utrecht, The Netherlands and Philips Medical Systems, Best, The Netherlands.

593. The Effects of Different Contrast Agents on Metabolite Protons: Implications for *in vivo* Spectroscopy.
P.S. Murphy, M.O. Leach and I.J. Rowland.
The Institute of Cancer Research and The Royal Marsden NHS Trust, Sutton, Surrey, UK.

594. Neither Short-Term Nor Long-Term Administration of Oral Choline Alters Metabolite Concentrations in Human Brain.
P. Dechent, P.J.W. Pouwels and J. Frahm.
Biomedizinische NMR Forschungs GmbH, Gottingen, Germany.

FRIDAY

The Role of MRI in Pharmacology and Drug Development

595. **Magnetic Resonance in Pharmaceutical Research.**
Marcus Rudin.
Novartis Pharma AG, Basel, Switzerland.

596. **Neuroimaging in Drug Addiction.**
Francis Vocci.
National Institute on Drug Abuse, Rockville, MD, USA.

597. **Imaging of Gene Expression.**
Ralph Weissleder.
Massachusetts General Hospital, Boston, MA, USA.

Perfusion Methodology

598. **$H_2{}^{15}O$ PET Validation of Arterial Spin Tagging Measurements of Cerebral Blood Flow in Humans.**
F.Q. Ye, K.F. Berman, T. Ellmore, G. Esposito, J. van Horn, Y. Yang, J. Duyn, A. Smith, J.A. Frank, D.R. Weinberger and A.C. McLaughlin.
National Institutes of Health, Bethesda, MD, USA.

599. **Validation of the FAIR Technique of Perfusion Quantification with Hydrogen Clearance.**
G.S. Pell, E. Proctor, D.L. Thomas, A.L. Busza, A. L and R.J. Ordidge.
University College London, UK.

600. **Multislice Perfusion and Perfusion Territory Imaging in Humans at 3 T with Separate Label and Image Coils.**
G. Zaharchuk, P.J. Ledden, K.K. Kwong, T.G. Reese, B.R. Rosen and L.L. Wald.
Harvard-MIT Division of Health Sciences and Technology, Cambridge, MA, USA and Massachusetts General Hospital, Charlestown, MA, USA.

601. **Background Suppressed 3D RARE Arterial Spin Labeled Perfusion MRI.**
D.C. Alsop and J.A. Detre.
University of Pennsylvania, Philadelphia, PA, USA.

602. **A Pseudo-Continuous Arterial Spin Labeling Technique for Imaging CBF with High Temporal Resolution.**
A.C. Silva and S.G. Kim.
University of Minnesota Medical School, Minneapolis, MN, USA.

603. **Comparison of Static and Dynamic MRI Techniques for the Measurment of Regional Cerebral Blood Volume.**
O. Speck, L. Chang, L. Itti and T. Ernst.
UCLA School of Medicine, Harbor-UCLA Medical Center, Torrance, CA, USA.

604. **Independent and Simultaneous Validation of MR Phase Arterial Input Functions.**
E. Akbudak, S. Chun, R. Hsu, K. Deal, A.Z. Snyder and T.E. Conturo.
Washington University School of Medicine, Saint Louis, MO, USA.

605. **Measurements of rCBF Using Dynamic Susceptibility Contrast MRI: Comparison of Different Deconvolution Techniques and Different Locations of the Arterial Input Function.**
R. Wirestam, L. Andersson, L. Ostergaard and F. Stahlberg.
Lund University Hospital, Lund, Sweden and Aarhus University Hospital, Aarhus, Denmark.

606. **Gradient Echoes or Spin Echoes for CBF, CBV and MTT Measurements?**
C.Z. Simonsen, L. Ostergaard, D.F. Smith, P. Vestergaard-Poulsen and C. Gyldensted.
Arhus University Hospitals, Arhus, Denmark.

607. **Intrasubject Comparison of Relative Cerebral Blood Flow Measured by Dynamic Contrast Agent MR Perfusion Imaging and $H_2{}^{15}O$ PET.**
H.L. Liu, Y. Pu, Y. Liu, L. Nickerson, R. Tatlidil, S. Mahankali, N. Pongnapang, P.T. Fox and J.H. Gao.
University of Texas Health Science Center, San Antonio, TX, USA.

Brain Quantitation: Relaxation and Volume Measurements

608. **Fast Multislice T_1 Imaging Using a PACE Technique.**
S. Ropele, R. Stollberger, P. Kapeller, H.P. Hartung and F. Fazekas.
University of Graz, Austria.

609. **Relaxometric Relaxographic Imaging of Human Brain.**
W.D. Rooney, G. Johnson, J. Tanabe, X. Li, J-H. Lee, M.E. Wagshul, H-F. Li and C.S. Springer Jr.
Brookhaven National Laboratory, Upton, NY, USA; New York University, New York, NY, USA and State University of New York, Stony Brook, NY, USA.

610. **Estimation of T_1 Relaxation Times and Fractional Volumes of Brain Tissues Using EPI-Based T_1 Maps.**
W-M. Luh, K.M. Donahue and J.S. Hyde.
Medical College of Wisconsin, Milwaukee, WI, USA.

611. **Quantitative MR Imaging of Diffuse Brain Abnormalities: T_1 in Patients with Neurofibromatosis (NF-1) and Other Disorders.**
R.G. Steen, R. Ogg, W.E. Reddick, J.O. Glass, J. Taylor and E. Pivnick.
St. Jude Children's Research Hospital and University of Tennessee, Memphis, TN, USA.

612. **Characterizing White Matter with MT and T_2?**
G.J. Stanisz, A. Kecojevic, M.J. Bronskill and R.M. Henkelman.
University of Toronto, Toronto, Ontario, Canada.

613. **T_2 in Amyotrophic Lateral Sclerosis: A Marker of Disease Activity.**
H. Petropoulos, R.N. Mandler, C. Qualls, J. Dencoff, M. Meister, J. Werner and W.M. Brooks.
University of New Mexico Health Sciences Center, Albuquerque, NM, USA.

614. **Multiparametric Brain MRI Study of Frontal Lobe Dementia in Multiple Sclerosis.**
M. Rovaris, G. Comi, F. Possa, G. Iannucci, G. Santuccio, L. Minicucci and M. Filippi.
H San Raffaele, Milan, Italy.

615. Brain Volumetry: Correlation with Neurocognitive Deficits in Medulloblastoma Survivors.
W.E. Reddick, S.L. Palmer, J.O. Glass and R.K. Mulhern.
St. Jude Children's Research Hospital, Memphis, TN, USA.

616. Quantitation of Cerebral and Ventricular Volume Changes on Serially Registered MRI Following Glucose Loading.
H.J. Lewis, B.K. Puri, N. Saeed, J.V. Hajnal and N.J. Davey.
Hammersmith Hospital and Charing Cross Hospital, London, UK.

617. Quantitative Assessment of Brain Maturation Based on Magnetization Transfer Imaging.
M.A. van Buchem, S.C.A. Steens, A.H. Zwinderman, H.A. Vrooman and V. Engelbrecht.
Leiden University Medical Center, Leiden, The Netherlands and Heinrich Heine University, Dusseldorf, Germany.

MR Spectroscopy of Brain: Animal Models

618. ^{13}C NMR Spectroscopy Investigation of the Relationship between Brain Glucose Metabolism and Glutamatergic Neuronal Activity under Pharmacologically Stimulated Condition.
N.R. Sibson, G.F. Mason, D.L. Rothman, K.L. Behar and R.G. Shulman.
Yale University School of Medicine, New Haven, CT, USA.

619. A First Step Towards ^{13}C Isotopomer Analysis *In vivo*. *In Vivo* Detection of Homonuclear ^{13}C Spin Couplings During [1, 2-^{13}C2] Glucose Metabolism in Rat Brain.
G. Karelson, J. Seelig and B. Kunnecke.
Biocenter of the University, Basel, Switzerland.

620. Focal Ischemia and Remote Neuronal Damage in Apolipoprotein E-Deficient Mice.
S.T. Pendlebury, C. Liess, P. Cassidy, P. Styles and P.M. Matthews.
John Radcliffe Hospital, Oxford, UK.

621. Assessment of Cerebral Protection during Unilateral Antegrade Cerebral Perfusion for Aortic Surgery: A Localized MR Spectroscopic Imaging Study in a Pig Model.
J. Ye, G.P. Dai, P. Kozlowski, L.N. Ryner, J. Sun, L. Yang, R. Summers, T.A. Salerno, R.L. Somorjai and R. Deslauriers.
National Research Council of Canada, Winnipeg, Manitoba, Canada and State University of New York at Buffalo, New York, USA.

622. Towards an *In Vivo* Neurochemical Profile: Quantification of 18 Metabolites in ^{1}H NMR Spectra of Rat Brain at TE=2ms.
J. Pfeuffer, I. Tkac, S.W. Provencher and R. Gruetter.
University of Minnesota Medical School, Minneapolis, MN, USA and MPI for Biophysical Chemistry, Gottingen, Germany.

623. Exponential Decrease Over Time in *N*-acetyl Aspartate Levels in the Absence of Neuronal Loss and Increases in Glutamine and Glucose in Transgenic Huntington's Disease Mice.
B.G. Jenkins, P. Klivenyi, E. Kustermann, O.A. Andreassen, R.J. Ferrante, B.R. Rosen and M.F. Beal.
Massachusetts General Hospital, Charlestown, MA, USA.

624. **Serial ^{1}H-MRS Study of Metabolic Impairment in a Chronic Primate Model of Huntington's Disease.**
C. Dautry, F. Conde, E. Brouillet, V. Mittoux, M. Flint Beal, G. Bloch and P. Hantraye.
URA CEA CNRS and SHFJ, DRM, DSV, CEA, Orsay, France and Cornell University Medical College, New York, NY, USA.

625. **HRMAS ^{1}H MRS Reveals Early Reversible Neurological Injury in SIV Infected Macaques.**
L.L. Cheng, S.V. Westmoreland, A.A. Lackner and R.G. Gonzalez.
Harvard Medical School, Boston, MA, USA.

626. **Single-Scan Diffusion Trace ^{1}H MRS and MRI in Experimental Hydrocephalus; Compartmentation of Metabolites.**
K.P.J. Braun, R.A. de Graaf, F. ter Veld, L.L.F.M. Ciotti, W.P. Vandertop and K. Nicolay.
Utrecht University, Utrecht, The Netherlands.

627. **Changes in Apparent Diffusion Coefficients of Metabolites in Rat Brain After Occlusion of the Right MCA Measured by ^{1}H NMR Spectroscopy with Effective Homonuclear Decoupling.**
W. Dreher, E. Busch, C. Meier, D. Mayer, A. Ebel and D. Leibfritz.
Universitat Bremen, Bremen, Germany and Universitat Essen, Essen, Germany.

MR Imaging of White Matter Disease

628. **Evidence of Widespread Subtle Blood-Brain Barrier Dysfunction Associated with Progressive MS.**
N.C. Silver, P.S. Tofts, M.R. Symms, G.J. Barker, A.J. Thompson and D.H. Miller.
University College London, London, UK.

629. **Whole-Brain Diffusion Trace Histograms in Multiple Sclerosis.**
A.O. Nusbaum, C.Y. Tang, M.S. Buchsbaum, T.C. Wei and S.W. Atlas.
Mount Sinai Medical Center, New York, NY, USA; University of California, Irvine, CA, USA and Stanford University, Stanford, CA, USA.

630. **MTI of Clinically or Laboratory Supported Definitive MS Patients with Negative Conventional MRI.**
M.A. Rocca, V. Martinelli, A. Ghezzi, R. Bergamaschi, G. Comi and M. Filippi.
University of Milan, Italy and University of Pavia, Italy.

631. **Magnetization Transfer Measurements in NAWM with Histopathologic Correlation in an Experimental Model of Multiple Sclerosis.**
P.J. Gareau, B.K. Rutt, J.R. Mitchell and S.J. Karlik.
John P. Robarts Research Institute and London Health Sciences Center-University Campus, London, Ontario, Canada.

632. **Longitudinal Quantiative Analysis of Brain Atrophy in Relapsing-Remitting and Secondary-Progressive Multiple Sclerosis.**
Y. Ge, R.I. Grossman, J.K. Udupa, L. Wei, L.J. Mannon, M. Polansky and D.L. Kolson.
Hospital of the University of Pennsylvania, Philadelphia, PA, USA.

633. **Magnetization Tranfer Ratio of White Matter Hyperintensities in Subcortical Ischemic Vascular Dementia.**
J.L. Tanabe, F. Ezekiel, W.J. Jagust, B.R. Reed, D. Norman, N. Schuff, M.W. Weiner and G. Fein.
VA Medical Center and University of California, San Francisco, CA, USA; Lawrence Berkeley Laboratory, Berkeley, CA, USA and University of California, Davis, CA, USA.

634. Abnormalities Demonstrated by Magnetization Transfer Imaging in Patients with Active Neuropsychiatric Systemic Lupus Erythematosus.
G.P.T. Bosma, M.J. Rood, T.W.J. Huizinga and M.A. van Buchem.
Leiden University Medical Center, Leiden, The Netherlands.

635. Gadolinium Perfusion Imaging Reveals Areas of Reduced Blood Volume in Normal Appearing Periventricular White Matter in Patients with Normal Pressure Hydrocephalus.
R.G. Corkill, M.R. Garnett, A.M. Blamire, B. Rajagopalan, P. Styles and T.A.D. Cadoux-Hudson.
University of Oxford and Radcliffe Infirmary, Oxford, UK.

636. Differential MRI Pattern in CADASIL and Hypertensive Leukoencephalopathy.
D.P. Auer, B. Putz, C. Gossl, G-K. Elbel and M. Dichgans.
Max Planck Institute of Psychiatry and Ludwig-Maximilians-University, Munich, Germany.

637. Global Changes in Cerebral White Matter Diffusion with Normal Aging.
A.O. Nusbaum, C.Y. Tang, M.S. Buchsbaum, T.C. Wei and S.W. Atlas.
Mount Sinai Medical Center, New York, NY, USA; University of California, Irvine, CA, USA and Stanford University, Stanford, CA, USA.

Spectroscopy Methods

638. Single-shot Indirect (^{1}H) Detection of ^{13}C-Labeling with Full Sensitivity.
L. DelaBarre and M. Garwood.
University of Minnesota, Minneapolis, MN, USA.

639. Krebs Cycle Kinetics in Rat Hearts by ^{1}H-{^{13}C} HMQC-TOCSY.
R.A. Carvalho, P. Zhao, C.B. Wiegers, M.M. Shafiq, F.M.H. Jeffrey, C.R. Malloy and A.D. Sherry.
University of Coimbra, Portugal; University of Texas Southwestern Medical Center, Dallas, TX, USA and University of Texas at Dallas, Richardson, TX, USA.

640. Enhancement of Histidine Detection *in vivo*. A New Approach for Measuring Brain pH.
P. Vermathen, A.A. Capizzano, K.D. Laxer, G.B. Matson and A.A. Maudsley.
University of California, San Francisco, CA, USA.

641. $TmDOTP^{5-}$ Differentiates Two Extracellular Na^{+} Signals in Hearts Perfused with Calcium Free Buffer.
P. Zhao, Z.F. Xia, C.R. Malloy and A.D. Sherry.
University of Texas at Dallas, Richardson, TX, USA and University of Texas Southwestern Medical Center, Dallas, TX, USA.

642. Dynamic Cross Polarization Study of ^{1}H-^{31}P Dipolar Coupling and Crystal Structure in Synthetic Biological Calcium Phosphates.
Y. Wu, J.L. Ackerman and M.J. Glimcher.
Children's Hospital, Boston, MA, USA; Massachusetts General Hospital, Charlestown, MA, USA and Harvard Medical School, Boston, MA, USA.

643. Field-Frequency Locked *in Vivo* Proton MRS on a Whole-Body Spectrometer.
P-G. Henry, P-F. van de Moortele, E. Giacomini, A. Nauerth and G. Bloch.
Service Hospitalier Frederic Joliot, Orsay, France and BRUKER Medical, Ettlingen, Germany.

644. Broadband Time-Share Proton Decoupling for Proton Enhanced ^{13}C Spectroscopy on 1.5 T Whole Body MR System.
D. Artemov.
The Johns Hopkins University School of Medicine, Baltimore, MD, USA.

645. ^{19}F [-^{1}H] Time-Share Decoupling Using a Whole Body 1.5 T NMR System and Surface Coils Suitable for Clinical Studies.
B.S.Y. Li, G.S. Payne, D.J. Collins and M.O. Leach.
Institute of Cancer Research and The Royal Marsden NHS Trust, Sutton, Surrey, UK.

646. Surface Coil Polarisation Transfer for Monitoring Tissue Metabolism *in vivo*.
G.S. Payne and M.O. Leach.
Institute of Cancer Research and Royal Marsden NHS Trust, Sutton, Surrey, UK.

647. A Combined ^{31}P MRS Surface Coil and Near Infra-Red Probe for Muscle Studies.
W.E. Bimson and G.J. Kemp.
University of Liverpool, Liverpool, UK.

Novel Contrast Mechanisms

648. Differential Magnetization Transfer Effects for the Short and Long T_2 Components in White Matter.
I.M. Vavasour, A.L. MacKay, K.P. Whittall and D.K.B. Li.
UBC Hospital, Vancouver, BC, Canada.

649. Optimising Binomial Pulses for *In-Vivo* Magnetization Transfer Contrast Measurements.
N.P. Davies, W. Vennart and I.R. Summers.
University of Exeter, Exeter, UK.

650. Magnetization Transfer Effects of Proton Metabolites in Human Brain.
D.J. Meyerhoff.
DVA Medical Center, University of California, San Francisco, CA, USA.

651. Indirect Imaging of Ethanol via Magnetization Transfer.
M.R. Estilaei, G.B. Matson, G. Fein and D.J. Meyerhoff.
University of California and DVA Medical Centre, San Francisco, CA, USA.

652. On-Resonance T_1[rho] and T_1[rho] Dispersion of Acute Cerebral Ischaemia in Rats.
O.H.J. Grohn, J.A. Lukkarinen, M.I. Kettunen, M. Penttonen and R.A. Kauppinen.
University of Kuopio, Finland.

653. Quadrupole-Dips Measured by Whole-Body Field-Cycling Relaxometry and Imaging.
D.J. Lurie.
University of Aberdeen, Aberdeen, UK.

654. Human Brain Imaging with Intermolecular Zero Quantum Coherences in 4T.
R.R. Rizi, S. Ahn, D.C. Alsop, J. Hopkins, S. Gerett-Roe, M.D. Schnall, J.S. Leigh and W.S. Warren.
Princeton University, Princeton, NJ, USA and University of Pennsylvania Medical Center, Philadelphia, PA, USA.

655. A Model Which Predicts NMR Line Shape for Protons Diffusing in Susceptibility Induced Field Gradients: Simulations and Measurements.
J. Wansapura and S.K. Holland.
University of Cincinnati and Children's Hospital Medical Center, Cincinnati, OH, USA.

656. Transverse Relaxation Time Field Dependence for Tissues with Microscopic Magnetic Susceptiblity Variations.
J.H. Jensen and R. Chandra.
New York University School of Medicine, New York, NY, USA.

657. Analytical Model of Susceptibility Induced MR Signal Dephasing by Small Spherical Particles.
V.G. Kiselev and D.S. Novikov.
Research Center Julich GmbH, Julich, Germany; Institute of Physics, Minsk, Byelorussia and California Institute of Technology, Pasadena, CA, USA.

POSTER WALKING TOURS

Rapid Imaging - Reconstruction

658. Comparison of Even and Odd Projection-Reconstruction Sampling Strategies.
B.A. Hargreaves, J.M. Pauly and D.G. Nishimura.
Stanford University, Stanford, CA, USA.

659. Homodyne Reconstruction for Projection Reconstruction Trajectories.
W.F. Block, D.C. Peters and K.K. Vigen.
University of Wisconsin, Madison, WI, USA.

660. Interactive Reduced Field of View Imaging for Radial MR Fluoroscopy.
T. Schaeffter, V. Rasche, G. Mens, S. Weiss, R. Sinkus, K. Nehrke and D. Holz.
Philips Research, Hamburg, Germany and Philips Medical Systems, Best, The Netherlands.

661. A Flexible View Ordering Technique for Fast High-Quality MR Fluoroscopy.
R.F. Busse, D.G. Kruger, J.P. Debbins, S.B. Fain and S.J. Riederer.
Mayo Clinic, Rochester, MN, USA and G.E. Medical Systems, Milwaukee, WI, USA.

662. Theory and Computer Simulation of Auto Power Spectral Density Imaging to Expand the Nyquist Limit.
R. Tong and R.W. Cox.
Medical College of Wisconsin, Milwaukee, WI, USA.

663. Simple Equation for Optimal Gridding Parameters.
F.T.A.W. Wajer, E. Woudenberg, R. de Beer, M. Fuderer, A.F. Mehlkopf and D. van Ormondt.
Delft University of Technology, Delft, The Netherlands and Philips Medical Systems, Best, The Netherlands.

664. Sampling Density Compensation in MRI: Rationale and an Iterative Numerical Solution.
J.G. Pipe.
Wayne State University, Detroit, MI, USA.

665. A New Algorithm of Optimal Data Acquisition and Reconstruction for Non-Square Voxel.
Q.X. Yang, L. Shepp, C-H. Zhang, R.J. Demeure and M.B. Smith.
The Pennsylvania State University College of Medicine, Hershey, PA, USA; Rutgers University, New Brunswick, NJ, USA and Universite Catholique de Louvain, Brussels, Belgium.

666. Reconstruction of MR Images from Data Acquired on a General Data Grid.
R. Van de Walle, H.H. Barrett, M.I. Altbach, B. Desplanques, I. Lemahieu and A.F. Gmitro.
University of Ghent, Ghent, Belgium and University of Arizona, Tucson, AZ, USA.

667. An Analytical Transform for SMASH Imaging in MRI.
R.F. Lee and P.A. Bottomley.
Johns Hopkins University, Baltimore, MD, USA.

668. Adaptive Reconstruction and Enhancement of Phased Array MR Imagery.
D.O. Walsh and A.F. Gmitro.
Vista Clara Inc. and The University of Arizona/Arizona Health Sciences Center, Tucson, AZ, USA.

MR-Guided Thermotherapy

669. Monitoring of Tissue Temperature Changes using an Interleaved Spiral Acquisition.
R.J. Stafford, J.D. Hazle and G.H. Glover.
The University of Texas M.D. Anderson Cancer Center, Houston, TX, USA and Stanford University School of Medicine, Stanford, CA, USA.

670. Absolute Temperature Mapping for Hyperthermia Treatment Using a Praseodymium Complex.
R. Noeske, F. Seifert, W. Wlodarczyk, N. Hosten, R. Felix and H. Rinneberg.
Fachbereich Medizinische Messtechnik and Humboldt Universitat, Berlin, Germany.

671. MRI Mapping of One-Dimensional Temperature Gradients Across *Ex-Vivo* Liver Tissue During Rapid and Slow Heating.
J.C. Wallace, R.L. Clarke and G.E. Santyr.
Carleton University, Ottawa, ON, Canada.

672. Control System for an MRI Compatible Intracavitary Ultrasound Array for Thermal Treatment of Prostate Disease.
N.B. Smith, N.K. Merrilees, S. Sokka and K. Hynynen.
Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA and Massachusetts Institute of Technology, Cambridge, MA, USA.

673. Comparison of Focused Ultrasound Tissue Damage on MRI and Histology in Rabbit Brain.
L. Chen, D. Bouley, E. Yuh, H. D'Arceuil and K. Butts.
Stanford University, Stanford, CA, USA.

674. MR Imaging-Guided Radiofrequency Thermal Ablation of Implanted VX2 Liver Tumors in a Rabbit Model: Feasibility, Accuracy, and Signal Characteristics.
E.M. Merkle, D.T. Boll, T. Boaz, J.L. Duerk, Y.C. Chung, G.H. Jacobs, M.E. Varnes and J.S. Lewin.
University Hospitals of Cleveland/Case Western Reserve University, Cleveland, OH, USA.

675. Clinical Trials of MR Temperature Imaging for Laser Ablation of Brain Tumor.
K. Kuroda, J. Kettenbach, P. Morrison, S.G. Silverman, P.M.L. Black and F.A. Jolesz.
Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA and Osaka City University, Osaka, Japan.

676. Quantitative Monitoring of *in vivo* and *ex vivo* Breast Cryosurgery under MRI Guidance.
F. Picard, F. Larose, N. Duchesne, J. Morin and C. Moisan.
Centre Hospitalier Universitaire de Quebec, Quebec, Canada.

677. MRI-Monitoring of Cerebral Cryotherapy with an Interactive Fluoroscopic Radial Gradient Echo Sequence.
J. Tacke, R. Speetzen, G. Adam, B. Sellhaus, A. Glowinski, I. Heschel, V. Rasche, R. Schom, S. Grosskortenhaus, G. Rau and R.W. Gunther.
Helmholtz-Institute for Biomedical Engineering and University of Technology, Aachen, Germany and Philips Research Laboratories, Hamburg, Germany.

678. Percutaneous Cryotherapy of Facet Joint Syndrome under MRI Guidance: Technique and Results.
G. Ahlbaumer, J-F. Roy, M-H. Breton, P. Montminy, L. Kirouac and C. Moisan.
Centre Hospitalier Universitaire de Quebec, Quebec, Canada.

Spectroscopy Localization and Imaging

679. Scan Time Reduction in Spectroscopic Imaging using SENSE.
U. Dydak, M. Weiger, K.P. Pruessmann, J. van den Brink, R. Lamerichs, D. Meier and P. Boesiger.
University and ETH, Zurich, Switzerland and Philips Medical Systems, Best, The Netherlands.

680. Highly Effective Outer Volume Suppression for Short TE Spin Echo Spectroscopic Imaging using Echo Dephasing.
S. Wiese and S. Posse.
Research Center Julich GmbH, Julich, Germany.

681. An Interleaved Reference Scan (IRS - CSI) Acquisition Strategy for Compensation of Phase Errors and B_0 Frequency Shifts in Chemical Shift Imaging.
T. Thiel and J. Hennig.
University of Freiburg, Germany.

682. A Reconstruction Strategy for Echo Planar Spectroscopy.
L.G. Hanson, K. Schaumburg and O.B. Paulson.
Hvidovre Hospital and University of Copenhagen, Copenhagen, Denmark.

683. Fast MR Thermometry Utilizing the Pr-MOE-DO3A Complex and 3D Echo Planar Spectrosocpic Imaging.
M. Hentschel, W. Dreher, W. Wlodarczyk, P. Wust, D. Leibfritz and R. Felix.
Humboldt Universitat zu Berlin, Germany and Universitat Bremen, Bremen, Germany.

684. Single-Shot, Localized, High-Resolution *in vivo* ^{13}C NMR Spectroscopy of Rat Brain.
I-Y. Choi, I. Tkac and R. Gruetter.
University of Minnesota, Minneapolis, MN, USA.

685. Chemical Shift Selected ^{19}F -MRI of 5-FU in Mice: Detection of 5-Fluorouracil in Small Intestine by CSI.
H. Kuribayashi, Y. Doi and Y. Kanazawa.
Kyushu University, Fukuoka, Japan and Nihon Medi-physics Co., Ltd., Chiba, Japan.

686. ISIS-Localized ^{15}N and ^{1}H-^{15}N HMQC NMR of Rat Brain *in vivo*.
K. Kanamori and B.D. Ross.
Huntington Medical Research Institutes, Pasadena, CA, USA.

687. Constructive Averaging Increases SNR of Creatine MRS in the Presence of Motion.
P.A. Bottomley, R.F. Lee and R.G. Weiss.
Johns Hopkins University, Baltimore, MD, USA.

Coronary Artery Disease: Newer Techniques

688. Contrast-Enhanced 3D MR Breath-Hold Imaging of Porcine Coronary Arteries using Fluoroscopic Localization and Triggering.
D.G. Kruger, R.F. Busse, D.L. Johnston, R.L. Ehman and S.J. Riederer.
Mayo Clinic, Rochester, MN, USA.

689. **A Comparison of the Effects of Adaptive Ordering Techniques on Coronary Artery Imaging.**
P. Jhooti, J. Keegan, P.D. Gatehouse and D.N. Firmin.
Royal Brompton Hospital, London, UK.

690. ***In Vivo* Quantitative Mapping of Coronary Perfusion and Regional Blood Volume in Healthy and Infarcted Rat Myocardium using Spin Labeling.**
C. Waller, K.H. Hiller, E. Kahler, M. Nahrendorf, S. Voll, G. Ertl, A. Haase and W.R. Bauer.
University of Wuerzburg, Germany.

691. **Delineation of Induced Collateral Circulation in a Pig Model of Chronic Ischemia Based on Assessment of Functional Contractile Reserve.**
C.H. Lorenz, K.J. Lunn, M. Nolan and M. Taniuchi.
Washington University Medical Center, St. Louis, MO, USA.

692. **Coronary Reserve in a Porcine Stenosis Model: Noninvasive Assessment using BOLD MRI at 3T.**
M.K. Atalay, B.P. Poncelet, H.L. Kantor, T.J. Brady, T.G. Reese and R.M. Weisskoff.
Massachusetts General Hospital NMR Center, Charlestown, MA, USA and Massachusetts General Hospital Cardiac Unit, Boston, MA, USA.

693. **Serial Tissue Characterization of Myocardial Infarcts in Dogs with T_1 and T_2-Weighted Double Inversion Recovery Fast Spin Echo.**
J.F. London, L.M. Goncalves, J.L. Taylor, C.R. Weiss, F.H. Epstein, R.S. Balaban and A.E. Arai.
National Institutes of Health, Bethesda, MD, USA.

694. **STIR MR Imaging for Visualization of Infarct Related Edema: Relation with Regional Intramural Mechanics by Myocardial Tagging.**
A.M. Beek, M.J.W. Gotte, J.T. Marcus, C.A. Visser and A.C. v Rossum.
Vrije Universiteit, Amsterdam, The Netherlands.

695. **Determination of Myocardial Viability Using MRI During a Constant Infusion of Gd-DTPA in Patients after Acute Myocardial Infarction.**
R.S. Pereira, G. Wisenberg, F.S. Prato and K. Yvorchuk.
Lawson Research Institute, St. Joseph's Health Centre and University of Western Ontario, London, Ontario, Canada.

Musculoskeletal MR Spectroscopy

696. **Regulation of ATP Synthesis and Proton Handling during Ischaemic Exercise.**
M. Roussel, G.J. Kemp, D. Bendahan, Y. Lefur and P.J. Cozzone.
Faculte de Medecine, Marseille, France and University of Liverpool, UK.

697. **^{31}P- and ^{1}H-MRS Measurements of Metabolite Diffusion in Rat and Mouse Hindleg Skeletal Muscle.**
M.J. Kruiskamp, S.J. De Vilder, R.A. de Graaf and K. Nicolay.
Utrecht University, Utrecht, The Netherlands.

698. **Phosphocreatine in Mice Lacking Creatine Kinase as Studied by ^{31}P and ^{13}C-MRS: Postnatal Development and Creatine Feeding.**
H.J.A. in't Zandt, D.W.J. Klomp, A. de Groof, F. Oerlemans, A.J. van den Bergh, B. Wieringa and A. Heerschap.
University Hospital Nijmegen and Nijmegen University, Nijmegen, the Netherlands.

699. **^{31}P-MRS Evidences Abnormal Muscle Energetics in Patients who have Suffered from Exertional Heat Stroke: A Comparison with Malignant Hyperthermia.**
D. Bendahan, G. Kozak-Ribbens, S. Confort-Gouny, B. Ghattas and P.J. Cozzone.
Faculte de Medecine de Marseille, Marseille, France.

700. **Differential Effects of Safflower Oil Versus Fish Oil Feeding on Insulin-Stimulated Glycogen Synthesis, Glycolysis, and Pyruvate Dehydrogenase Flux in Skeletal Muscle.**
B.M. Jucker, G.W. Cline, N. Barucci and G.I. Shulman.
Yale University School of Medicine, New Haven, CT, USA.

701. **ATP Synthesis and Proton Handling in Short Periods of Exercise and Subsequent Recovery.**
G.J. Kemp, M. Roussel, D. Bendahan, Y. Lefur and P.J. Cozzone.
University of Liverpool, Liverpool, UK and Faculte de Medecine, Marseille, France.

702. **^{1}H PRESS Spectroscopy of Human Calf Muscle *in vivo* with Off-Resonance Presaturating Irradiation: Evidence for a Bound Pool of Creatine.**
G.A. Coutts, E.L. Thomas, J.V. Hajnal and J.D. Bell.
Imperial College School of Medicine, Hammersmith Hospital, London, UK.

703. **Diet-Dependent Recovery of Intramyocellular Lipids (IMCL) in Different Muscle Groups Following Endurance Sports.**
C. Boesch, R. Kreis, J. Slotboom and J. Decombaz.
University Bern, Bern, Switzerland and Nestec Ltd, Lausanne, Switzerland.

Abdominal MR Imaging

704. **MR Detection of Small Biliary and Pancreatic Tumours.**
A.R. Gillams and W.R. Lees.
University College London Medical School and The Middlesex Hospital, London, UK.

705. **Use of True FISP Technique in Assessing Vascular Status in Patients with Pancreatic Cancer.**
S.J. Diehl, M. Sadick, J. Gaa, K.J. Lehmann and M. Georgi.
University of Heidelberg, Germany.

706. **MR Gd-EOB-DTPA Enhanced Angiography and Dynamic Cholangiography Continuously with the 3D Fast SPGR in Rats.**
M. Shimada, S. Hayashi, K. Yoshikawa, T. Miyazawa, A. Senoo, T. Kogure and K. Ito.
Toho University School of Medicine, Tokyo, Japan.

707. **MRI and PET Assessment of Neoadjuvant Therapy for Pancreatic Cancer.**
R.L. Soulen, C. Samson, A. Shields, J.L. Evelhoch, J.G. Pipe, Z. Latif and P.E. Morton.
Wayne State University, Detroit, MI, USA.

708. **Diffusion-Weighted Single-Shot Echo-Planar MR Imaging for Liver Disease.**
T. Kim, T. Murakami, S. Takahashi, M. Hori, K. Tsuda and H. Nakamura.
Osaka University Medical School, Osaka, Japan.

709. **Dynamic High-Resolution Isotropic Breathhold T_1-Weighted 3D Volumetric Imaging of the Abdomen: Validation and Clinical Application.**
V.S. Lee, M.T. Lavelle, N.M. Rofsky, D. Thomasson, G. Laub, G.A. Krinsky and J.C. Weinreb.
New York University, New York, NY, USA.

710. **The Usefulness of Double-Echo Chemical-Shift (In-Phase and Opposed-Phase) FLASH MR Pulse Sequences in T_1-Weighted Imaging of Liver.**
T. Namimoto, Y. Yamashita, Y. Nakayama, K. Mitsuzaki, Y. Tang and M. Takahashi.
Kumamoto University School of Medicine, Kumamoto, Japan.

711. **Single Breath-Hold T_2-Weighted MR Imaging of Focal Liver Lesions: Value of Single Shot Fast SE and Multishot Echo Planar Imaging.**
M. Hori, T. Murakami, T. Kim, M. Kanematsu, S. Takahashi, K. Tsuda, M. Takamura, H. Nakamura and H. Hoshi.
Osaka University Medical School, Osaka, Japan and Gifu University School of Medicine, Gifu, Japan.

712. **Temporarily Increased Signal Intensities Around Hepatic Cavernous Hemanogioma during Multiphase Dynamic MR Imaging: Does it Correlate with the Rapidity of Contrast Enhancement?**
M-G. Jeong, J-S. Yu, K.W. Kim and J.K. Kim.
Yonsei University College of Medicine, Seoul, South Korea.

713. **Assessment of Focal Liver Lesions with Three-Phase Dynamic MR Imaging: Usefulness of Test-Bolus Injection for Optimization of Arterial Phase.**
J-S. Yu, K.W. Kim, M-G. Jeong, J.K. Kim, J.T. Lee and H.S. Yoo.
Yonsei University College of Medicine, Seoul, South Korea.

714. **The Portal Vein and Its Tributaries: Evaluation with Thin-section Three-dimensional Contrast Enhanced Dynamic MR Imaging with Fat Suppression.**
K. Ito, R. Blasbalg, S.M. Hussain and D.G. Mitchell.
Thomas Jefferson University Hospital, Philadelphia, PA, USA.

715. **Non-Tumorous Small Arterial-Portal Venous Shunts in Liver: Consideration of MR Imaging Findings.**
J-S. Yu, K.W. Kim, M-G. Jeong, J.T. Lee and H.S. Yoo.
Yonsei University College of Medicine, Seoul, South Korea.

Contrast Agents

716. **Dependence of Tumor Vascular Volume and Permeability on Radiation Treatment: Assessment by Contrast Agents of Various Molecular Weights.**
M-Y. Su, H. Yu and O. Nalcioglu.
University of California, Irvine, CA, USA.

717. **Dynamic Contrast-Enhanced MR Imaging of Abscess and VX2 Carcinoma in Rabbits: Comparison of 24 Gadolinium-DOTA-Dendrimer and Gadopentetate Dimeglumine.**
W.K. Moon, K.H. Chang and H.J. Weinmann.
Seoul National University Hospital, Seoul, Korea and Schering AG, Berlin, Germany.

718. **The Development of a Tumor Targeting Magnetic Resonance Contrast Agent Utilizing the High Affinity Folate Receptor.**
S.D. Konda, M. Aref and E.C. Wiener.
University of Illinois at Urbana-Champaign, Urbana, IL, USA.

719. **Kinetic Study of a New Contrast Agent for Brain MR Imaging on a Rat C6 Glioma Model.**
E. Fonchy, C. Remy, A. Francois-Joubert, H. Lahrech, C. Rubin, R. Dupeyre, M. Decorps and S. Benderbous.
INSERM, Grenoble, France and Laboratoire GUERBET, Aulnay-sous-bois, France.

720. Contrast Enhanced MRI of Implanted VX2 Tumors in Rabbit Muscle: Comparison of Gd-DTPA and NMS60.
A.J. de Crespigny, D. Howard, H. Muller, H.E. D'Arceuil, S. Seri, Y. Hashiguchi, C. Fujimoto, A. Nakatani and M.E. Moseley.
Stanford University, Stanford, CA, USA; Muller Associates, Palo Alto, CA, USA and Nihon Medi-Physics Co. Ltd., Chiba., Japan.

721. MR Lymphangiography: Use of Intradermal Injections of Combidex® Magnetite Nanoparticles to Visualize Lymphatic Ducts.
J.M. Rogers, C.W. Jung and E.V. Groman.
Advanced Magnetics, Inc., Cambridge, MA, USA.

722. Contrast-Enhanced MRI: Measurement of Angiogenesis in the Wound Healing Process.
T.H. Helbich, T.P. Roberts, M.D. Rollins, D.M. Shames, K. Turetschek, H.W. Hopf, M. Muhler, T.K. Hunt and R.C. Brasch.
University of California, San Francisco, CA, USA.

723. *In vitro* Characterization of MS-325 by Multinuclear Relaxometry.
R.N. Muller, B. Raduchel, S. Laurent, J. Platzek, C. Pierart, P. Mareski and L. Vander Elst.
University of Mons-Hainaut, Mons, Belgium and Schering AG, Berlin, Germany.

724. T_1 and T_2 NMRD Studies of Angiomark™ (MS-325).
P. Caravan, J.W.M. Bulte, S.U. Dunham, J. Amedio and R.B. Lauffer.
EPIX Medical Inc., Cambridge, MA, USA and National Institutes of Health, Bethesda, MD, USA.

725. Paramagnetic Liposomes as Thermosensitive Probes for MRI *In Vitro* Feasibility Studies.
S.L. Fossheim, K.A. Il'yasov, U.N. Wiggen, A. Rogstad, J. Hennig, J. Klaveness and A. Bjornerud.
Nycomed Imaging AS, Oslo, Norway; University of Freiburg, Freiburg, Germany and University of Oslo, Oslo, Norway.

726. CBV Measurements with Strady-State Susceptibility Contrast: The Interest of Simultaneous and [delta]R_2 and [delta]R_2* Measurements.
I. Tropres, E. Grillon, S. Grimault, C. Dolbec, H. Reutenauer and M. Decorps.
Centre Hospitalier Universitaire, Grenoble, France.

727. Cerebral Blood Volume in Permanent Focal Cerebral Ischemia in Rat Studied with the Steady State Susceptility-Contrast Imaging.
H. Seegers, I. Tropres, E. Grillon, H. Reutenauer, A. Jaillard, M. Decorps and M. Hommel.
University Hospital, Grenoble, France.

MR Spectroscopy of Brain: Animal Models

728. Neuroprotective Effect of Lamotrigine on Rat Brain Lesions Induced by 3-Nitropropionic Acid: Evaluation by MRI and *In Vivo* ^{1}H-MRS.
W.T. Lee, Y.Z. Shen and C. Chang.
National Taiwan University and Academia Sinica, Taipei, Taiwan.

729. 3D-Localized *in vivo* ^{13}C NMR Detection and Quantification of Rat Brain Glycogen.
I-Y. Choi, I. Tkac, K. Ugurbil and R. Gruetter.
University of Minnesota, Minneapolis, MN, USA.

730. **The Glycogen Shunt and Brain Energetics.**
N.R. Sibson, D.L. Rothman, K.L. Behar, J. Wall and R.G. Shulman.
Yale University School of Medicine, New Haven, CT, USA.

731. **Metabolic Changes in Quinolinic Acid – Lesioned Rat Striatum Studied by *in vivo* ^{1}H NMR Spectroscopy.**
I. Tkac, J. Pfeuffer, C.D. Keene, W.C. Low and R. Gruetter.
University of Minnesota, Minneapolis, MN, USA.

732. **The Application of ^{19}F Magnetic Resonance Spectroscopy Techniques to the Study of Pharmacokinetics.**
K.K. Haga, J.S. Beech, I.M. Ismail, R. Eastman and S.C.R. Williams.
Glaxo Wellcome, Ware, UK and Institute of Psychiatry, London, UK.

733. **Effects of Hyperglycemia on Rat Transient Focal Brain Ischemia Consecutively Observed by Diffusion-Weighted EPI and ^{1}H Echo Planar Spectroscopic Imaging.**
S. Morikawa, T. Inubushi and H. Ishii.
Shiga University of Medical Science, Shiga, Japan.

734. **Preclinical ^{31}P-MRS Assessment of The Neurotoxic Potential and Drug Interaction of Immunosuppressants Used in Organ Transplantation.**
N. Serkova, L. Litt, D. Leibfritz, T.L. James, L.Z. Benet and U. Christians.
University of California at San Francisco, CA, USA and University of Bremen, Bremen, Germany.

735. **^{31}P-NMR Study of Brain Metabolism in the Rat Model of the Ketogenic Diet.**
S.S. Likhodii and S.C. Cunnane.
University of Toronto, Toronto, Ontario, Canada.

MR Technology Tour

736. **Vertical Field Open RF Body Coils.**
E.B. Boskamp, J.F. Schenck, D.J. Schaefer and J. Lorbiecki.
GE Medical Systems, Milwaukee, WI, USA and GE Corporate R and D, Schenectady, NY, USA.

737. **High-Performance Coil System for ^{1}H-Observed ^{13}C-MRS.**
K. Okamoto, M. Umeda, Y. Ishihara, H. Watanabe, M. Oda, T. Kanamatsu and Y. Tsukada.
Toshiba R&D Center, Kawasaki, Japan and Soka University, Hachioji, Japan.

738. **A QD 4-Channel Array Coil for fMRI and Brain Imaging.**
Y. Hamamura, S. Kawada and I. Mori.
Toshiba Corporation, Tochigi, Japan and Nagaoka University of Technology, Nagaoka, Japan.

739. ***In Vivo* SNR Gains for MR Micro Imaging with Cryo-Cooled Copper Coils.**
A.C. Wright, H.K. Song and F.W. Wehrli.
Hospital of the University of Pennsylvania, Philadelphia, PA, USA.

740. **Optimization of Low Frequency Litz-Wire RF Coils.**
J.A. Croon, H.M. Borsboom and A.F. Mehlkopf.
Delft University of Technology, Delft, The Netherlands.

741. **Donut-Shaped Head Image of Birdcage Coil Using Second Harmonic Resonance.**
J.S. Pak, J. Kim, B-S. Park, S-P. Jung, K-J. Jung and J. Kim.
KAIST and Medison Co. Ltd, Taejon, Korea.

742. **A Frequency Independent Time-Domain-Multiplexed Receiver for MR Imaging and Spectroscopy.**
J.A. Bankson and S.M. Wright.
Texas A&M University, College Station, TX, USA.

743. **Electromagnet Current Regulation with Thyristor Supplies.**
G.C. Scott, H. Xu, S.M. Conolly and A. Macovski.
Stanford University, Stanford, CA, USA.

744. **Correction for Oscillatory B_0 Eddy Currents by Receive Frequency Shifting.**
K.F. King, A. Linz, J. Zhang and A. Ganin.
GE Medical Systems, Milwaukee, WI, USA.

745. **Estimation of Real Gradient Waveforms Using the Eddy-Current-Effect Transfer Function.**
S.Y. Lee, H.S. Khang, J.H. Yi, M.H. Cho and C.W. Mun.
Konkuk University, Korea; The University of Suwon, Korea and SAIT, Korea.

746. **Analytic Calculation of the E-Fields Induced by Gradient Coil Switching.**
R. Bowtell and R.M. Bowley.
University of Nottingham, Nottingham, UK.

747. **Gradient Design with Arbitrary Geometrical Constraints by Linear Programming.**
H. Xu, S.M. Conolly, G.C. Scott and A. Macovski.
Stanford University, Stanford, CA, USA.

POSTER SESSIONS

fMRI Applications

748. Absence of Activation in Normal-Appearing Visual Cortex Caused by Lesions in Visual Pathway: Functional MRI and Visual Field Correlations.
K.H. Chuang, C.P. Lin, J.H. Chen and C.Y. Chen.
National Taiwan University and Tri-Service General Hospital, Taiwan, ROC.

749. Contrast Sensitivity in V1/V2 Measured by Functional MRI.
E.R. Cohen, P. Costello, X. Hu and S. He.
University of Minnesota, Minneapolis, MN, USA.

750. Relationship Between Two Visual Pathways: Further fMRI+ERP Study.
J.J. Wang, T.G. Zhou, C. Cai, M. Chen, M. Meng, Y. Zhuo, S.L. Fan and L. Chen.
University of Science & Technology of China, Chinese Academy of Sciences and Beijing Hospital, Beijing, China.

751. Functional and Anatomical Comparison of Lateral Geniculate Nucleus in Human Brain using High-Resolution MRI.
W. Chen, X-H. Zhu, H. Liu, T. Kato and K. Ugurbil.
University of Minnesota Medical School, Minneapolis, MN, USA.

752. Correlation Between Psychophysical Measurements and Neuronal Response in Early Visual Area Using BOLD fMRI at 4 Tesla.
B.G. Goodyear, G.K. Humphrey and R.S. Menon.
University of Western Ontario and The John P. Robarts Research Institute, London, Ontario, Canada.

753. The Right Parietal Functional Anatomy of the Landmark Test.
N.J. Shah, G.R. Fink, J.C. Marshall, P.H. Weiss, M. Grosse-Ruyken, K. Ziemons, H.J. Freund, P.W. Halligan and K. Zilles.
Heinrich-Heine-Universitat, Dusseldorf, Germany; Forschungszentrum Julich, Julich, Germany and The Radcliffe Infirmary, Oxford, UK.

754. Investigation of the Retinotopic Representation of the Visual Field in the Striate Cortex using fMRI.
B. Condon, R. McFadzean, D. Dai, U. Shahani and D. Hadley.
Institute of Neurological Sciences, Glasgow, UK.

755. Verification of Another Vision Related Acupoint GB37 by Using Functional MRI.
Z.H. Cho, S.C. Chung, C.S. Na, K.W. Jeong, H.J. Kim, K.J. Park, Y.C. Yun, H.K. Kang and E.K. Wong.
University of California, Irvine, CA, USA; KJIST, Korea; KAIST, Korea; Dongshin University, Korea; CNUH, Korea and University of California, Irvine, CA, USA.

756. fMRI Evidence for Monocular and Binocular Processing in Human Visual Cortex: Responses to Dichoptically Presented Checkerboard Stimuli.
M. Buchert, M.W. Greenlee, F.M. Kraemer, F. Luo and J. Hennig.
University of Freiburg, Germany.

757. fMRI of Visual Encoding: Reproducibility of Activation.
W.C.M. Machielsen, S.A.R.B. Rombouts, F. Barkhof, P. Scheltens and M.P. Witter.
Vrije Universiteit, Amsterdam, The Netherlands.

758. Neural Substrates for Perception of Other's Gaze Direction using a Functional MRI.
C. Kato, K. Matsuo, T. Nakai, M. Matsuzawa, T. Moriya and G.H. Glover.
Toyohashi Sozo College, Toyohashi, Japan; MITI, Tsukuba, Japan and Stanford University, Stanford, CA, USA.

759. The Role of Forms in Apparent Motion: A fMRI Study.
H.Y. Rao, T.G. Zhou, K. Cai, M. Meng, C. Zhou, G.Z. Li, Y. Zhuo and L. Chen.
University of Science & Technology of China, Chinese Academy of Sciences and Beijing Hospital, Beijing, China.

760. Relationship Between Two Visual Pathways in Perception of Form and Spatial Location – A fMRI Mapping Study.
M. Meng, T.G. Zhou, M. Chen, H.Y. Rao, Z.L. Wang, Y. Zhuo and L. Chen.
University of Science & Technology of China, Chinese Academy of Sciences and Beijing Hospital, Beijing, China.

761. The Network of Brain Areas Involved in the Motion-After-Effect.
N.J. Shah, J.G. Taylor, N. Schmitz, M.L. Grosse-Ruyken, K. Ziemons, O. Gruber, H.W. Muller-Gartner and K. Zilles.
Research Centre Juelich, Germany; Heinrich-Heine University, Dusseldorf, Germany and King's College, London, UK.

762. Initial Cerebral Metabolism due to Short Visual Stimulation using Human Functional Near-Infraredgraphy (fNIR): How it's Correlated with fMRI.
T. Kato, A. Endo, M. Fukumizu, T. Kato, S. Takashima, F. Kawaguchi and N. Ichikawa.
National Institute of Neuroscience, NCNP, Tokyo, Japan; Hitachi Medical Corporation, Chiba, Japan and University of Minnesota, Minneapolis, MN, USA.

763. Hemodynamic Responses from Broca's Area and Visual Cortex During Sentence Reading.
L. Gates, J. Connolly, R. D'Arcy and E. Service.
Dalhousie University, Halifax, NS, Canada and University of Helsinki, Finland.

764. Monitoring Cerebral Pain Processing with Event-Related FLASH.
H. Meyer, K. Baudendistel, M. Bock, D. Kleinbohl and L.R. Schad.
Deutsches Krebsforschungszentrum (DKFZ), Heidelberg, Germany and Universitat Mannheim, Germany.

765. Histogram Analysis of Effects of Increasing Rate and Forces in fMRI.
K.K. Peck, A. Sunderland, S. Butterworth, M. Humberstone, A. Peters, R.W. Bowtell and P.A. Gowland.
University of Nottingham, Nottingham, England.

766. Cortical Representation of Elementary and Complex Orofacial Movements.
A. Riecker, D. Wildgruber, H. Ackermann, J. Mayer, G. Dogil, H. Haider and W. Grodd.
University of Tubingen, Germany; University of Stuttgart, Germany and University of Salzburg, Austria.

767. Tactile and Nociceptive Activation of Secondary Somatosensory Cortex as Revealed Using fMRI.
J.D. Greenspan, S.A. Small, E.A. Moulten, D.K. Emge and R.P. Gullapalli.
University of Maryland, Baltimore, MD, USA.

768. Functional Magnetic Resonance Imaging of the Human Sensorimotor Cortex during Whole-Hand Afferent Electrical Stimulation.
S. Golaszewski, M.R. Dimitrijevic, C. Kremser, F. Zschiegner, M. Hackel, M.M. Dimitrijevic, F. Aichner and S. Felber.
University of Innsbruck, Austria and Baylor College of Medicine, Houston, TX, USA.

769. Comparison of Time Course of Haemodynamic Response in PMA and SMA with Increasing Forces.
K.K. Peck, A. Sunderland, S. Butterworth, A. Peters, J. Newton, R.W. Bowtell and P.A. Gowland.
University of Nottingham, Nottingham, England.

770. Hemispheric Asymmetry in Simple, Complex, Overt, and Imagined Finger Movements.
W. Richter, C.E. Sweetland, U.N. Frankenstein and M. McIntyre.
National Research Council, University of Winnipeg and University of Manitoba, Winnipeg, MB, Canada.

771. Involvement of the Right Parietal Cortex in Visually Induced Motor Processing: An fMRI Study during Transciption of Ideographic Characters.
K. Matsuo, C. Kato, M. Matsuzawa, T. Nakai, T. Moriya and G.H. Glover.
Electrotechnical Laboratories, Tsukuba, Japan; Toyohashi Sozo College, Toyohashi, Japan and Stanford University, Stanford, CA, USA.

772. fMRI: Different Degrees of Cortical Activation under Controlled Motoric Stimulation.
R. Metzner, H. Meyer, K. Baudendistel, M. Essig, J. Schroder, H. Hawighorst, L.R. Schad and M.V. Knopp.
German Cancer Research Center and University of Heidelberg, Heidelberg, Germany.

773. Time-Resolved fMRI of Sequential Activation in SMA and M1.
F. Weilke, S. Spiegel, H.V. Einsiedel, H. Boecker, M. Schwaiger, P. Bartenstein, B. Conrad and P. Erhard.
Technische Universitat, Munchen, Germany.

774. Real-Time fMRI of Single Finger Movements using Single-Shot Multi-Echo EPI.
S. Posse, F. Binkofski, D. Gembris, S. Wiese, B. Elghahwagi, T. Graf, H-J. Freund and K. Zilles.
Research Center Julich GmbH, Julich, Germany and Heinrich-Heine University, Dusseldorf, Germany.

775. Bilateral Activation of the Cerebellum During Mental Rotation.
W. Richter, M. McIntyre, C.E. Sweetland, K. Ugurbil and S-G. Kim.
National Research Council, Winnipeg, MB, Canada and University of Minnesota, Minneapolis, MN, USA.

776. Interindividual Analysis of Cerebellar fMRI Activation During Voluntary Movements.
E. Hulsmann, M. Erb, M. Lotze and W. Grodd.
University of Tuebingen, Germany.

777. Contribution of the Cerebellum and Motor Cortex to Speech Motor Control: Influence of the Syllable Production Rate.
D. Wildgruber, H. Ackermann and W. Grodd.
University of Tubingen, Germany.

778. Phonological and Semantic Processing of Speech Sentence Examined with Functional MRI.
Y. Watanabe, N. Fujita, H. Tanaka, Y. Oshiro, M. Takanashi, N. Hirabuki and H. Nakamura.
Osaka University Medical School, Suita, Osaka, Japan.

779. Functional MRI During the Silent Lipreading of Sentences: Auditory Cortex Activation and Ability Related Responses.
C.N. Ludman, A.Q. Summerfield, M. Elliott, J. Foster, D. Hall, J.L. Hykin, R. Bowtell and P.M. Morris.
University of Nottingham, Nottingham, UK.

780. Effects of Pure Tone Stimulus Rate on Signal Response during Functional Magnetic Resonance Imaging of Auditory Cortex.
H. Tanaka, N. Fujita, N. Hirabuki, Y. Ohshiro, Y. Watanabe, M. Takanashi and H. Nakamura.
Osaka University, Osaka, Japan.

781. Cortical Auditory Phonological Processing Accessed by fMRI.
G. Liu, G. Lantos, V.L. Shafer, K. Knuth and H.G. Vaughan Jr.
Georgetown University, Washington, DC, USA and Albert Einstein College of Medicine, Bronx, NY, USA.

782. External Speech Monitored by fMRI at 4Tesla.
T. Kato, P. Anderson, J. Strupp and K. Ugurbil.
University of Minnesota, Minneapolis, MN, USA.

783. Right Prefrontal Cortex fMRI Activation During Recognition of Written Words and Nonverbalizable Images.
J. Zhong, V. Kavcic, T. Yoshiura and R.W. Doty.
University of Rochester, Rochester, NY, USA.

784. Functional MRI of Frequent Overt Word Production Using Random Inter-Stimulus Intervals.
R.M. Birn, B.D. Ward and R.W. Cox.
Medical College of Wisconsin, Milwaukee, WI, USA.

785. Lateralized Activation of Motor Cortex During Overt and Covert Speech and Singing.
A. Riecker, D. Wildgruber, H. Ackermann, M. Erb and W. Grodd.
University of Tubingen, Germany.

786. Dynamic Brain Activation during Processing of Affective Speech Prosody: Influence of Acoustic Parameters, Emotional Valence, Accuracy and Sex.
D. Wildgruber, H. Pihan, M. Erb, H. Ackermann and W. Grodd.
University of Tubingen, Germany.

787. Differences in fMRI Language Activation Patterns Between Audio and Visual Presentation of the Same Verb Generation Task in Pediatric Epilepsy Patients.
S.K. Holland, R.H. Strawsburg, A.M. Weber, V.J. Schmidthorst, R.S. Dunn and W.S. Ball.
Children's Hospital Medical Center and University of Cincinnati College of Medicine, Cincinnati, OH, USA.

788. Comparison of Language Lateralization with Different Paradigms in fMRI.
I.C. Song, K.H. Chang, J.I. Chung, H.D. Kim, M.H. Han and M.C. Han.
Seoul National University College of Medicine, Seoul, Korea.

789. Cortical Activations Related to Sentence Comprehension in English and Mandarin.
M.W.L. Chee, D. Caplan, C.S. Soon, E. Tan, J.J. Hoon and N. Sriram.
Singapore General Hospital, Singapore; Massachusetts General Hospital, Boston, MA, USA and National University of Singapore, Singapore.

790. An fMRI Analysis of Language Areas in Response to the Comprehensive Level at 3 Tesla.
T. Nakai, K. Matsuo, C. Kato, M. Matsuzawa, T. Okada, G.H. Glover, T. Moriya and T. Inui.
MITI, Tsukuba, Japan; Kyoto University, Kyoto, Japan; Toyohashi Sozo College, Toyohashi, Japan and Stanford University, Stanford, CA, USA.

791. Language Localisation with Multiple-Task 3D Functional MRI Matches Intrasulcal Electrostimulation in Broca's Area.
G.J.M. Rutten, P.C. van Rijen, C.W.M. van Veelen and N.F. Ramsey.
University Hospital, Utrecht, The Netherlands.

792. Real-Time Mapping of Single-Object Memory Processing using fMRI.
T. Kato, H. Liu, C. Neves and C.L. Truwit.
University of Minnesota, Minneapolis, MN, USA.

793. Gender Differences in Lateralization of Activated Brain Area during a Working Memory Task Measured with fMRI.
O. Speck, L. Chang, J. Braun, E. Miller and T. Ernst.
UCLA School of Medicine, Harbor-UCLA Medical Center, Torrance, CA, USA.

794. Auditory Interference Effects on fMRI Due to Acoustic Noise of Gradient Pulsing.
S.T. Chung and H.W. Park.
Korea Advanced Institute of Science and Technology, Taejon, Korea.

795. Evidence for a Dichotomy in Body Characteristics - Yin and Yang - Measured by the Acupuncture-fMRI Technique.
Z.H. Cho, S.C. Chung, H.J. Lee, E.K. Wong, C.S. So, S.H. Lee and L.A. Gottschalk.
University of California, Irvine, CA, USA; KJIST, Korea; KAIST, Korea and KyungHee University, Korea.

796. Face Recognition After Periods of 5 Minutes and 3 Months: a fMRI Study.
T. Okada, S. Tanaka, T. Inui, S. Nishizawa and J. Konishi.
Kyoto University, Kyoto, Japan.

797. Stereotactic fMRI.
L.P. Panych, S-S. Yoo and C.R.G. Guttmann.
Brigham and Women's Hospital and Harvard Medical School, Boston, MA, USA.

798. fMRI of Mozart Effect Using Auditory Stimuli.
L.T. Muftuler, M. Bodner, G.L. Shaw and O. Nalcioglu.
University of California, Irvine, CA, USA.

799. Dependence of Olfactory Bulb Activation on the Duration of Odor Exposure Revealed by fMRI.
X. Yang, F. Xu, R. Renken, F. Hyder, C.A. Greer, G.M. Shepherd and R.G. Shulman.
Yale University, New Haven, CT, USA.

800. Functional Imaging of the Human Spinal Cord.
S. Madi, S. Vinitski, A. Flanders and J. Nissanov.
Drexel University, Thomas Jefferson University and Dupont Children's Hospital, Philadelphia, PA, USA.

801. Gender Differences in CNS Activation Following Noxious Heat Stimulus.
L. Becerra, H. Breiter, L. Jenkins, D. Borsook and R.G. Gonzalez.
Massachusetts General Hospital, Boston, MA, USA.

802. Localization of Alpha Attenuation using 64 Channel Electroencephalogram and 3Tesla Functional MRI Recordings.
K. Anami, G. Bonmassar, J.R. Ives and J.W. Belliveau.
Massachusetts General Hospital and Beth Israel Deaconess Medical Center, Boston, MA, USA.

803. An Interactive Real Time Whole Brain fMRI Examination: Application to a Physiological Interview and the Study of Cerebral Physiology.
J.A. Frank, J. Ostuni, Y. Shiferaw, B.K. Lewis and J.H. Duyn.
National Institutes of Health, Bethesda, MD, USA.

804. A Functional Magnetic Resonance Imaging Study Comparing the Cortical Regions Processing Non Painful Rectal and Anal Canal Sensation in Health.
D. Hobday, Q. Aziz, N. Thacker, D. Thompson and A. Jackson.
University of Manchester, Manchester, UK and Institute of Psychiatry, London, UK.

fMRI in Animal Models

805. Close Correlation of BOLD Signal to Evoked Potential in the Brain.
T.M. Lee, R. Stepnoski, W. Chen and S. Ogawa.
Bell Laboratories, Murray Hill, NJ, USA and University of Minnesota, Minneapolis, MN, USA.

806. Functional MRI of Visual System Activation in the Conscious Rabbits.
A.M. Wyrwicz, N-K. Chen, L. Li, C. Weiss and J.F. Disterhoft.
ENH Research Institute and Northwestern University, Evanston, IL, USA.

807. Changes in Flow-Weighted MR Signals of the Brain Following Intraduodenal Infusion of Monosodium L-Glutamate and Glucose in Awake Rats.
T. Kondoh, T. Ono and K. Torii.
Ajinomoto Co., Inc., Kawasaki, Japan and Toyama Medical and Pharmaceutical University, Toyama, Japan.

808. Detection of Dopaminergic Cell Loss and Neural Transplantation using Pharmacologic MRI, PET, and Behavior.
Y.I. Chen, A.L. Brownell, W. Galpern, O. Isacson, B.R. Rosen and B.G. Jenkins.
Massachussetts General Hospital, Charlestown, MA, USA and McLean Hospital, Belmont, MA, USA.

809. Distinguishing fMRI Signals Between Heroin-Induced Respiratory Suppression and Brain Activities in Rats.
H. Xu, J. Bodurka, Z. Xi, E.A. Stein and S.J. Li.
Medical College of Wisconsin, Milwaukee, WI, USA.

810. Characterization of Spreading Depression in Rodent Neocortex using Radio Frequency Current Density Imaging.
R.S. Yoon and M.L. Joy.
University of Toronto, Toronto, Ontario, Canada.

811. The Influence of Scanner Acoustic Noise on Somatosensory BOLD Activation Pattern in Rat.
M. Burke, W. Schwindt, U. Ludwig, J. Hennig and M. Hoehn.
Max-Planck-Institute for Neurological Research, Cologne, Germany and University of Freiburg, Freiburg, Germany.

812. **Functional Imaging of Rats After Recovery from Cerebral Hypoxia-Ischemia.**
K.L. Malisza, R. Papadimitropoulos, T. Foniok, R. Mariash, S. Sydseff, T. Hudzik, P. Kozlowski and U.I. Tuor.
National Research Council Canada, Winnipeg, MB, Canada and Astra Arcus Inc., Rochester, NY, USA.

813. **Event-Related fMRI in Rat Whisker Barrel Cortex at 3 Tesla.**
E.A. Stein, M. Maestas, K.M. Donahue, T.J. Ross, J.S. Hyde and A.S. Greene.
Medical College of Wisconsin, Milwaukee, WI, USA.

814. **Pharmacological MRI Studies in Conscious Rabbits with the NMDA Antagonist Ketamine.**
H. Zhang, L. Li, B. Tom, Y.J. Shen and A.M. Wyrwicz.
ENH Research Institute, Evanston, IL, USA.

815. **Brain fMRI Signal Changes in Artificially Ventilated Rats.**
H. Xu, X. Zhao, J. Bodurka and S.J. Li.
Medical College of Wisconsin, Milwaukee, WI, USA and University School of Medical Sciences, Bydgoszcz, Poland.

Pharmacologic and Clinical fMRI

816. **Altered Hypothalamic Function in Response to Glucose Ingestion in Obese Humans: An fMRI Study.**
J.H. Gao, S. Mahankali, Y. Liu, Y. Pu, A. Mahankali, J. Wang, R.A. DeFronzo, P.T. Fox and M. Matsuda.
University of Texas Health Science Center, San Antonio, TX, USA.

817. **Functional Connectivity in Hippocampal Region of Alzheimer's Subjects.**
Z. Li, S-J. Li, B. Biswal, P. Antuono and J. Jones.
Medical College of Wisconsin, Milwaukee, WI, USA.

818. **Functional MR Imaging (fMRI) of the Visual Cortex in Patients with Previous Optic Neuritis.**
A.R. Langkilde, E. Rostrup, J.L. Frederiksen and H.B.W. Larsson.
Hvidovre Hospital, Copenhagen, Denmark.

819. **fMRI Guided NIRS Analysis of Brain Strategies for Problem Solving in Parkinson's Disease.**
I.L. Kwee and T. Nakada.
VANCHCS, Martinez, CA, USA; University of California, Davis, CA, USA and University of Niigata, Niigata, Japan.

820. **Brain Activation from Motor Imagery in Paralyzed Patient with Locked-in Syndrome: An fMRI Study.**
H. Mao, C.A. Popp, P.R. Kennedy, R. Muthupillai, J. Doyon and A.W. Song.
Emory University, Atlanta, GA, USA and Laval University, Quebec, Canada.

821. **Combined Diffusion and Perfusion MR Imaging in Hyperacute Stroke: Preliminary Results.**
J. Perkio, L. Soinne, L. Ostergaard, T. Tatlisumak, A. Kangasmaki, J. Antila, S. Martinkauppi, O. Salonen, S. Savolainen, M. Kaste and H.J. Aronen.
Helsinki University Central Hospital, Helsinki, Finland; Kuopio University Hospital, Kuopio, Finland and Aarhus University Hospital, Aarhus, Denmark.

822. Increased Usage of Brain Reserve Capacity in Patients with HIV.
L. Chang, O. Speck, E. Miller, J. Braun, L. Itti and T. Ernst.
UCLA School of Medicine, Harbor-UCLA Medical Center, Torrance, CA, USA.

823. Reorganization of Sensorimotor Function in Hemispherectomized Children.
V. Holloway, D.G. Gadian, F. Vargha-Khadem, D.A. Porter, S.G. Boyd and A. Connelly.
University College London Medical School and Great Ormond Street Hospital for Children, London, UK.

824. Study of Irritable Bowel Syndrome Using Functional MRI.
V.L. Morgan, H. Mertz, D.R. Pickens, R.R. Price, W.G. Tanner and R. Kessler.
Vanderbilt University Medical Center, Nashville, TN, USA.

825. fMRI Study of Visceral Pain Response Differences Between Irritable Bowel Syndrome Patients and Controls.
C.R. Michelich, J.R. MacFall, G. McCarthy, Y. Ringel, J. Provenzale, W. Whitehead and D. Drossman.
Duke University Medical Center, Durham, NC, USA and University of North Carolina Hospitals, Chapel Hill, NC, USA.

826. Cortical Activation Patterns in Arteriovenous Malformations: An fMRI Study.
H. Alkadhi, S.S. Kollias, G.R. Crelier and A. Valavanis.
University of Zurich, Zurich, Switzerland.

827. Functional Imaging of Visceral Sensation and Pain in Patients with Gastrointestinal Disorders.
U.N. Frankenstein, C. Bernstein, W. Richter, C. Sweetland and M. McIntyre.
National Research Council of Canada, University of Manitoba and University of Winnipeg, Winnipeg, Manitoba, Canada.

828. Clinical MRI at 3.0 Tesla: Performance and Safety.
K.R. Thulborn and D. Davis.
University of Pittsburgh Medical Center, Pittsburgh, PA, USA.

829. Detection of Single CSF Flow Events in Patients with Aqueduct Stenosis.
U. Klose, C. Kiefer and W. Grodd.
University of Tubingen, Germany.

830. Longitudinal Study of Motor Activation fMRI and ^{1}H MRS in Patients with Multiple Sclerosis.
D. Ibarrola, J.P. Ranjeva, C. Mekies, K. Boulanouar, M. Clanet, C. Manelfe and I. Berry.
University Hospital Purpan and INSERM, Toulouse, France.

831. Detection of Dopamine Receptor Supersensitivity using Pharmacological MRI and Correlations with PET and Behavioral Measurements.
T.V. Nguyen, A-L. Brownell, Y.I. Chen, E. Livni, J.T. Coyle, B.R. Rosen, F. Cavagna and B.G. Jenkins.
Massachusetts General Hospital and Harvard Medical School, Charlestown, MA, USA and Bracco, S.p.A., Milan, Italy.

832. Cerebellar fMRI Studies of Alcohol-Induced Brain Injury.
M.H. Parks, V.L. Morgan, D.R. Pickens, R.R. Price, H.M. Schlack and P.R. Martin.
Vanderbilt University Medical Center, Nashville, TN, USA.

833. fMRI Neural Correlation of Phantom Limb Experience.
M. Condes-Lara, J. Romero-Romo, R. Rojas, P. Salgado, J. Sanchez-Cortazar and F.A. Barrios.
Campus Juriquilla UNAM, Hospital General de Queretaro, Hospital ABC and Instituto Mexicano de Psiquiatria, Mexico.

834. Differential Effects of Typical Versus Atypical Antipsychotics in the Motor System: An fMRI Study in Schizophrenic Patients.
D.F. Braus, G. Ende, P. Hubrich-Ungureanu, S. Stuck, A. Kier, S. Sartorius and F.A. Henn.
Central Institute of Mental Health, Mannheim, Germany.

835. Integration of Functional MRI Data in Navigated Neurosurgery.
T. Liebig, U.W. Thomale, C. Taschner, T. Rohlfing, N. Hosten, K.T. Hoffmann, A.J. Lemke, C. Stroszcynski, W.R. Lanksch and R. Felix.
Humboldt-Universitat, Berlin, Germany.

836. An fMRI Study of the Effect of Amphetamine on Brain Activity.
D. Chu, S.J. Uftring, C. McCandless, S.R. Wachtel, D.N. Levin and H. de Wit.
University of Chicago, Chicago, IL, USA.

837. Acute Effects of Indomethacin on Human Cerebral Blood Oxygenation and its Modulation of Visual Activation as Measured by Functional MRI.
H. Bruhn, P. Fransson and J. Frahm.
Biomedizinische NMR Forschungs GmbH, Gottingen, Germany.

838. Cocaine Increases BOLD fMRI Response to Photic Stimulation.
J.M. Levin, M.J. Kaufman, M.H. Ross, A.C. Roc, L.C. Maas, J.H. Mendelson, B.M. Cohen and P.F. Renshaw.
McLean Hospital, Harvard Medical School, Belmont, MA, USA.

839. Anatomical Segmentation of Activation by Temporal Response After Cocaine.
J.J.A. Marota, J.B. Mandeville, B.E. Kosofsky, M.A. Moskowitz and B.R. Rosen.
Massachusetts General Hospital, Charlestown, MA, USA.

840. Acute Cocaine's Effects on a Test of Inhibitory Control: An Event-Related fMRI Study.
H. Garavan, R. Risinger, C. Rainey, E.A. Stein, Z. Li and S.J. Li.
Medical College of Wisconsin, Milwaukee, WI, USA.

841. Acute Cocaine Administration Alters Functional Connectivity in Human Primary Visual Cortex Detected by fMRI.
S.J. Li, B. Biswal, Z. Li, R. Risinger, C. Rainey, J.K. Cho, B.J. Salmeron and E.A. Stein.
Medical College of Wisconsin, Milwaukee, WI, USA.

842. Delineation of the Functional Neuroanatomy of Induced Anxiety: A fMRI Study Using the Intravenous Caffeine Model.
N. Seraji-Bozorgzad, M.E. Tancer, T.W. Uhde and G.J. Moore.
Wayne State University School of Medicine, Detroit, MI, USA.

843. Cerebellar Activation Induced by Peripheral Injection of Capsaicin: A fMRI/Electrophysiology Study.
C. Saab, M.J. Quast, J. Wei, A. Makki, E. Al-Chaer and W.D. Willis.
The University of Texas Medical Branch, Galveston, TX, USA.

Vascular and CNS MR Imaging

844. Comparison of Perfusion and Diffusion-Weighted MRI with ^{99m}Tc-ECD SPECT in Ischemic Stroke.
H.S. Kim, D.I. Kim, J.D. Lee, E.K. Jeong, T.S. Chung, E.J. Kim, S.K. Lee, B.C. Seo and B.I. Lee.
Yonsei University College of Medicine, Seoul, Korea.

845. Diffusion-weighted MRI in Patients with Improving Neurological Cerebral Complaints.
D.R. Rutgers, K.J. van Everdingen, L.M.P. Ramos, W.P.T.M. Mali, L.J. Kappelle and J. van der Grond.
University Hospital, Utrecht, The Netherlands.

846. Tissue Patterns Characterized with Perfusion- and Diffusion-weighted MRI in Acute Stroke.
S. Rosenbaum, E. Rostrup, H.B.W. Larsson, P. Peterson and O.B. Paulson.
Hvidore Hospital, Copenhagen, Denmark.

847. Quantitative Study of T_2 Effect on DW-EPI of Cerebral Ischemic Infarct.
I-J. Huang, C-Y. Chen and H-W. Chung.
National Taiwan University and Tri-Service General Hospital, Taipei, Taiwan, ROC.

848. The Evaluation of Brain Perfusion in Patients with Steno-Occlusive Carotid Artery Disease Using a Quantitative FAIR Image: Correlative Study with rCBF by PET.
H. Kimura, Y. Koshimoto, C. Tsuchida, H. Yamada, M. Maeda, Y. Kawamura, Y. Yonekura and Y. Ishii.
Fukui Medical University, Fukui, Japan.

849. Age-Related Changes in Cerebral MR Angiography.
S. Nakamura, T. Shimizu, K. Kusunoki, Y. Oka, M. Saitoh, K. Sadamoto, H. Miki, J. Ikezoe and K. Nagasawa.
Washokai Sadamoto Hospital and Ehime University, Ehime, Japan and GE-YMS, Tokyo, Japan.

850. Contribution of Three Dimensional Gadolinium-Enhanced MR Angiography Compared to Three Dimensional Time-of-Flight MR Angiography in the Assessment of Extracranial Carotid Artery Disease.
J.M. Serfaty, P. Chirossel, J.M. Chevallier and P.C. Douek.
Hopital de la Croix Rousse, Lyon, France.

851. Regional Changes in Cerebral Blood Flow and Volume Following Acute Cocaine Administration.
T.J. Ross, K.M. Donahue, A.G. Hudetz and E.A. Stein.
Medical College of Wisconsin, Milwaukee, WI, USA.

852. Comparative Evaluation of Carotid Stenosis (Pre- and Post-Endarterectomy) by Gated 2D TOF MRA, Contrast-Enhanced MRA and DSA Angiogram.
J.M. Cai, Y.G. Gao, Y.Q. Cai and X. Ma.
PLA General Hospital and GE Medical Systems China, Beijing, China.

853. High-Resolution MR Venography at 3 Tesla.
J.R. Reichenbach, M. Barth, E.M. Haacke, M. Klarhofer, E. Moser and W.A. Kaiser.
Friedrich-Schiller Universitat, Jena, Germany; Universitat Wien, Vienna, Austria and Washington University, St. Louis, MO, USA.

854. MRA of the Cervical Arteries: Multislab 3D TOF or 3D FLASH during Bolus Injection of Contrast Agent.
R.A. Meuli, F. Schneider and P. Maeder.
University Hospital, Lausanne, Switzerland.

855. Unique Findings of Intracranial Arterial Obstruction on Perfusion MRI: Comparison to ^{99m}Tc-HMPAO SPECT.
S-K. Lee, T-S. Chung, D-I. Kim and E-K. Jeong.
Yonsei University College of Medicine, Seoul, Korea.

856. Perfusion MR Imaging of Moyamoya Disease: Preliminary Results.
I.C. Song, K.H. Chang, I.O. Kim, H.D. Kim and M.H. Han.
Seoul National University, Seoul, Korea.

857. Is Magnetic Resonance Venography Required to Exclude Dural Sinus Thrombosis in the Presence of a Normal MRI Study.
B. Morgan, N. Messios, H. Allroggen and G.R. Cherryman.
University of Leicester, Leicester, UK.

858. Identification of Fibrous Cap Characteristics in Human Atherosclerotic Carotid Plaque *In-Vivo* with High Resolution Magnetic Resonance Imaging.
C. Yuan, T.S. Hatsumaki and N.L. Polissar.
University of Washington and The Mountain-Whisper-Light Statistical Consulting, Seattle, WA, USA.

859. Use of Single Slice Thick Slab Phase Contrast Angiography for the Diagnosis of Dural Venous Sinus Thrombosis.
M. William, W.A. Adams, R.D. Laitt, S.C. Beards, A. Kassner and A. Jackson.
University of Manchester, UK.

860. Time Course of Vascular Hyperintensity on Fast Fluid-attenuated Inversion Recovery in Infarction of MCA Territory in Comparison to Vascular Enhancement on Contrast-enhanced MR Imaging.
M. Maeda, Y. Koshimoto, H. Uematsu, H. Yamada, H. Kimura, Y. Kawamura, Y. Ishii and W.T.C. Yuh.
Fukui Medical University, Fukui, Japan and University of Iowa, Iowa City, IA, USA.

861. High Resolution Contrast-Enhanced MRA of the Carotid Arteries: Comparisons with 2D TOF MRA and Conventional X-Ray Angiography.
S.J. Riederer, J. Huston, S.B. Fain and M.A. Bernstein.
Mayo Clinic, Rochester, MN, USA.

862. Carotid MRA: Experience with Dynamic Contrast-Enhanced Imaging and Comparison to 2D-TOF Imaging.
A.P. Dagher, P. Goldberg and S.D. Wolff.
National Institutes of Health, Bethesda, MD, USA and Integrated Cardiovascular Therapeutics, Woodbury, NY, USA.

863. Post-Processing of Contrast-Enhanced Carotid MRA: to Mask or Not to Mask?
D.J. Atkinson, D.Y. Chen and W.G. Bradley.
Long Beach Memorial Medical Center, Long Beach, CA, USA and Siemens Medical Systems R&D, Iselin, NJ, USA.

864. MR Imaging in Acute Aneurysmal Subarachnoid Hemorrhage.
R. Deveshwar, S.C. Patel, D.O. Hearshen, M. Jacobs, G. Malik and D. Seyfried.
Henry Ford Hospital, Detroit, MI, USA.

865. The Use of Quantitative Diffusion Weighted Imaging in Childhood Stroke.
F. Calamante, D. Porter, C.L. Johnson, W.K. Chong, S.G. Corey, F. Kirkham, D.G. Gadian and A. Connelly.
University College London Medical School and Great Ormond St Hospital for Children, London, England.

866. Contrast Enhanced Turbo-MRA Versus Conventional Angiography in the Evaluation of Carotid Artery Stenosis.
C. Catalano, P. Pavone, A. Laghi, A. Sarrantonio, F. Fraioli, F. Pediconi and R. Passariello.
University of Rome "La Sapienza", Rome, Italy.

867. MRI Adjusted Spetzler Ranking System for Preoperative Assessment of Intracranial AVM.
R. Semnic, K. Koprivsek, D. Kozic, M. Semnic, B. Petrovic and M. Lucic.
Imaging Diagnostic Center, Sremska Kamenica, Yugoslavia.

868. Cerebral Perfusion MR Imaging with Arterial Spin Labeling Technique at 0.5 T.
K. Tsuchiya, S. Katase, J. Hachiya, T. Kimura and K. Yodo.
Kyorin University, Toshiba Corporation and Toshiba Medical Systems, Tokyo, Japan.

869. Visualization of Carotid and Vertebral Origins: Comparison of Enhanced and Unenhanced MR Angiography.
W.G. Bradley, D.Y. Chen, S. Patel, L.M. Teresi and D.J. Atkinson.
Long Beach Memorial Medical Center, Long Beach, CA, USA and Siemens, Iselin, NJ, USA.

870. T_1-Shortening Contrast Agent Improves High Resolution BOLD Venography.
W. Lin, P. Mukherjee, H. An, Y. Yu, Y. Wang, K. Vo, B. Lee, D. Kido and E.M. Haacke.
Washington University, St. Louis, MO, USA.

871. High Resolution Imaging of the Carotid Bifurcation Plaque using 3D Spin Echo.
C. Rofe and D. Saloner.
VA Medical Center, San Francisco, CA, USA.

MR Imaging of Stroke: Perfusion Alterations

872. Spatio-Temporal Evolution of Cerebrovascular Reactivity after Experimental Focal Brain Ischemia.
N.G. Harris, M.F. Lythgoe, D.L. Thomas and S.R. Williams.
University College London Medical School, London, UK and University of Cambridge Clinical School, Addenbrooke's Hospital, Cambridge, UK.

873. Acetazolamide Challenged Cerebral Perfusion Imaging Using FAIR in Occlusive Cerebrovascular Diseases.
I. Shirouzu, T. Machida, T. Okuaki, S. Kiryu, M. Noda, K. Morinaga, H. Satoh, T. Matsuda and Y. Takahashi.
NTT Kanto Teishin Hospital and GE-Yokogawa Medical Systems, Tokyo, Japan.

874. Effects of Anesthetic Agents on Cerebral Perfusion in Rats Studied by Arterial Spin-Labeled MRI.
K.S. Hendrich, P.M. Kochanek, D.S. Williams, J.K. Schiding and C. Ho.
Carnegie Mellon University and University of Pittsburgh, Pittsburgh, PA, USA.

875. Modulation of Cerebral Blood Flow Followed Using Arterial Spin Tagging Perfusion Imaging in Rats.
H. Lei, M. Campbell and J. Peeling.
The University of Manitoba, Winnipeg, Manitoba, Canada.

876. MR Perfusion Imaging to Assess Regional Blood Distribution during Unilateral Antegrade Cerebral Perfusion for Aortic Surgery in a Pig Model.
J. Ye, G.P. Dai, L.N. Ryner, P. Kozlowski, L. Yang, R. Summers, J. Sun, T.A. Salerno, R.L. Somorjai and R. Deslauriers.
National Research Council of Canada, Winnipeg, Manitoba, Canada and State University of New York at Buffalo, NY, USA.

877. Hyperventilation Induces Hypoxia in Brain: A BOLD Imaging and Phosphorescent-Lifetime Measurements of Tissue pO_2.
J.F. Dunn, C.I. Nwaigwe, M. Roche, O. Grinberg and H. Zhu.
Dartmouth Hitchcock Medical Center, Hanover, NH, USA.

878. Separation of Blood Oxygenation from Non-Susceptibility Based Contributions to T_2* Changes During Reversible Focal Cerebral Ischemia.
M. Grune, F.A. van Dorsten, W. Schwindt, L. Olah, F. Pillekamp, U. Uhlenkuken and M. Hoehn.
Max-Planck-Institute for Neurological Research, Cologne, Germany.

879. Unilateral Leptomeningeal Enhancement Resulting from Carotid Angioplasty/Stenting.
I.D. Wilkinson, P.D. Griffiths, P. Gaines, T. Cleveland and G.S. Venables.
University of Sheffield, Northern General Hospital and CSUH Trust, Sheffield, England.

MR Imaging of Stroke: Experimental Stroke

880. Duration and Severity of Cerebral Hypoxia-Ischemia Determine the Time-Course of ADC Changes and Histological Outcome.
N. Miyasaka, T. Nagaoka, T. Kuroiwa, H. Akimoto, T. Haku, T. Kubota and T. Aso.
Tokyo Medical and Dental University, Tokyo, Japan.

881. MR Detection of Therapeutic Possibility for Ischemic Brain Damage in Cats.
T. Nagaoka, N. Miyasaka, H. Akimoto, T. Kuroiwa, Z.F. Yu, M. Ueki, I. Yamada and K. Hirakawa.
Tokyo Medical and Dental University, Tokyo, Japan.

882. Magnetic Resonance Imaging of Hyperacute Intracerebral Hemorrhage in a Rabbit Model.
C. Beaulieu, A. Kastrup, R. Bellon, M. Marks and M. Moseley.
Stanford University, Stanford, CA, USA.

883. Experimental Cerebral Venous Thrombosis: Relationship of MRI, Metabolic, Hemodynamic and Immunohistochemical Parameters.
J. Rother, W. Schwindt, I. Antonow-Schlorke, F. van Dorsten and M. Hoehn.
Friedrich-Schiller Universitat, Jena, Germany and Max-Planck-Institut fur Neurologische Forschung, Koln, Germany.

884. Late Changes of Morphology in Chronic Stages after Photothrombotic Cerebral Infarction: A Multiparametric MRI Investigation in Rat Brain.
C. Franke, M. Schroeter, G. Stoll and M. Hoehn.
Max-Planck-Institute for Neurological Research, Cologne, Germany and Heinrich-Heine University, Duesseldorf, Germany.

885. High Speed Diffusion and BOLD MRI of Ischemia and Spontaneous Peri-Infarct Spreading Depression.
A.J. de Crespigny, A. Kastrup and M.E. Moseley.
Stanford University, Stanford, CA, USA.

886. Early Changes of T_2 Relaxation Times after Clot Embolism Detectable by Quantitative MRI Do Not Indicate Irreversibility of Brain Injury.
F. Pillekamp, M. Grune, M. Eis, U. Uhlenkuken, G. Brinker, C. Franke, M. Hoehn and K.A. Hossmann.
Max-Planck-Institute for Neurological Research, Cologne, Germany.

887. Charting the Early Neuropathogenic Processes Following a Prolonged Duration of Global Cerebral Ischaemia in the Rat – A Potential New Role for Combined T_2/Diffusion Weighted MRI.
L.J. Gregory, M.J. O'Neill, J.A. Gray and S.C.R. Williams.
Institute of Psychiatry, London, UK and Lilly Research Laboratories, Erl Wood, Surrey, UK.

888. Apparent Diffusion Coefficient Images in Subacute Stroke Detects DNA Fragmentation.
T.A. Kent, Z. Gu, J. Wei, M.J. Quast and J.R. Perez-Polo.
The University of Texas Medical Branch, Galveston, TX, USA.

889. Longitudinal Sodium MRI Study of Focal Cerebral Ischemia.
S.P. Lin, S.K. Song, J.J.H. Ackerman and J.J. Neil.
Washington University, St. Louis, MO, USA.

890. Unsupervised Segmentation of Multiparameter MRI in Experimental Cerebral Ischemia in Rat with Histopathological Validation.
M.A. Jacobs, J.P. Windham, R.A. Knight, D.J. Peck, H. Soltanian-Zadeth, Z.G. Zheng, A.V. Goussev and M. Chopp.
Henry Ford Health Sciences Center, Detroit, MI, USA and Oakland University, Rochester, MI, USA.

891. Magnetization Transfer Contrast MRI: A Predictor of Impending Hemorrhagic Transformation in Ischemic Stroke?
R.A. Knight, J.R. Ewing, S.C. Fagan and M. Chopp.
Henry Ford Health Sciences Center, Detroit, MI, USA; Oakland University, Rochester, MI, USA and Wayne State University, Detroit, MI, USA.

MR Imaging of Stroke and Trauma: Neuroprotection

892. NMR Imaging of the Neuroprotective Effects of Estrogen.
J.D. Bui, J. Shi, D.L. Buckley, S.H. Yang, T.H. Lucas, M.A. King, A.L. Day, J.W. Simpkins and S.J. Blackband.
University of Florida, Gainesville, FL, USA and National High Magnetic Field Laboratory, Tallahassee, FL, USA.

893. Amlodipine, A Long Acting Dihydropyridine Calcium Antagonist, Reduces Cerebral and Renal Damage, in a Rat Model of Malignant Hypertension.
E.L.A. Blezer, K. Nicolay, H.A. Koomans and J.A. Joles.
University Hospital and Utrecht University, Utrecht, The Netherlands.

894. Diffusion Weighted MRI Used to Assess if the Antioxidant U-101033E is Neuroprotective also in Case of Permanent Ischemia.
M.H. Hjelstuen, A. Haberg and O. Haraldseth.
SINTEF Unimed and University Hospital, Trondheim, Norway.

895. MRI Including Diffusion Weighted Imaging in the Evaluation of Neuroprotective Effects of Lubeluzole after Traumatic Brain Injury.
R. Stroop, S.N. Kroppenstedt, J. Bernarding, K.J. Wolf, W. Lanksch and A. Unterberg.
Humboldt-University of Berlin and Free University of Berlin, Berlin, Germany.

896. Assessment of 2-Chloroadenosine Treatment after Experimental Traumatic Brain Injury in the Rat using Arterial Spin-Labeled MRI.
C.L. Robertson, K.S. Hendrich, P.M. Kochanek, E.K. Jackson, J.A. Melick, S.H. Graham, D.W. Marion, D.S. Williams and C. Ho.
University of Pittsburgh and Carnegie Mellon University, Pittsburgh, PA, USA.

897. Assessment of Neurotoxicity in Rat Brain by Magnetic Resonance Microscopy.
R.C. Lyon, D.S. Lester, J.N. Johannessen, G.N. McGregor, R.T. Engelhardt and G.A. Johnson.
Food and Drug Administration, Laurel, MD, USA; NCI Frederick Biomedical Supercomputing Center, Frederick, MD, USA and Duke University Medical Center, Durham, NC, USA.

898. Improved Behavioural Recovery Correlated with MRI and Morphology After SDZ EAA494 Treatment, A Novel NMDA Receptor Antagonist, Evaluated in Experimental Stroke Treatment.
Z. Chen, A. Sauter and B. Bjelke.
Karolinska Institutet, Stockholm, Sweden and Novartis Pharma, Basel, Switzerland.

899. Evaluation of rCBF in Excitotoxic Neuronal Injury Using FAIR Technique.
C.S. Lee, Y.L. Pan and C. Chang.
Academia Sinica, Taipei, Taiwan, ROC.

900. 8.4T T_2 and Diffusion Weighted MRI of Traumatic Brain Injury in Mice.
O.M. Oreg, R. Duvdevani, A. Dimitrochenko, M. Hadani and Y. Cohen.
Tel Aviv University, Tel Aviv, Israel; Israel Institute of Biological Research, Ness-Ziona, Israel and Sheba Medical Center, Tel-Hashomer, Israel.

901. Diffusion-Weighted MRI Questions the 'Very Delayed' Development of Cerebral Infarction in Rats after 30 Minutes of Focal Ischaemia.
E.S. Karnick, T. Christensen and N.H. Diemer.
University of Copenhagen, Denmark.

MR Imaging of Brain Masses

902. An Investigation into the Effects of Dexamethasone on Intracerebral Tumours using MR Diffusion Tensor Imaging.
M.E. Bastin, M. del Grado, I.R. Whittle and J.M. Wardlaw.
The University of Edinburgh, Western General Hospital, Edinburgh, Scotland, UK.

903. Evaluation of Brain Tumor Response to Intracarotid Chemotherapy Using ^{1}H MRS, Diffusion and Perfusion MRI.
W. Huang, P. Roche, S. Madajewicz, D. Madoff, T. Button, H. Li, J. Manzione and C. Roque.
State University of New York, Stony Brook, NY, USA.

904. **Multi-Component ADC Line Scan Imaging of Brain Tumor Pathology.**
S.E. Maier, G. Bajzik, P. Bogner, H.P. Zengingonul, F.A. Jolesz and R.V. Mulkern.
Brigham and Women's Hospital and Children's Hospital Harvard Medical School, Boston, MA, USA and Pannon University of Agriculture, Kaposvar, Hungary.

905. **Subvoxel Registration and Subtraction of 2D Multislice Resonance Images of the Brain in Patients with Glioma.**
A. Oatridge, N. Saeed, J.V. Hajnal and G.M. Bydder.
Imperial College School of Medicine, Hammersmith Hospital, London, UK.

906. **Evaluation of the Safety and Efficacy of Gadobenate Dimeglumine (Gd-BOPTA) in MRI of CNS Metastatic Disease.**
A. La Noce, G.R. Cherryman, C. Colosimo, J. Ruscalleda, M. Kirchin, I. Salerio, G. Pirovano and A. Spinazzi.
Bracco S.p.A., Milan, Italy and Leicester Royal Infirmary, Leicester, UK.

907. **MRI of Central Nervous System Paracoccidioidomycosis (PCM).**
C.C. de Castro, L.Y.I. Yamaga, G. Benard, M.A. Shikanai-Yasuda and G.G. Cerri.
University of Sao Paul Medical School, Sao Paulo, Brazil.

908. **Subtle Signal Changes in Epileptogenic Mass Brain Lesions: Quantification, Clinical and Histological Correlations.**
N.F. Moran, L. Lemieux, D.R. Fish, N.D. Kitchen and S.D. Shorvon.
University College London, London, UK.

909. **Noninvasive Perfusion Imaging of Meningioma with FAIR.**
K. Kusunoki, Y. Oka, M. Saito, I. Nochide, H. Nakatsuka, K. Sadamoto, S. Sakaki, K. Nagasawa and H. Sato.
Washokai Sadamoto Hospital, Tokyo, Japan; Ehime University School of Medicine, Ehime, Japan and GE-Yokogawa Medical Systems, Tokyo, Japan.

910. **The Characterization of Meningioma in Magnetization Transfer Technique.**
A. Okumura, K. Takenaka, Y. Nishimura, N. Sakai, K. Kuwata and S. Era.
Gifu University School of Medicine, Gifu, Japan.

MR Imaging of CNS Disease

911. **New Application of FLAIR Imaging for Intracranial Disease - T_1-Weighted FLAIR and Two Contrast FLAIR.**
K. Kikuchi, H. Miki, K. Murase and J. Ikezoe.
Ehime University School of Medicine, Ehime, Japan.

912. **The Rapid Progression of Pituitary Hyperplasia in Primary Hypothyroidism Demonstrated by MR Imaging.**
T. Shimono, H. Hatabu, K. Kasagi, Y. Miki, S. Nishizawa, T. Misaki, A. Hiraga and J. Konishi.
Kyoto University, Kyoto, Japan and Beth Israel Deaconess Medical Center, Boston, MA, USA.

913. **Ectopic Posterior Pituitary in Macroadenomas: Demonstration by Dynamic MR Imaging.**
Y. Miki, R. Asato, N. Hashimoto and J. Konishi.
Kyoto University Hospital, Kyoto, Japan.

914. Status Epilepticus Induced Changes in Proton Diffusion in Rat Hippocampus and Piriform Cortex.
A. Obenaus, C. Wall and E. Kendall.
University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

915. Brain Atrophy Following Temporal Lobe Epilepsy Surgery.
L. Lemieux, H. Ellamushi, N.F. Moran and N.D. Kitchen.
University College London, London, UK.

916. Age-Related Variation of Putamenal and Nigral R_2 and R_2' at 3 Tesla.
N. Gelman, J.M. Gorell, E.M. Spickler, J.J. Hasenau, E. Solomon, E.L. Peterson and J. Masura.
Henry Ford Hospital and Health Sciences Center, Detroit, MI, USA.

917. Human Brain Iron Measurements with T_2* Imaging.
P. van Gelderen, D. Waldvogel and M. Hallett.
National Institutes of Health, Bethesda, MD, USA.

918. Stereotactic MRI for Functional Neurosurgery in Parkinson's Disease.
A. Simmons, J. Dawson, E. Moore, M. Hu, R. Chaudhuri and C.E. Polkey.
Institute of Psychiatry, Maudsley Hospital and Kings College Hospital, London, UK.

919. Application of MRI in Patients with Neurologic and Hepatic Form of Wilson Disease.
D. Kozic, R. Semnic, K. Teslic, M. Prvulovic, D. Bogdanovic, K. Koprivsek and M. Lucic.
Institute of Oncology, Sremska Kamenica, Novi Sad, Serbia and New York Hospital, Cornell University, New York, NY, USA.

920. Monitoring the Efficacy of Bone Marrow Transplantation in Globoid Cell Leukodystrophy with Quantitative Magnetization Transfer Imaging.
J.C. McGowan, C.H. Vite, D.A. Wenger and M.E. Haskins.
University of Pennsylvania and Thomas Jefferson University, Philadelphia, PA, USA.

921. Structural Brain Changes in a Patient with Schizophrenia on Serially Registered MRI Following Treatment with Eicosapentaenoic Acid.
B.K. Puri, A.J. Richardson, D.F. Horrobin, T. Easton, N. Saeed, A. Oatridge, J.V. Hajnal and G.M. Bydder.
Hammersmith Hospital and Charing Cross Hospital, London, UK and Laxdale Ltd., Stirling, UK.

922. MRI Abnormalities in First-Episode Schizophrenia Patients Through Image Averaging.
M.S. Keshavan, B.D. Peters, S. Spencer, M. Madhavan, E. Dick, M. Debellis, J.A. Sweeney, M.R. Zeigler, K. Harenski and D.M. Montrose.
Western Psychiatric Institute and Clinic, Pittsburgh, PA, USA.

MR Imaging of CSF, Ventricles and Hydrocephalus

923. Use of Diffusion Imaging for Assessing the Treatment of Obstructive Hydrocephalus.
A.M. Ulug, C.G. Filippi, M. Souweidane and R.D. Zimmerman.
Cornell University Medical College, New York, NY, USA.

924. MR-Imaging and Flow Sensitive Sequences for Planning and Follow-up in Neuro-Endoscopic Fenestration of the Third Ventricle.
S. Ernst, H. Kugel, R.I. Ernestus, A. Gossmann, K. Terstegge, W. Heindel and K. Lackner.
University of Cologne, Koln, Germany.

925. **^{1}H MRS and Quantitative MRI of the Pathophysiology of Neonatal Rat Hydrocephalus.**
C.M. Mohr, J.D. Bui, H.C. Jones and S.J. Blackband.
University of Florida, Gainesville, FL, USA and National High Magnetic Field Laboratory, Tallahassee, FL, USA.

926. **Analysis of Extracellular Fluid Movement in Immature Rats with Hydrocephalus using Magnetic Resonance Imaging.**
R. Buist, C.L. Shoesmith and M.R. Del Bigio.
University of Manitoba, Winnipeg, Canada.

927. **MR Cisternography with a 3D Ultrafast T_2-Weighted Sequence: Value of Combined MRA and Various Postprocessing.**
K. Ohgi, K. Satoh, H. Yokote, T. Higami, K. Kobori, T. Furukawa, H. Akiyama, S. Kimura, K. Uehara, K. Murata, M. Higashi, K. Gotoh and Y. Yamashita.
Japanese Red-Cross Medical Center, Tokyo, Japan; Kasukabe-Shuwa Hospital, Saitama, Japan; Kitazato-Institute Hospital, Tokyo, Japan and Toshiba Medical Inc., Japan.

928. **Measuring Changes in Ventricular Volume During Cardiac Cycle Using Gated EPI.**
A.M. Ulug, M. Souweidane and R.D. Zimmerman.
Cornell University Medical College, New York, NY, USA.

929. **CSF Flow Studies with the PSIF Sequence in Evaluation of Arachnoid Cysts and Cystic Masses of the Head and Spine.**
K.T. Hoffmann, N. Hosten, B.U. Meyer, T. Liebig, A. Lemke, C. Stroszczynski, C. Sprung and R. Felix.
Virchow-Klinikum, Berlin, Germany.

930. **The Mechanical State of Intracranial Tissues in Elderly Subjects Studied by Imaging CSF and Brain Pulsations.**
S.J. Uftring, D. Chu and D.N. Levin.
University of Chicago, Chicago, IL, USA.

MR Imaging of White Matter

931. **Short-Term Evolution of Individual Enhancing MS Lesions Studied with Magnetization Transfer Imaging.**
M.A. Rocca, M.P. Sormani, C. Pereira, G. Comi and M. Filippi.
University of Milan, Italy.

932. **Low White Matter Anisotropy in Chronic Alcoholism Revealed with Diffusion Tensor Imaging.**
M. Hedehus, E.V. Sullivan, A. de Crespigny, M.E. Moseley, K.O. Lim and A. Pfefferbaum.
Stanford University, Stanford, CA, USA; Nathan Kline Institute for Psychiatric Research, Orangeburg, NY, USA; Hillside Hospital, Glen Oaks, NY, USA and SRI International, Menlo Park, CA, USA.

933. **Quantitative Assessment of Interhemispheric Neuronal Connectivity Using Diffusion Tensor MR Imaging.**
M. Ishihara, T. Kumazaki, K. Takahama, H. Hayashi, K. Cho, S. Okada, H. Kabasawa and Y. Takahashi.
Nippon Medical School and GE-YMS, Tokyo, Japan.

934. **Diffusion Tensor MRI of the Thalamus: Differentiation of Nuclei by Their Projections.**
M.R. Wiegell, H.B.W. Larsson and V.J. Wedeen.
Massachusetts General Hospital, Charlestown, MA, USA and Hvidovre Hospital, Hvidovre, Denmark.

935. MRI and MTI Changes in the Brain and Cervical Cord from Patients with Devic's Neuromyelitis Optica.
M.A. Rocca, M. Bozzali, V. Martinelli, A. Ghezzi, F. Salvi, R. Capra, G. Comi and M. Filippi.
University of Milan, Italy.

936. Reporting Active Lesions on Serial Brain MRI Scans in Multiple Sclerosis: Interobserver Agreement using CSE, FSE, Fast-FLAIR and Post-GD T_1-Weighted Images.
M. Rovaris, F. Barkhof, S. Bastianello, C. Gasperini, N. Tubridy, T.A. Yousry and M. Filippi.
H San Raffaele, Milan, Italy.

937. Inflammatory Activity Revealed in Magnetic Resonance Imaging of Multiple Sclerosis without Contrast Agent.
M.A. Horsfield, M.A. Rocca, M. Cercignani, G. Comi and M. Filippi.
University of Leicester, UK and Ospedale S. Raffaele, Milano, Italy.

938. Negative Binomial Model Describing the Distribution of Enhancing MRI Lesions in MS.
M.P. Sormani, P. Bruzzi, D.H. Miller, C. Gasperini, F. Barkhof and M. Filippi.
Ospedale San Raffaele, Milan, Italy; Institute of Neurology, London, UK; S. Camillo Hospital, Rome, Italy and Free University Hospital, Amsterdam, The Netherlands.

939. A Three Year Study Monitoring of Cerebral Atrophy, Lesion Load and Contrast Enhancing Lesions in 30 Relapsing Remitting Multiple Sclerosis Patients Treated with Interferon Beta 1b.
J.A. Frank, N.D. Richert, C. Bash, T. Leist, I. Gobbini, B.K. Lewis, R. Stone, T.R. Howard and H. McFarland.
National Institutes of Health, Bethesda, MD, 20892.

940. Memory Dysfunction in Multiple Sclerosis Correlates with Juxtacortical Lesion Load Demonstrated by Fast FLAIR Magnetic Resonance Imaging.
D.M. Moriarty, A. Blackshaw, P.R. Talbot, H.L. Griffiths, J.S. Snowden, V.F. Hillier and A. Jackson.
University of Manchester, Manchester, UK.

941. A Serial T_2 Relaxation, T_1 Relaxation and Magnetization Transfer Study of Multiple Sclerosis Brain.
I.M. Vavasour, K.P. Whittall, A.L. MacKay, D.K.B. Li, J. Oger and D.W. Paty.
UBC Hospital, Vancouver, BC, Canada.

942. Extensive Brain Activation Following Recovery from Optic Neuritis: A Pilot Study Using Functional Magnetic Resonance Imaging (fMRI).
D.J. Werring, D.H. Miller, E.T. Bullmore, G.J. Barker, D.G. MacManus, M.J. Brammer, W.I. McDonald and A.J. Thompson.
University College and Institute of Psychiatry, London, UK.

943. Improved Contrast in "Multi-Spectral Phase" Images Derived from MR Exams of MS Patients.
J.R. Mitchell and B.K. Rutt.
London Health Sciences Center and The University of Western Ontario, London, Ontario, Canada.

944. A Quantitative Echoplanar Diffusion Imaging Study of Lesions and Normal Appearing White Matter in Multiple Sclerosis.
D.J. Werring, C.A. Clark, A. Droogan, G.J. Barker, D.H. Miller and A.J. Thompson.
Institute of Neurology, London, UK.

945. Magnetization Transfer Histogram Analysis of Normal Appearing Brain Tissue from Patients at Presentation with Clinically Isolated Syndrome Suggestive of Multiple Sclerosis.
C. Tortorella, G. Iannucci, M. Rovaris, M.A. Rocca, M. Bozzali, G. Comi and M. Filippi.
University of Milan, Italy.

946. Correction of Global MTR Mean Value Differences Due to Non-Anatomical Factors.
J.L. Ostuni, N.D. Richert, B.K. Lewis and J.A. Frank.
National Institutes of Health, Bethesda, MD, USA.

947. CNS Involvement in Patients with a History of Neuropsychiatric Systemic Lupus Erythematosus Demonstrated by Magnetization Transfer Imaging.
G.P. Bosma, M.J. Rood, T.W.J. Huizinga and M.A. van Buchem.
Leiden University Medical Center, Leiden, The Netherlands.

948. Inter-Observer, Scan-Rescan and Interscanner Variabilities of MT Histogram-Derived Measures from Healthy Volunteers.
M.P. Sormani, M.A. Rocca, G. Mastronardo, G. Iannucci and M. Filippi.
University of Milan, Italy.

949. Investigating Neuropathological Abnormalities in Schizophrenia using Magnetization Transfer Imaging.
J. Foong, M.R. Symms, G.J. Barker, F.G. Woermann, M. Maier, D.H. Miller and M.A. Ron.
University College London, London, UK.

950. MRI Assessment of Macro- and Microscopic Brain Pathology in Patients with Multiple Sclerosis and Vasculitides.
B. Viti, M. Rovaris, G. Ciboddo, R. Capra, G. Comi, C. Tortorella and M. Filippi.
University of Milan, Italy and Spedali Civili, Brescia, Italy.

951. A Magnetization Transfer Histogram Study of Normal Appearing Cerebral Tissue in Multiple Sclerosis.
C. Tortorella, B. Viti, M. Bozzali, M.P. Sormani, L. Minicucci, M. Rovaris, G. Comi and M. Filippi.
University of Milan, Milan, Italy.

952. Demonstration of Restricted Diffusion Early in the Development of Inflammatory/Demyelinating Lesions - A Multiparametric MR Study.
A. Gass, R. Moeckel, J. Hirsch, M. Georgi, A. Schwartz, M.G. Hennerici and J. Gaa.
University of Heidelberg, Germany.

953. Disease Activity in Multiple Sclerosis: A Weekly Triple Dose Magnetic Resonance Imaging Study.
C. Tortorella, M. Codella, M.A. Rocca, C. Gasperini, R. Capra, C. Pozzilli and M. Filippi.
University of Milan, Italy; University of Brescia, Italy and Universita "La Sapienza", Rome, Italy.

954. Correlation between MRI of the Optic Nerve and Visual Evoked Potentials. A Longitudinal Study in Secondary Progressive Multiple Sclerosis.
S.J. Weatherby, M.B. Davies, M.H. Lai, R. Williams, N. Haq and C.P. Hawkins.
Royal Infirmary, Stoke-on-Trent, UK.

955. White Matter Signal Abnormalities in Schizophrenia: Findings with FLAIR Imaging.
Y. Cheong, B.B. Forster, S.W. Flynn, I.M. Vavasour, A.L. MacKay, K.P. Whittall and W.G. Honer.
University of British Columbia, Vancouver, British Columbia, Canada.

956. **Regional and Global Differeneces in Cerebral White Matter Diffusion with Alzheimer's Disease.**
A.O. Nusbaum, C.Y. Tang, M.S. Buchsbaum, L. Shihabuddin, T.C. Wei and S.W. Atlas.
Mount Sinai Medical Center, New York, NY, USA; University of California, Irvine, CA, USA and Stanford University, Stanford, CA, USA.

957. **Magentization Transfer Histogram Analysis of Segmented Normal-Appearing White Matter in Multiple Sclerosis.**
I. Catalaa, R.I. Grossman, D. Kolson, L. Nyul, L. Wei, J. Udupa, M. Polansky and J.C. McGowan.
University of Pennsylvania, Philadelphia, PA, USA.

958. ***In vivo* MR Tractography using Diffusion Tensor Imaging and Spatial Normalisation: Rotation of Eigenvectors into Talairach Space.**
U.C. Wieshmann, G.J.M. Parker, M.R. Symms, G.J. Barker and S.D. Shorvon.
National Society for Epilepsy, Chalfont St Peter, Bucks, UK and University College, London, UK.

959. **Diffusion Tensor Imaging of Multiple Sclerosis Plaques.**
M.R. Wiegell, A.R. Langkilde and H.B.W. Larsson.
Danish Research Center for Magnetic Resonance, Hvidovre, Denmark.

MR Imaging of Brain: Miscellaneous

960. **T_1 and T_2 Relaxographies of Human Brain at the 3.0T MRI System.**
K.S. Choi, T-Y. Kim, E.N. Kim, K.J. Chung, B-Y. Choe, K.S. Shinn and H.K. Lee.
Catholic University of Korea, Hanme System and Medison Co., Seoul, Korea.

961. **High Resolution MR Imaging of the Human Brain at 4.7 Tesla.**
E.C. Bourekas, G.A. Christoforidis, D.W. Chakeres, M. Baujan, R. Burgess, X. Zhang, L. Yang, Y. Yu, A. Kangarlu, D.G. Spigos, A.M. Abduljalil and P.M.L. Robitaille.
The Ohio State University, Columbus, OH, USA.

962. **Human Imaging at 8 Tesla: A Case Study.**
R. Burgess, L. Yang, X. Zhang, T.S. Ibrahim, B. Baertlein, R. Lee, A.M. Abduljalil, A. Kangarlu and P.M.L. Robitaille.
The Ohio State University, Columbus, OH, USA.

963. **Maturation of Functional Capacity in Rat Cortex: A 7T NMR Study.**
I. Kida, F. Hyder and K.L. Behar.
Yale University, New Haven, CT, USA and Hokkaido University, Sapporo, Japan.

964. **Enhanced Lithium MR Images of Rat Brain.**
S. Ramaprasad, D.M. Lindquist and R.A. Komoroski.
University of Arkansas for Medical Sciences and University of Arkansas at Little Rock, Little Rock, AR, USA.

965. ***In vivo* Volume Selective T_1 and T_2 Relaxation Measurements During Pre-Acute Stage of Experimental Allergic Enchephalomyelitis in Rat Brain.**
M.N. Degaonkar, P. Raghunathan, R. Jayasundar and N.R. Jagannathan.
All India Institute of Medical Science, New Delhi, India.

966. **Investigating White Matter Diffusion Anisotropy Using the Dysmelinating Shiverer Mutant Mouse.**
E.T. Ahrens, D.H. Laidlaw, C. Readhead, S.E. Fraser and R.E. Jacobs.
California Institute of Technology, Pasadena, CA, USA and Brown University, Providence, RI, USA.

967. ***In Vivo* MRI Analysis of Normal and Abnormal Foliation in the Mouse Cerebellum.**
D.H. Turnbull, Y. Zaim Wadghiri, G. Johnson and A.L. Joyner.
New York University School of Medicine, New York, NY, USA.

968. **MRI Localization of Extracellular Electrodes Using Metallic Deposition at 1.5T.**
J.S. Pezaris and D.J. Dubowitz.
California Institute of Technology, Pasadena, CA, USA.

969. **A Conscious Animal Model for MRI.**
L. Li, N-K. Chen and A.M. Wyrwicz.
ENH Research Institute and Northwestern University, Evanston, IL, USA.

970. **Measurements of Vascular Characteristics in the Brain of Canine for Assessment of Aging: Correlation with Neuropathology and Cognitive Behavioral Performance.**
M.Y. Su, E. Head, W. Brooks, Z. Wang, B. Muggenburg, C. Cotman and O. Nalcioglu.
University of California, Irvine, CA, USA and University of New Mexico and LRRI, Albuquerque, NM, USA.

MR Imaging of Head and Neck

971. **Role of MR Sialography in the Diagnosis and Staging of Sjogren's Syndrome: Comparison with Salivary Scintigraphy.**
H. Tonami, Y. Kuginuki, M. Matoba, H. Yokota, I. Yamamoto, Y. Ogawa and S. Sugai.
Kanazawa Medical University, Ishikawa, Japan.

972. **Functional Magnetic Resonance Imaging in Lacrimal Duct Disorders with Conjunctival Application of a Paramagnetic Contrast Agent.**
K.T. Hoffmann, N. Hosten, N. Anders, A. Lemke, T. Liebig, C. Stroszczynski and R. Felix.
Virchow-Klinikum, Berlin, Germany.

973. **Imaging the Human Eye *In Vivo* With Magnetization Transfer Contrast Enhancement.**
M.J. Lizak, M.B. Datiles, A.H. Aletras, P.F. Kador and R.S. Balaban.
National Institutes of Health, Bethesda, MD, USA.

974. **Histopathological-Radiological Correlation of Uveal Melanoma using MRI with a Surface Coil.**
A.J. Lemke, N. Hosten, T. Liebig, K.T. Hoffmann, C. Stroszczynski, M. Richter, N.E. Bechrakis and R. Felix.
Virchow-Klinikum and Benjamin-Franklin-Klinikum, Berlin, Germany.

975. **MR Imaging of the Inner Ear: Comparison of Native T_2-Weighted Axial Three-Dimensional Turbo Spin-Echo Images, Maximum Intensity Projections and 3-D Surface Reconstruction.**
G.A. Krombach, T. Schmitz-Rode, J. Tacke, A. Glowinski, C. Nolte-Ernsting and R.W. Gunther.
University of Technology (RWTH), Aachen, Germany.

976. **High Resolution Inner Ear Imaging with a Fast Recovery 3D Fast Spin Echo Sequence (FR-3DFSE).**
S. Kurucay, S.G. Tan and L.N. Tanenbaum.
GE Medical Systems, Waukesha, WI, USA and Seton Hall University, Edison, NJ, USA.

977. **High Resolution Heavily T_2-Weighted MR Imaging of the Inner Ear.**
M.G. Mack, M.C. Dahm, J.O. Balzer, O. Sollner, T. Diebold, R. Hammerstingl, R. Straub, K. Engelmann and T.J. Vogl.
University of Frankfurt, Frankfurt, Germany and Virchow Hospital, Berlin, Germany.

978. **Magnetic Resonance Imaging of the Cochlea, Spiral Ganglia and Eighth Nerve of the Guinea Pig.**
B. Bjelke, S.A. Counter, T. Klason, Z. Chen and E. Borg.
Harvard University Biological Laboratories, Cambridge, MA, USA; Karolinska Institute and Karolinska Hospital, Stockholm, Sweden and Orebro Hospital Medical Center, Orebro, Sweden.

979. ***In-vivo* Measurements of Trace Diffusion Coefficient in Normal Head and Neck – Tetrahedrally Encoded Diffusion Gradients with EPI.**
U. Sinha, S. Sinha, J. Chan and R. Lufkin.
University of California, Los Angeles, CA, USA.

980. **Turbo Inversion Recovery Imaging in the Diagnosis of Head and Neck Tumors.**
S.J. Diehl, M. Sadick, J. Gaa, R. Mockel, C. Mockel, W. Bergler and M. Georgi.
University of Heidelberg, Germany.

981. **MRI Findings in 34 Patients with Head (extra-cranial) and Neck Manifestations of Different Clinical Forms of Paracoccidioidomycosis (PCM).**
C.C. de Castro, G. Benard, Y. Ygaki, M.A. Shikanai-Yasuda and G.G. Cerri.
University of Sao Paulo Medical School, Sao Paulo, Brazil.

982. **MRI Findings in 12 Patients with Oral, Nasal and Pharyngeal Leishmaniasis.**
C.C. de Castro, G. Benard, G.G. Cerri and L.C. Cuce.
University of Sao Paulo Medical School, Sao Paulo, Brazil.

983. **Quantification of the Effects of the Oral Decongestant Pseudoephedrine by MRI and Posterior Rhinomanometry.**
G.P. Liney and L.W. Turnbull.
Hull Royal Infirmary, Hull, England.

984. **3D-CE MRA with High Temporal Resolution: A New Tool in the Diagnosis of Glomus Tumors.**
A.P. Krikke, A.M. van der Vliet, J.M. Hew, F.W. Albers, A. Vermey, R.A. Prinsze and R.F.E. Wolf.
University Hospital, Groningen, The Netherlands, and Siemens Netherlands.

MR Imaging of Spine

985. **Comparison of Three MR Sequences for the Detection of Cervical Cord Lesions in Patients with Multiple Sclerosis.**
M.A. Rocca, G. Mastronardo, M.A. Horsfield, C. Pereira, G. Iannucci, G. Comi and M. Filippi.
University of Milan, Italy and University of Leicester, UK.

986. **Magnetization Transfer Histograms of the Cervical Cord from Patients with Multiple Sclerosis.**
M. Bozzali, M.A. Rocca, C. Tortorella, C. Pereira, G. Comi and M. Filippi.
University of Milan, Italy.

987. **Quantitative Diffusion Imaging of Spinal Cord Lesions in Multiple Sclerosis.**
C.A. Clark, D.J. Werring and D.H. Miller.
Service Hospitalier Frederic Joliot, Orsay, France and University College London, UK.

988. Post-Mortem MR Appearance of Spinal Multiple Sclerosis at 4.7 T: Correlation with Histopathology.
J.C.J. Bot, W. Kamphorst, F. Barkhof, E. Bergers, G.J. Lyklama a Nijeholt, K. Nicolay and J.A. Castelijns.
Free University Hospital, Amsterdam, the Netherlands.

989. Temporal Changes in Pathology in Injured Spinal Cord Tissue: *InVivo* MRI Studies in Acute Phase.
P.A. Narayana, R. Abbe and M. Bilgen.
University of Texas-Houston Medical School. Houston, TX, USA.

990. Characterization of Diffusion Coefficients in a Rat Model of Spinal Cord Injury and Transplantation using MRI.
D. Hackney, B.C. Tryon, J.C. Ford, M. Murray and A. Tessler.
University of Pennsylvania Medical Center, Philadelphia, PA, USA and Allegheny University of the Health Sciences, Pittsburgh, PA, USA.

991. Multiexponential Diffusion Imaging of Normal and 1-Month Post-Injury Rat Spinal Cords.
E.L. Bossart, B.A. Inglis, E.D. Wirth III and T.H. Mareci.
University of Florida, Gainesville, FL, USA and the National High Magnetic Field Laboratory, Tallahassee, FL, USA.

992. MT Histogram Analysis of Experimental Spinal Cord Injury.
J.I. Berman, D.B. Hackney, J.C. Ford, E. Lavi, A.M. Ulrich and J.C. McGowan.
University of Pennsylvania, Philadelphia, PA, USA.

993. *In-Vivo* Diffusion Weighted Interleaved Echo Planar Imaging of the Human Spinal Cord.
R. Bammer, M. Augustin, J. Simbrunner, H. Kooijman, F. Ebner, R. Stollberger, H.P. Hartung and F. Fazekas.
University of Graz, Graz, Austria and Philips Medical Systems, Hamburg, Germany.

994. Evaluation of Syringomyelia with Three-dimensional Constructive Interference in Steady State (CISS) Sequences.
T. Hirai, Y. Korogi, T. Sugahara, Y. Shigematsu, M. Takahashi and Y. Ushio.
Kumamoto University School of Medicine, Kumamoto, Japan.

995. Spinal Arteriovenous Malformation or Fistulas: Evaluation with First-pass, Gadolinium-enhanced, Three-dimensional MR Angiography.
Y. Shigematsu, Y. Korogi, K. Yoshizumi, M. Kitajima, T. Sugahara, L. Liang and M. Takahashi.
Kumamoto University School of Medicine, Kumamoto, Japan.

996. Spinal MR Angiography using a Breath-Hold 3D Contrast-Enhanced Technique.
S.S. Kollias and A. Valavanis.
University of Zurich, Zurich, Switzerland.

997. Hereditary Motor-Sensory Neuropathies (HMSN) Type I-III: Correlations Between Lumbosacral MRI and Sural Nerve Biopsy.
M. Cellerini, S. Salti, V. Desideri, G.P. Marconi, M. Mascalchi, G. Pellicano and L. Capaccioli.
University of Florence, Florence, Italy.

998. The Impact of MRI on Clinical Decision Making in the Management of Patients with Low Back Pain.
F.J. Gilbert and S. Dawson.
University of Aberdeen, Aberdeen, Scotland, UK.

999. How Often is Low Back Pain or Sciatica Not Due to Lumbar Disc Disease?
W.G. Bradley, S.S. Nealon and H.S. Sabir.
Long Beach Memorial Medical Center, Long Beach, CA, USA.

1000. Annular Tears: The Clinical Significance of the High-Intensity Zone on Lumbar Spine MRI.
J.J. Rankine, K.P. Gill, C.E. Hutchinson, E.R.S. Ross and J.B. Williamson.
University of Manchester, Manchester, UK and Hope Hospital, Salford, UK.

1001. Morphometry of the Intervertebral Disc Anulus Fibrosus by Diffusion Tensor Microscopy and Histology.
E.W. Hsu, K.B. McGowan and L.A. Setton.
Duke University and Duke University Medical Center, Durham, NC, USA.

1002. High-Resolution Single-Slice MR Myelography: Comparison with X-Ray Myelography.
M. Dohke, Y. Watanabe, Y. Amoh, T. Ishimori, A. Okumura, K. Oda, T. Hayashi, A. Hiyama, T. Tabuchi and Y. Dodo.
Kurashiki Central Hospital, Kurashiki, Japan.

1003. MR Imaging of Lumbar Nerve Roots: Implication for Interventional Use.
M. Matsumoto, S.P. Souza, K.G. Vosburgh and A.L. Carl.
Albany Medical College, Albany, NY, USA and GE Corporate R&D, Schenectady, NY, USA.

Bioeffects and Safety

1004. Intolerable Heating by Resonating RF Waves around Guidewires.
M.K. Konings and C.J.G. Bakker.
University Hospital, Utrecht, The Netherlands.

1005. Evaluation of Magnetic Force and Torque on Pacemakers and Implantable Cardioverter-Defibrillators in a Magnetic Resonance Imaging Unit.
R. Luechinger, F. Duru, M.B. Scheidegger, R. Candinas and P. Boesiger.
University and ETH Zurich and University Hospital, Zurich, Switzerland.

1006. Safe Coaxial Cables.
E. Atalar.
Johns Hopkins University School of Medicine, Baltimore, MD, USA.

1007. MRI Safety Evaluation of Electrosurgical Instruments: Assessment of Magnetic Interactions, Artifacts, and Heating.
F.G. Shellock and A. Zwarun.
ITI Medical Technologies, Westbury, NY, USA.

1008. Mathematical Model of Gradient Sound Spectra from Gradient Control Signal.
B.D. Clymer and P. Schmalbrock.
The Ohio State University, Columbus, OH, USA.

1009. Artifact/Noise Suppression for Intramagnet Electrocardiogram Tracing.
N. Pizzi, M. Alexander, M. Ede, R. Summers, R. Deslauriers and R. Somorjai.
National Research Council Canada, Winnipeg, Canada.

1010. Evaluation of SAR using Surface Coils at 1.5T and 4.7T in ^{31}P MRS using 3D Finite Element Methods.
T. Prock, A.C. Woodward, D.J. Collins and M.O. Leach.
Institute of Cancer Research and Royal Marsden Hospital, Sutton, Surrey, UK.

1011. Local SAR and Surface Heating Issues in a ^{31}P MRS Clinical Trial using Adiabatic Pulses and Proton Decoupling with Surface Coils.
A.J. Schwarz, M. Rijpkema, D.J. Collins, G.S. Payne, A.C. Woodward, H. van den Boogert, A. Heerschap and M.O. Leach.
Institute of Cancer Research & Royal Marsden Hospital, Surrey, UK; University Hospital Nijmegen, The Netherlands and Fox Chase Cancer Center, Philadelphia, PA, USA.

1012. Modeling Frequency Dependence of SAR and Temperature Change in Tissue Due to a RF Decoupling Coil.
J.W. Hand, J.J.W. Lagendijk, J.V. Hajnal and R.W. Lau.
Hammersmith Hospital, London, UK and University of Utrecht, Utrecht, The Netherlands.

1013. *In Vitro* Evaluation of Teratogenic Effects by Time-varying MR-Gradient Fields on Fetal Human Fibroblasts.
E.A. Rodegerdts, E.F. Gronewaller, P. Roth, F. Schick, R. Kehlbach, R. Gebert, J. Wiskirchen, C.D. Claussen and S.H. Duda.
University of Tubingen, Germany.

1014. Specific Absorption Rate Study for Radio-Frequency Current Density Imaging.
K. Beravs, R. Frangez, U. Mikac and F. Demsar.
Institute "Jozef Stefan" and University of Ljubljana, Ljubljana, Slovenia.

1015. Safety of MRI-Guided Endovascular Guidewire Applications.
C-Y. Liu, K. Farahani, D.S.K. Lu and F. Shellock.
University of California, Los Angeles, CA, USA and University of Southern California, Los Angeles, CA, USA.

Musculoskeletal MR Imaging

1016. T_1- T_2 Comparison in Adult Articular Cartilage.
B.J. Dardzinski, V.J. Schmithorst, T.J. Mosher and M.B. Smith.
Children's Hospital Medical Center and University of Cincinnati College of Medicine, Cincinnati, OH, USA and The Pennsylvania State University, Hershey, PA, USA.

1017. T_2 Measurements in Adult Patellar Cartilage at 1.5 and 3.0 Tesla.
L.A. Klosterman, V.J. Schmithorst, S. Tan and B.J. Dardzinski.
Children's Hospital Medical Center and University of Cincinnati College of Medicine, Cincinnati, OH, USA and GE Medical Systems, Milwaukee, WI, USA.

1018. Entropy Mapping of Articular Cartilage.
B.J. Dardzinski, V.J. Schmithorst and T.J. Mosher.
Children's Hospital Medical Center and University of Cincinnati College of Medicine, Cincinnati, OH, USA and The Pennsylvania State University, Hershey, PA, USA.

1019. T_1, T_2 and Cross-Relaxation in Articular Cartilage: Characterization of Proteoglycan Depletion.
P.J. Lattanzio, A.Z. Damyanovich, K.W. Marshall and H. Peemoeller.
University of Toronto, Toronto, Ontario, Canada.

1020. Measurement of Distribution of Water Content of Human Articular Cartilage Based on Transverse Relaxation Times: an *In vitro* Study.
S. Lusse, H. Claassen, T. Gehrke, M. Heller and C.C. Gluer.
CAU, Kiel, Germany.

1021. Age-Dependence of Magnetization Transfer in Knee Muscle and Cartilage.
N.P. Davies, A. Bainbridge, C. Hoad, W. Vennart, P.M. Collier and I.R. Summers.
University of Exeter, Exeter, UK.

1022. Articular Cartilage Sodium Content as a Function of Compression.
J.H. Kaufman, R.R. Reddy, J.B. Kneeland, J.S. Leigh and R. Reddy.
University of Pennsylvania, Philadelphia, PA, USA.

1023. Sodium and Proton MR Properties of Cartilage during Compression.
R.R. Regatte, J.H. Kaufman, J.B. Kneeland, J.S. Leigh and R. Reddy.
University of Pennsylvania, Philadelphia, PA, USA.

1024. Watershed Segmentation of High Resolution Articular Cartilage Image.
S. Ghosh, D.C. Newitt and S. Majumdar.
University of California, San Francisco, CA, USA.

1025. Modeling of Articular Cartilage Structure from MR Image Intensity Data.
J.F. Dunn, H. Zhu and D.W. Goodwin.
Dartmouth Hitchcock Medical Center, Hanover, NH, USA.

1026. Heterogeneity of Articular Surfaces as Determined using MR Microscopy.
D.W. Goodwin, H. Zhu and J.F. Dunn.
Dartmouth Hitchcock Medical Center, Hanover, NH, USA.

1027. Disruption of Striated Pattern in the Radial Layer on MR Images Reflects Focal Cartilage Damage.
D.W. Goodwin, H. Zhu, Y. Zaim-Wadghiri, C.J. Vinton, E.D. Smith and J.F. Dunn.
Dartmouth Hitchcock Medical Center, Hanover, NH, USA; New York University Medical Center, New York, NY, USA and University of California, San Diego, CA, USA.

1028. Benefits of Articular Cartilage Imaging at 4 Tesla: An *In Vivo* Study of Normal Volunteers.
D.W. Holdsworth, J.S. Gati, K. Saidi, R.S. Menon, B.K. Rutt, L. Thain, A. Spouge and A. Kirkley.
University of Western Ontario and John P. Robarts Research Institute, London, ON, Canada.

1029. Evaluation of Patellar Cartilage with Axial IR-FSE.
J.S. Suh, J.M. Cho, S-J. Kim and S.H. Kim.
Yonsei University College of Medicine, Seoul, Korea.

1030. Three-Dimensional Evaluation of the Acetabular and Femoral Articular Cartilage in the Osteoarthritis of Hip Joint. MR Imaging in Two Dimensional Planes.
T. Nishii, N. Sugano, K. Nakanishi, H. Tanaka, T. Sakai, K. Haraguchi, K. Ohzono and T. Ochi.
Osaka University Medical School, Suita, Osaka, Japan.

1031. Chondromalacia of the Knee: Sagittal, Gd-Enhancement, Fat Suppression 3D SPGR Imaging.
S-J. Kim, J-S. Suh and J-M. Cho.
Yonsei University College of Medicine, Seoul, Korea.

1032. One-Year Longitudinal Study of Femoral Cartilage Lesions in Knee Arthritis.
S.J. Gandy, M.C. Keen, J.E. Foster, P.A. Dieppe, I. Watt, J.C. Waterton and R.A. Maciewicz.
United Bristol Healthcare Trust and University of Bristol, Bristol, UK and Zeneca Pharmaceuticals, Macclesfield, UK.

1033. The FSE Cusp Artifact: A Phase Wrap-In Artifact Seen on Routine Clinical MR Images of the Knee.
J.K. Kim, L.M. White, R.S. Hinks and K.F. King.
Sunnybrook and Women's College Health Science Centre, University of Toronto and Mount Sinai Hospital, Toronto, ON, Canada and General Electric Medical Systems, Milwaukee, WI, USA.

1034. MR Sensitivity and Specificity for Composite Knee Injury versus Sensitivity and Specificity for Individual Structures.
P.W.J. Vincken, B.P.M. ter Braak, A.R. van Erkel, T. de Rooy, I. Lim A Po and J.L. Bloem.
Leiden University Medical Center, Leiden, The Netherlands and Westeinde Hospital and Leyenburg Hospital, The Hague, The Netherlands.

1035. Developmental Dysplasia of the Hip: Closed Reduction Using a Vertically Open Interactive MR Unit.
P. Lang, J.E. Vandevenne, T. Lincoln, L. Rinsky, K.R. Butts, G. Nicpon and G. Bergman.
Stanford University, Stanford, CA, USA.

1036. Clinical Experiences with a Combined Contrast Agent for Both MR- and RX/CT- Arthrography of the Shoulder in 220 Patients.
K.E. Leupi-Skibinski, K.U. Wentz, J. Froehlich, C.A. von Weymarn, F. Seeber and C. Zollikofer.
Kantonsspital, Winterthur, Switzerland.

1037. Sequence- and Gadolinium Concentration Dependent Profile of Signal Enhancement in MR Arthrography.
J.M. Froehlich, C.A. von Weymarn, K.E. Leupi-Skibinski, F. Seeber, C.L. Zollikofer and K.U. Wentz.
Kantonsspital, Winterthur, Switzerland and Guerbet AG, Zurich, Switzerland.

1038. Role of Diffusion-Weighted MRI and ^{31}P-MRS in Differentiating Between Malignant and Benign Vertebral Compression Fractures.
M. Matoba, H. Tonami, H. Yokota, Y. Kuginuki and I. Yamamoto.
Kanazawa Medical University, Ishikawa, Japan.

1039. Magnetic Resonance Bone Marrow Scanning Using Diffusion-Weighted Echo Planar Imaging.
D. Ballon, L.H. Schwartz, E. Lis, J. Dyke, E. Schneider and A.A. Jakubowski.
Memorial Sloan-Kettering Cancer Center, New York, NY, USA and Pfizer, Inc., Groton, CT, USA.

1040. Quantitative Dynamic MR Imaging in Hematological Disorders.
H. Hawighorst, T.M. Moehler, H. Schlemmer, H.G. Goldschmidt and G. van Kaick.
German Cancer Research Center and University of Heidelberg, Heidelberg, Germany.

1041. Effect of Stimulated Hematopoiesis on Red Bone Marrow Signal in Magnetic Resonance Imaging after Short-Term Application of Granulocyte-Colony Stimulating Factor in Healthy Blood Stem Cell Donors at Low Field Strength.
C. Altehoefer, N. Ghanem, H. Bertz and M. Langer.
University Hospital, Freiburg, Germany.

1042. MR Imaging of Subchondral Osteonecrosis of the Vertebral Body after Percutaneous Laser Diskectomy.
H. Tonami, Y. Kuginuki, M. Matoba, H. Yokota, I. Yamamoto and Y. Nishijima.
Kanazawa Medical University, Ishikawa, Japan.

1043. T_1-W Intensity Ratio of Vertebra and Disc (V/D Ratio) in Bone Marrow Evaluation: Preliminary Results in Normal Bone Marrow.
M. Maas, E.J.P. Vlieger, E.M. Akkerman, C.E.M. Hollak, G.J. den Heeten and J.M.F.G. Aerts.
University of Amsterdam, Amsterdam, the Netherlands.

1044. *In vivo* Assessment of Trabecular Bone Changes Induced by Prednisolone in Rat Tibia Using High Resolution MRI.
Y. Luo, M. Nuss, S. Majumdar, D. Wilcox, P. Nguyen, B. Lane, C. Wegner and P. Jacobson.
Abbott Laboratories, Abbott Park, IL, USA.

1045. Osteodensitometry of Peripheral Bone Marrow by MR Gradient-Echo Imaging Applying Different Spatial Resolutions.
J. Machann, F. Schick, P. Schnatterbeck, O. Lutz and C.D. Claussen.
Eberhard-Karls-Universitat, Tubingen, Germany.

1046. Correction for Receiver Coil Inhomogeneity Profiles for Quantitative Analysis of Trabecular Bone Structure from High Resolution MRI.
D.C. Newitt and S. Majumdar.
University of California, San Francisco, CA, USA.

1047. Trabecular Micro-Architecture in the Knee Joint.
O. Beuf, D.C. Newitt and S. Majumdar.
University of California, San Francisco, CA, USA.

1048. Histomorphometry of the Avian Growth Plate by NMR Microscopy.
K. Potter, W.J. Landis and R.G.S. Spencer.
National Institute on Aging, Baltimore, MD, USA and Northeastern Ohio Universities College of Medicine, Rootstown, OH, USA.

1049. Water Proton Relaxation by the Collagen and Mineral Components of Bovine Bone.
M. Spiller, M.S. Tenner, M.J. Glimcher and S.H. Koenig.
NY Medical College, Valhalla, NY, USA; Harvard Medical School, Boston, MA, USA and Relaxometry, Inc., Mahopac, NY, USA.

1050. High Resolution MRI-Histological Correlation of a TNF[alpha]-Transgenic Mouse Knee: Evaluation with a Clinical Scanner and a Self-Made RF Coil.
G.S. Seo, E.M. Schwarz, E.W. Kwok, S.J. Rubin and S.M.S. Totterman.
University of Rochester, Rochester, NY, USA.

1051. Determination of Skeletal Muscle Perfusion with High Temporal and Spatial Resolution Using Arterial Spin Labeling and Single-Shot Fast Spin Echo Imaging.
P.G. Carlier, J.S. Raynaud, R.J. Gilles, A. Leroy-Willig and P. Le Roux.
SHFJ-DRM, Orsay, France; Pitie-Salpetriere, Paris, France and GE Medical Systems, Buc, France.

1052. Dynamic *in vivo* Measurement of Diffusion and Pseudodiffusion in Skeletal Muscle after an Exercise.
L. Ahvenjarvi, J. Jauhiainen, O. Tervonen, R. Blanco and J. Oikarinen.
Oulu University Hospital, Oulu, Finland.

1053. *In-Vivo* Measurements of the Diffusion Tensor in Muscle: Tetrahedrally Encdoed Diffusion Gradients with Echo Planar Acquisition.
U. Sinha, S. Sinha and L. Yao.
University of California, Los Angeles, CA, USA.

1054. Temperature Distribution Changes in Low Back Muscles during Applied Topical Heat: A Magnetic Resonance Thermometry Study.
R.V. Mulkern, N. McDannold, K. Hynynen, J. Fielding, L. Panych, F.A. Jolesz and K. Weingand.
Children's Hospital and Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA and Procter and Gamble Company, Cincinnati, OH, USA.

1055. ^{1}H Double Quantum Filtered MRI as a New Tool for the Assessment of Healing of Ruptured Achilles Tendon.
Y. Seo, K. Ikoma, H. Takamiya, Y. Kusaka, L. Tsoref, U. Eliav, H. Shinar and G. Navon.
Kyoto Prefectural University of Medicine, Kyoto, Japan and Tel Aviv University, Tel Aviv, Israel.

1056. Unsupervised Statistical Segmentation of Multispectral Volumetric MR Images.
J. Tamez-Pena, S. Totterman, E. Kwok, G.S. Seo and K. Parker.
University of Rochester, Rochester, NY, USA.

1057. Fat Selective Imaging of Human Musculature using Spectral-Spatial Excitation and Low Receiver Bandwidth: Visualization of the Muscular Fat Distribution.
F. Schick, J. Machann, K. Brechtel, S. Jacob, J. Forster, A. Strempfer, D.T. Stein and C.D. Claussen.
University of Texas Southwestern Medical Center, Dallas, TX, USA.

1058. The Natural History of in Vivo Vaso-Occlusion in Sickle Cell Patients: Use of Oxygen as a Contrast Reagent to Detect Deoxyhemoglobin.
M.E. Fabry, A. Kassim, H. Umans, J. Hrabe and R.L. Nagel.
Albert Einstein College of Medicine, Bronx, NY, USA.

1059. Magnetic Resonance Imaging of Denervation-Induced Muscle Atrophy and the Effects of Clenbuterol in the Rat.
M.D. Cockman, M.B. Jones, M.C. Prenger and R.J. Sheldon.
Procter & Gamble Pharmaceuticals, Mason, OH, USA.

1060. T_2 Changes in Stimulated Rat Hindlimb Muscle Depend on Osmolite Production.
B.M. Prior, L.L. Ploutz-Snyder, T.G. Cooper and R.A. Meyer.
Michigan State University, East Lansing, MI, USA.

MR Imaging of the Chest

1061. Quantitative Analysis of the Chest Wall Configuration using MRI.
T. Iwasawa, S. Kagei, T. Gotoh, Y. Yoshiike, K. Hiroaki, M. Kawamoto and S. Matsubara.
Kanagawa Cardiovascular & Respiratory Center; Yokohama National University Faculty of Engineering, and Yokohama City University School of Medicine, Yokohama, Japan.

1062. Detection of Regional Perfusion Deficit in a Pulmonary Embolism Animal Model Using Flow-Sensitive Alternating Inversion Recovery with an Extra Radiofrequency Pulse (FAIRER).
V.M. Mai, K.D. Hagspiel, T. Altes, A.R. Goode, M.B. Williams and S.S. Berr.
University of Virginia Health Sciences Center, Charlottesville, VA, USA.

1063. Arterial Spin-Tagging Imaging of Pulmonary Perfusion in Patients with COPD: Comparison with Radionuclide Methods.
D.A. Roberts, D. Lipson, R.R. Rizi, A. Alavi, W. Gefter, H. Palevsky, J. Hansen-Flaschen and M.D. Schnall.
University of Pennsylvania Medical Center, Philadelphia, PA, USA.

1064. Varied Appearances and Potential Pitfalls of MR Pulmonary Perfusion Imaging.
Y. Kurihara, T. Takahara, M. Ohbuchi, H. Niimi, H. Arakawa, Y. Nakajima and T. Ishikawa.
St. Marianna University, Kawasaki City, Kanagawa, Japan and Showa University Fuzigaoka Hospitals, Yokohama City, Kanagawa, Japan.

1065. MR Pulmonary Perfusion Imaging in Normal and Lung Cancer Cases: Preliminary Results.
J. Miao, Y. Yang, W. Cai, X. Jing, Y. Tao, Y. Hu, J. Li and X. Ma.
Shanghai First People's Hospital, Shanghai, China.

1066. Pulmonary Oedema Caused by the Actinoporin Equinatoxin II Isolated from Sea Anemone *Actinia equina (L.)* is well Presented by MRI and ^{99m}Tc-EDTA Scintigraphy.
M. Bunc, R. Frangez and D. Suput.
School of Medicine and Veterinary Faculty, Ljubljana, Slovenia.

1067. Visualization of Interstitial Lung Disease by MRI.
P.S. Morgan, A.R. Moody, A.L. Martel and I.D. Johnston.
Queen's Medical Centre, Nottingham, England.

1068. High-Resolution Dynamic Contrast-Enhanced MR Imaging of Small Solitary Pulmonary Nodules.
Y. Watanabe, M. Dohke, A. Hiyama, A. Okumura, Y. Amoh, T. Ishimori, K. Oda, T. Hayashi and Y. Dodo.
Kurashiki Central Hospital, Kurashiki, Japan.

1069. The ECG Triggered 3D-Contrast Enhanced MR Angiography: Utility for Preoperative Examination of Bronchogenic Carcinoma.
Y. Ohno, K. Sugimura, S. Adachi, T. Yoshikawa, A. Motoyama, E. Itouji and K. Yamasaki.
University of Kobe, Kobe, Japan.

1070. MR Lymphangiography of the Thoracic Duct using 3D Half-Fourier FSE.
M. Miyazaki and S. Hayashi.
Toshiba Medical Engineering Center, Tochigi, Japan and Toho University, Tokyo, Japan.

1071. Simultaneous Observations of Hemolymph Flow and Ventilation in Marine Spider Crabs at Different Temperatures with Flow Weighted MRI.
C. Bock, M. Frederich and H.O. Portner.
Alfred-Wegener-Institute for Polar and Marine Research, Bremerhaven, Germany.

MR Imaging of Breast

1072. Quality Assurance in the UK Multi-Centre Study of MRI Screening for Breast Cancer.
C. Hayes, G. Liney and M.O. Leach.
Institute of Cancer Research and Royal Marsden NHS Trust, Sutton, UK and Hull Royal Infirmary, Hull, UK.

1073. A Multi-Reader Study of the Diagnostic Value of Architectural Features for Contrast-Enhanced Breast MRI.
S.A. Englander, R. Charafeddine, S.G. Orel and M.D. Schnall.
Hospital of the University of Pennsylvania, Philadelphia, PA, USA.

1074. MR Mammography of the Breast Cancer: Evaluation of the Intraductal Spread of the Tumor.
S. Kobayashi, T. Masui, M. Katayama, K. Yoshihara, T. Ito, M. Kanzaki and H. Kobayashi.
Seirei Hamamatsu General Hospital, Hamamatsu, Shizuoka, Japan.

1075. Spoiled Gradient-Recalled Echo MR Imaging with Bookend T_1 Measurements for Determination of Gd-DTPA Extraction-Flow Product and Tissue Cell Fraction of Breast Lesions.
G.O. Cron, G.E. Santyr and F. Kelcz.
University of Wisconsin, Madison, WI, USA and Carleton University, Ottawa, ON, Canada.

1076. Quantification of Relative Blood Volume and Endothelium Permeability of Breast Neoplasm Using Dynamic MR Imaging.
X. Zhu, J.M. Hawnaur, J. Stringfellow, K. Li, Y. Watson, C.R.M. Boggis and A. Jackson.
University of Manchester and South Manchester University Hospitals Trust, Manchester, UK.

1077. Evaluation of Ring-Like Enhanced Breast Masses: Comparison of Pharmacokinetic Analysis on Dynamic MR Imaging with Proliferative Activity and Tumor Angiogenesis.
O. Ikeda, Y. Yamashita, S. Morishita, K. Okamura, S. Fukuda and M. Takahashi.
Kumamoto Rousai Hospital and Kumamoto University School of Medicine, Kumamoto, Japan.

1078. Quantitative Evaluation of Breast Masses Using a Compartment Model Analysis on Dynamic MR Imaging: Comparison with Histopathologic Findings.
O. Ikeda, Y. Yamashita, S. Morishita, K. Okamura, S. Fukuda and M. Takahashi.
Kumamoto Rousai Hospital and Kumamoto University School of Medicine, Kumamoto, Japan.

1079. Dynamic Contrast Enhanced MRI Following Equivocal Breast Cytology: Using Neural Networks and Logistic Regression to Maximise Diagnostic Efficacy.
D.J. Manton, A.M. Coady, A.J. Knowles and L.W. Turnbull.
University of Hull, Hull Royal Infirmary, Hull, UK.

1080. Analysis of Contrast Agent Uptake in MR-Mammography by Unsupervised Neural Networks.
T. Beier, W.G. Schreiber, T. Vomweg, A. Teifke, A. Hlawatsch, K.R. Heitmann, S. Schadmand-Fischer and M. Thelen.
Johannes Gutenberg-University, Mainz, Germany.

1081. Assessing Dynamic Contrast Enhanced MRI as a Method of Measuring the Effect of Hyperbaric Oxygen on Breast Cancer.
F.J. Gilbert, J.A. Brookes, R.T. Staff, T.W. Redpath, A.D. Murray, J.A.S. Ross, I.C. Smith, I. Miller, O. Eremin, A. Hutcheon and S.D. Heys.
University of Aberdeen, Scotland, UK and Universite Victor Segalen, Bordeaux, France.

1082. A Double Half-Fourier Technique for Dynamic 3D Contrast-Enhanced MR Mammography of Both Breasts.
W.H. Perman and E.V. Heiberg.
Saint Louis University School of Medicine, St. Louis, MO, USA.

1083. Segmentation of the Breasts in MR-Mammography.
H. Fischer, S. Egenter and J. Hennig.
University of Freiburg, Germany.

1084. A Finite Element Model of the Breast for Predicting Mechanical Deformations during Interventional Procedures.
F.S. Azar, D. Metaxas and M.D. Schnall.
University of Pennsylvania Medical Center, Philadelphia, PA, USA.

1085. Coregistration of MRI and Optical Tomography for Increasing Breast Cancer Specificity.
V. Ntziachristos, M.D. Schnall, S.G. Orel, A.G. Yodh and B. Chance.
University of Pennsylvania, Philadelphia, PA, USA.

1086. Utility of MR to Monitor Breast Malignancy Response to Neoadjuvant Chermotherapy.
T. Button, B. Kandel, A. Porcari, R. Hazel, H. Li, W. Huang, S. Russo, B. O'Hea, S. Sugarmann, J. Chumas and C. Geronimo.
State University of New York, Stony Brook, NY, USA.

1087. Dynamic Gadopentetate Dimeglumine Enhanced Magnetic Resonance Imaging of the Axilla in Women with Breast Cancer: Comparison with Pathology of Excised Nodes.
A.D. Murray, R. Staff, T.W. Redpath, F.J. Gilbert, J.A. Brookes, H.G. Gemmel, A.K. Ah-See, O. Eremin, S.D. Heys, J. Jibril and D. Miller.
University of Aberdeen, Aberdeen, UK.

1088. *In-vivo* Quantitative Hydrolipidic Maps of Adipose Tissue by Chemical Shift Imaging at 4.7 Tesla.
M. Villa, E. Lunati, P. Marzola, E. Nicolato and A. Sbarbati.
University of Pavia, Pavia, Italy and University of Verona, Verona, Italy.

1089. Lactate Observation in the Abundance of Lipid on Whole Body 2.1 T Scanner.
P. Shkarin and Q. He.
University of Connecticut, Storrs, CT, USA.

1090. Monitoring of Therapeutic Response of Breast Cancer by Volume Localized *In-vivo* Magnetic Resonance Spectroscopy.
M. Kumar, O. Coshic, G.K. Rath, P.K. Julka and N.R. Jagannathan.
All India Institute of Medical Sciences, New Delhi, India.

Applications of MR to Fetal and Neonatal Imaging

1091. Diffusion Weighted MRI to Assess Cerebral White Matter Injury in Very Low Birth Weight Infants.
B.P. Murphy, G.P. Zientara, P.S. Huppi, S.E. Maier, P.D. Barnes, F.A. Jolesz and J.J. Volpe.
Harvard Medical School and Brigham and Women's Hospital, Boston, MA, USA; University of Geneva, Geneva, Switzerland and Children's Hospital, Boston, MA, USA.

1092. Measurement of Fetal Liver T_2* *in Utero* Before and After Maternal Oxygen Breathing - Progress Toward a Non-Invasive Measurement of Fetal Oxygenation.
T.W. Redpath, P. Haggarty, D.R. Abramovich, J.A.S. Ross, S.I.K. Semple, F. Wallis, M. Gazvani, M.A. Foster and F.J. Gilbert.
University of Aberdeen and Rowett Research Institute, Aberdeen, Scotland.

1093. The Role of MR VCUG in the Diagnosis of Vesicoureteral Reflux: Comparative Study with Fluoroscopic VCUG.
S.K. Lee, Y. Chang, J.H. Koo, C.W. Ko, S.K. Chung, Y.J. Kim and D.S. Kang.
Kyungpook National University Hospital, Taegu, Korea.

1094. Revisit of MRI and Clinical Spectrum of Rhabdomyosarcoma in Children.
E.E. Kim, R.F. Valenzuela, A.G. Kumar, F. Eftekari and E.B. Raney.
The University of Texas M.D. Anderson Cancer Center, Houston, TX, USA.

1095. Improved Fat Suppression Using a Fast Three-Point Dixon Method for Imaging of the Pediatric Musculoskeletal System.
T. Chung, J.R. Reid, D. Jaramillo, R.V. Mulkern and J. Ma.
Children's Hospital, Boston, MA, USA and General Electric Medical Systems, Milwaukee, WI, USA.

1096. Magnetic Resonance Imaging in the Pre-Term Neonate using a 0.2 Tesla Dedicated MR Scanner: Comparison with Ultrasound.
E.H. Whitby, M.N.J. Paley, M.F. Smith, K. Teasdale, G. Darwent and P.D. Griffiths.
Royal Hallamshire Hospital and Jessop Hospital, Sheffield, England.

1097. Phase Sensitive Inversion Recovery Magnetic Resonance Imaging of the Pediatric Brain.
H-S. Hong, R.V. Mulkern, J.F. Ma, R.L. Robertson, C.D. Robson and P.D. Barnes.
Children's Hospital, Harvard Medical School, Boston, MA, USA; Soonchunyang University Hospital, Seoul, Korea and General Electric Medical Systems, Milwaukee, WI, USA.

1098. Mirroring of Visually Induced fMRI Signal Time Course in the Visual Cortex of Younger and Elder Infants.
S. Muramoto, H. Yamada, N. Sadato, Y. Konishi, K. Kimura, Y. Yonekura and Y. Ishii.
Fukui Medical School, Fukui, Japan.

1099. Diffusion Tensor MRI of the Human Cervical Spinal Cord *in vivo* in Preterm Newborns.
G.P. Zientara, B.P. Murphy, S.E. Maier, P.S. Huppi, P.D. Barnes, J.J. Volpe and F.A. Jolesz.
Brigham and Women's Hospital and Harvard Medical School, Boston, MA, USA; University of Geneva, Geneva, Switzerland and Children's Hospital, Boston, MA, USA.

1100. Cerebral Vein Thrombosis and Late Onset Intraventricular Haemorrhage: An Insight on the Potential of MRI in Diagnosis and Speculation on the Pathogenesis of a Rare Neonatal Brain Disease.
L.A. Ramenghi, S.F. Tanner, B. Gill, D. Jayasinghe, D. Martinez, R. Arthur, J. Ridgway and M.I. Levene.
University of Leeds, Leeds, UK.

MR Imaging of Pelvis

1101. Magnetic Resonance Imaging of Prostate Cancer: Pelvic Phased-Array Coils Versus Integrated Endorectal Pelvic Phased-Array Coils.
M. Engelbrecht, J. Barentsz, G. Jager, H. Van den Boogert and J. De la Rosette.
University Hospital, Nijmegen, The Netherlands.

1102. Comparison of Normal and Cancerous Prostate Using Dynamic T_1 and T_2* Weighted MRI.
M.D. Noseworthy, G. Morton and G.A. Wright.
University of Toronto, Toronto, Ontario, Canada.

1103. Echo-Planar Diffusion-Weighted MR Imaging of the Prostate.
J. Scheidler, R. Petsch, U. Mueller-Lisse, A.F. Heuck and M. Reiser.
Ludwig-Maximilians-University, Munich, Germany and Siemens, Erlangen, Germany.

1104. Prostatic Carcinoma: Detection with Magnetization Transfer MR Images.
S. Kobayashi, K. Takeda, H. Sakuma, H. Kubo and J. Kawamura.
Mie University School of Medicine, Tsu, Mie, Japan.

1105. Grading of Prostate Carcinoma by Contrast-Enhanced MR.
B. Pfleiderer, M. Stanka, B. Renger, H.J. Terpe, E. Eltze, W. Bocker, K. Ludwig, P. Reimer, M. Waldner, A. Semjonow and W.L. Heindel.
University of Munster, Germany.

1106. MRI as a Screening Examination for Prostate Cancer in High Risk Patients.
R.P. Kedar, R. Kier, N. Viner, K.I. Patel and O.G. Choy.
Bridgeport Hospital, Bridgeport, CT, USA.

1107. MRI-Based Volume Measurement of the Periurethral Zone of the Prostate: Correlation with Bladder Wall Thickness and Obstructive Symptoms.
J.R. Fielding, A. Schreyer, C.M. Tempany, A.V. D'Amico, S. Kumar, K. Juliano, K. Zou and R. Kikinis.
Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA.

1108. MR Pulse Sequences for Accurate Localisation of Seeds and Prostate Contour in Post-Implant Brachytherapy Dosimetry.
R. Poulin, A-G. Martin, M. Dufour, G. Bouchard, R. Taschereau, L.M. Girouard, J. Pouliot and C. Moisan.
Centre Hospitalier Universitaire de Quebec, Quebec City, Canada.

1109. Dynamic Contrast Enhanced MRI Fails to Differentiate Malignant from Benign Lesions in Recurrent Colorectal Adenocarcinoma.
M. Lowry, J. Monson, S. Ward and L. Turnbull.
University of Hull, Kinston-upon-Hull, UK.

1110. MR Staging of Endometrial Carcinoma: Value of Contrast Enhanced Sequences.
L. Wang, C. Reinhold, J. Arseneau, L. Liang, A. Mehio, M. Atri, F. Tafazoli and J. Stanimir.
Montreal General Hospital, Montreal, Quebec, Canada.

1111. Detection of Lymph Node Metastases in Gynaecological Cancers: A Comparison of MRI, CT and PET with Histology.
A.D. Williams, T. Krausz, C. Cousins, M. Peters, W.P. Soutter, A. McIndoe and N.M. de Souza.
Imperial College School of Medicine, Hammersmith Hospital, London, UK.

1112. Evaluation of Cystic Ovarian Lesions in SSFP Diffusion Imaging.
Y. Kaji, K. Sugimura, M. Matsuo, M. Matsuki, T. Ueda, A. Tsuji, K. Iwaya, K. Tauchi and M. Yoshida.
Tenri Hospital, Tenri, Japan and Kobe University School of Medicine, Kobe, Japan.

1113. Spin Lock and Magnetisation Transfer Imaging in the Characterization of Adnexal Masses.
T.A. Tukeva, A.T. Markkola, P.T. Karjalainen, A. Leminen, P. Lehtovirta, S. Martinkauppi, T. Paavonen, J. Paavonen and H.J. Aronen.
University Central Hospital, Helsinki, Finland.

1114. The Ovarian Follicular Antrum: Magnetic Resonance Image Attributes at Specific Phases of Development and Regression - An *In Vitro* Model Study.
J.L. Hilton, G.E. Sarty, G.P. Adams and R.A. Pierson.
University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

1115. Vascular Remodeling in the Preovulatory Rat Ovary Assessed by Functional MRI.
C. Tempel, R. Abramovitch, H. Dafni, E. Samouha and M. Neeman.
Weizmann Institute of Science, Rehovot, Israel.

1116. Ancient Schwannoma of the Female Pelvis Simulating Ovarian Neoplasm: MR Imaging Characteristics and Points of Differential Diagnosis.
K. Matsuzaki, H. Uehara, S. Yoshida and H. Nishitani.
University of Tokushima, Tokushima, Japan.

1117. Ultrafast, Intrauterine MR Imaging of Fetal Malformation.
R.A. Kubik-Huch, J. Wisser, B. Marincek and T.A.G.M. Huisman.
Zurich University Hospital, Zurich, Switzerland.

1118. 3D Imaging of the Uterine Cavity and Observation of Myometrical Interaction with Paramagnetic Contrast Agents.
R.A.O. Maher, P. Foster, A. Van Tulleken, C. Westbrook, T. Bowles, D. Dobson, S.R. Watt-Smith, S. Kennedy and S.J. Golding.
University of Oxford, UK.

1119. Uterine Arterial Embolization for Leiomyomas: Monitoring of Immediate and Late Perfusion Changes with MRI.
N.M. deSouza, A.D. Williams, D.J. Larkman and J.E. Jackson.
Hammersmith Hospital, London, UK.

1120. Dynamic Multi-Position MRI of Pelvic Floor Anatomy in Normal Volunteers.
A.J. Yun, B.L. Daniel, B. Chen and T. Efird.
Stanford University, Stanford, CA, USA.

1121. Alterations in Vaginal Blood Flow Following Topical Application of Lyophilized Liposomal PGE1 Compound as Measured by Dynamic MRI.
M-Y. Su, D.M. See, J.R. See and O. Nalcioglu.
University of California, Irvine, CA, USA and BioSphere Technologies, Inc., Reno, NV, USA.

Renal MR Imaging

1122. Combined Usage of Excretory MR Urography using 2 ml Gd-DTPA and MR Urography using SSFSE Technique in the Assessment of Urinary Tract Disorders.
M. Obuchi, T. Takahara, Y. Kurihara, M. Takahashi, M. Honda, K. Takizawa, T. Hayashi, K. Doai, S. Matsuoka and Y. Kuniyasu.
Showa University Fujigaoka Hospital, St. Marianna University School of Medicine and Yokohama Sakae Kyosai Hospital, Kanagawa, Japan.

1123. Low-dose Gd-DTPA Dynamic Studies in the Differential Diagnosis of Renal Masses: Initial Experience.
K. Szopinski, M. Szopinska, A. Borowka, W. Jakubowski, A. Antoniewicz and S.G. Kata.
II Medical Faculty and Central Railway Hospital, Warsaw, Poland.

1124. MRI Assessment of Kidney Function by Measuring the Clearance of the Contrast Agent Gd(DOTA).
M. Rudin and D. Baumann.
Novartis Pharma Ltd, Basel, Switzerland.

1125. Non-invasive Imaging of the Kidney Using Flow-sensitive Alternating Inversion Recovery (FAIR).
S. Kiryu, I. Shirouzu, M. Noda, K. Morinaga, T. Machida, Y. Okada, M. Akahane, M. Minami and K. Ohtomo.
Kantoh-teishin Hospital and University of Tokyo, Tokyo, Japan.

1126. MR Urography of Lower Urinary Tracts: Value of a 3D Ultrafast T_2-Weighted Sequence.
K. Ohgi, K. Satoh, H. Yokote, T. Higami, K. Kobori, T. Furukawa, H. Akiyama, S. Kimuma, K. Uehara, K. Murata, M. Higashi, K. Gotoh and Y. Yamashita.
Japanese Red-Cross Medical Center, Tokyo, Japan; Kasukabe-Shuwa Hospital, Saitama, Japan; Kitazato-Institute Hospital, Tokyo, Japan and Toshiba Medical Inc., Japan.

1127. Analysis of a Chronic Renal Allograft Rejection Model in the Rat: A Comparative Study Between Ultrasonography, MRI and Histology.
N. Beckmann, L. Gaschen, K. Bruttel, M. Tanner and H.J. Schuurman.
Novartis Pharma Inc., Basel, Switzerland.

1128. Effect of 100% O_2 Breathing on Intrarenal Oxygenation as Evaluated by BOLD MRI.
A. Priatna, F.H. Epstein and P.V. Prasad.
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

1129. *In-Vivo* Imaging of Mouse Kidneys After Surgical Obstruction Utilizing ^{1}H Magnetization Transfer Contrast.
A. Kolandaivelu, H. Pohl and R.S. Balaban.
National Institutes of Health, Bethesda, MD, USA.

Abdominal MR Imaging

1130. ***In Vivo* MR Studies of Acute and Chronic Fatty Liver.**
J-W. Chai, J-H. Chen, Y-C. Lin, C-C. Wu and C-P. Lee.
Taichung Veterans General Hospital, National Yang-Ming University, China Medical College Hospital and National Chung-Hsing University, Taiwan.

1131. ***In Vivo* Measurements of T_2 Relaxation Times in Rat Liver Following Acute Drug Exposure.**
S.P. Holmes, P.J. Gareau, H. Dobson, G.M. Kirby and E.G. Janzen.
University of Guelph, Guelph, Ontario, Canada and Robarts Research Institute, London Health Sciences Center, London, Ontario, Canada.

1132. **Diagnosis of Liver Abscess by SPIO-Enhanced Imaging and Diffusion-Weighted Imaging (EPI and SPLICE).**
M. Ida, Y. Hata, K. Fukuda and S. Tada.
Tokyo Metropolitan Ebara Hospita and Jikei University School of Medicine, Tokyo, Japan.

1133. **Detection of Liver Lesions with Superparamagnetic Iron Oxide-Enhanced MR Imaging: MR Pulse Sequences and Optimal Dose.**
T. Tomemori, K. Yamakado, H. Sakuma, H. Kubo, K. Matsumura, N. Terada and K. Takeda.
Mie University School of Medicine, Tsu, Mie, Japan and Saiseikai Matsusaka Hospital, Matsusaka, Mie, Japan.

1134. **Hepatocellular Carcinoma (HCC): Correlation Between Multihance™-Enhanced Magnetic Resonance (MR) Imaging and Pathological Findings.**
G. Pirovano, L. Grazioli, R. Caudana, G. Morana, S. Biancardi, G. Gheza, A. Chiesa, M.A. Kirchin and A. Spinazzi.
Bracco S.p.A., Milan, Italy and Ospedale Civile, Brescia, Italy.

1135. **Evaluation of the Accuracy of MultiHance™-Enhanced MRI in the Characterization of Focal Liver Lesions.**
G. Pirovano, A. Vanzulli, L. Marti-Bonmati, B. Hamm, E. Rummeny, G. Grazioli, R. Manfredi, A. Greco, N. Holzknecht, M. Kirchin and A. Spinazzi.
Bracco S.p.A., Milan, Italy; National Health Service, Valencia, Spain; Humboldt-Universitat, Berlin, Germany; Westfalischen-Wilhelms-Universitat, Munster, Germany; Ospedale Civile, Brescia, Italy Centre Hospitalier Princesse Grace, Mo.

1136. **Perilesional Enhancement in Liver Metastases: MR-Pathologic Correlation.**
S.M. Hussain, R.C. Semelka, H.B. Marcos and J.T. Woosley.
University of North Carolina at Chapel Hill, NC, USA and LUMC, Leiden, The Netherlands.

1137. **Chronic Hepatitis: Correlation of Enhancement Patterns on Gadolinium-Enhanced MR Images with Histopathology.**
S.M. Hussain, R.C. Semelka, H.B. Marcos and J.T. Woosley.
University of North Carolina at Chapel Hill, NC, USA and LUMC, Leiden, The Netherlands.

1138. **Preliminary Results of the Comprehensive Evaluation of the Liver using MR in the Pre-Liver-Transplant Evaluation of Living Donors.**
R. Saouaf, W.C. Lin, J.C. Emond and J.H. Newhouse.
Columbia University, New York, NY, USA.

1139. MRI Revealed Chronic Liver Injuries Caused by Microcystins.
R. Frangez, M. Kosec, K. Beravs, F. Demsar, B. Sedmak and D. Suput.
University of Ljubljana, Ljubljana, Slovenia.

1140. Combined Use of Superparamagnetic Iron Oxide (SPIO) and Dynamic Gadolinium Chelate (Gd) Enhanced MR Imaging in Detection and Characterization of Focal Liver Lesions.
K. Takahama, M. Ishihara, H. Hayashi, T. Ichikawa and T. Kumazaki.
Nippon Medical School, Tokyo, Japan.

1141. MRI Assessment of Microcystin-LR Induced Hepatotoxicity in the Rat.
S.A. Sturgeon and R.A. Towner.
James Cook University, Townsville, Queensland, Australia.

1142. Liver Regeneration in the Rat.
P.D. Hockings, T.J. Roberts, D.G. Reid and K. Kramer.
SmithKline Beecham Pharmaceuticals, Welwyn, Herts, UK.

1143. Hepatic Parenchymal Changes after Proton Beam Radiotherapy: Evaulation with MR Imaging.
H. Onaya, H. Yoshioka, Y. Itai, T. Okumura, Y. Akine, H. Tsuji and H. Tsujii.
University of Tsukuba, Ibaraki, Japan and National Institute of Radiological Sciences, Chiba, Japan.

1144. Multiphase Breathhold 3D MR Angiography for Functional and Morphological Evaluation of Liver Lesions.
H. Hawighorst, J. Hansmann, S.O. Schonberg, R. Metzner and G. van Kaick.
German Cancer Research Center and University of Heidelberg, Heidelberg, Germany.

1145. Hepatic MR Imaging: Comparison of 2D and 3D Gradient Echo Techniques.
M-J. Kim, D.G. Mitchell, K. Ito and P.N. Kim.
Thomas Jefferson University Hospital, Philadelphia, PA, USA.

1146. Comparative Studies of Magnetic Resonance Cholangiopancreatography (MRCP) among Different Three Sequences and Between 1.0 T and 1.5 T.
M. Yasui, K. Honjo, S. Koike, T. Fujita, H. Okazaki and N. Matsunaga.
Yamaguchi University School of Medicine, Yamaguchi, Japan.

1147. The Oddi Sphincter and Common Channel: Evaluation of Pharmacodynamic MR Cholangiopancreatography Using Fatty Meal and Secretin Stimulation.
S. Koike, K. Honjo, K. Takano, M. Yasui, H. Okazaki, T. Emoto, M. Furukawa and N. Matsunaga.
Yamaguchi University School of Medicine, Yamaguchi, Japan.

1148. Anomalous Union of the Pancreatobiliary Duct System: Comparison of MR Cholangiopancreatography and Direct Cholangiopancreatography.
S. Koike, K. Honjo, Y. Watanabe, M. Dohke and N. Matsunaga.
Yamaguchi University School of Medicine, Yamaguchi, Japan and Kurashiki Central Hospital, Kurashiki, Japan.

1149. Clinical Evaluation of 3D Half-Fourier RARE for MRCP: Comparison of 2D Single Thick Slice, 2D Multiple Slice, 3D Multiple Slice, and 3D Multiple Thin Slice MRCP.
K. Yamaguchi, H. Sugimura, X.Q. Tong, M. Asato, Y. Yuki, R. Ochiai and S. Tamura.
Miyazaki Medical College, Miyazaki, Japan.

1150. Fatty-Meal Dynamic MR Cholangiography in Normal Subjects: Evaluation of Common Bile Duct and Sphincter of Oddi.
S. Park, D-J. Kim, M-J. Kim, J-J. Chung, H-S. Yoo and J-T. Lee.
Yonsei University College of Medicine, Seoul, Korea.

1151. Magnetic Resonance Cholangiopancreatography (MRCP) in Cystic Fibrosis.
V. Martinez-Sanjuan, S. Campos, F. Perez-Aguilar, M. Lloret and J. Celma.
Hospital General Universitario de Valencia and Hospital La Fe, Valencia, Spain.

1152. Optimal Parameters of MR Cholangiopancreatography (MRCP) Using Single-Shot Fast Spin-Echo (SSFSE) Sequence for Single Projection Technique and Multislice Technique.
H. Haradome, T. Ichikawa, O. Hiroaki, K. Yoshihumi, O. Hiroshi, M. Koji, N. Shigeru, M. Noriyuki, N. Atushi, A. Tutomu and J. Hachiya.
Kyorin University, Tokyo Japan; Yamanashi Medical University, Yamanashi, Japan and National Cancer Center Hospital, Chiba, Japan.

1153. Neuroendocrine Tumor of the Pancreas: Biphasic CT versus MR Imaging in Tumor Detection.
H. Haradome, T. Ichikawa, R.L. Baron, M.S. Peterson, M.P. Federe, Y. Kawamori and J. Hachiya.
Kyorin University, Mitaka, Japan and University of Pittsburgh, Pittsburgh, PA, USA.

1154. MRCP in the Assessment of Surgical Anastomoses.
A.R. Gillams and W.R. Lees.
University College London Medical School and The Middlesex Hospital, London, UK.

1155. Breath-Hold Magnetic Resonance Imaging in Comparison with Endoscopic Ultrasonagraphy for the Evaluation of Abnormalities of the Gallbladder.
T. Masui, M. Katayama, K. Ichijo, H. Yamamoto and H. Ogawa.
Seirei Hamamatsu General Hospital and Seirei Mikatabara General Hospital, Hamamatsu, Shizuoka, Japan.

1156. 3D MRI for Detection of Traumatic Intra-Abdominal Hemorrhage and Adominal Parenchymal Injuries.
D. Weishaupt, P.R. Hilfiker, S.G. Ruehm, M.A. Patak, M. Schmidt, K. Tarlo and J.F. Debatin.
University Hospital, Zurich, Switzerland and Nycomed Amersham Imaging, Wayne, PA, USA.

1157. Clinical Evaluation of 3D Half-Fourier RARE for MRCP: Comparison of Short and Long Inter-Echo Train Spacing RARE Sequence.
H. Sugimura, K. Yamaguchi, Y. Machida, S. Kitane, X.Q. Tong, M. Asato, Y. Yuki, R. Ochiai and S. Tamura.
Miyazaki Medical College, Miyazaki, Japan and Toshiba Nasu Works, Tochigi, Japan.

1158. Comparison of HASTE with Positive Luminal Contrast Enhanced Spin-Echo and Gradient-Echo Imaging in Crohn Disease.
N. Hosten, K.T. Hoffmann, B. Wiedenmann, C. Stroszcynski, A. Lemke, T. Liebig and R. Felix.
Virchow-Klinikum, Berlin, Germany.

1159. Mucinous Versus Non-Mucinous Rectal Carcinomas: Differentiation with MR Imaging.
S.M. Hussain, E.K. Outwater and E.S. Siegelman.
Thomas Jefferson University Hospital, Philadelphia, PA, USA; LUMC, Leiden, The Netherlands and University of Pennsylvania Medical Center, Philadelphia, PA, USA.

1160. Portal Venous Flow Measurement by Phase Contrast MR Imaging: Observation under Temporary Balloon Occlusion of the Proper Hepatic Artery.
A. Nakatsuka, H. Sakuma, K. Yamakado, N. Tanaka, M. Goto, T. Hirano, K. Matsumura and K. Takeda.
Mie University School of Medicine, Mie, Japan.

1161. Breath-hold T_1W Imaging forAbdomen with Multi-Shot FE EPI.
Y. Kassai, H. Kanazawa, J. Makita, S. Kuhara and Y. Machida.
Toshiba Medical Engineering Laboratory and Toshiba Nasu Works, Tochigi, Japan.

1162. The Evaluation of the Anorectal Function by MR Proctography: Comparison with the Anorectal Pressure Measurement.
H. Yokota, M. Matoba, Y. Kuginuki, H. Tonami, I. Yamamoto, F. Tomita and S. Takashima.
Kanazawa Medical University, Ishikawa, Japan.

1163. MR Residue Sign; A Simple and Easy Indicator of the Obstructive Site in Small Bowel Obstruction.
T. Takahara, Y. Kurihara, M. Tokuda, M. Obuchi, H. Sato, M. Takahashi, Y. Nakajima and T. Ishikawa.
Yokohama Sakae Kyosai Hospital, Yokohama, Japan; St. Marianna University School of Medicine, Kawasaki, Japan and Showa University Fujigaoka Hospital, Yokohama, Japan.

1164. Examination of Pyloric Function using Magnetic Resonance Imaging.
H. Eggers, H. Faas, P. Boernert and P. Boesiger.
Philips Research, Hamburg, Germany; University of Zurich and Swiss Federal Institute of Technology, Zurich, Switzerland.

1165. Gastrointestinal Transit of Pharmaceutical Capsules Observed with ^{19}F -MR Projection Imaging in Man.
R. Schwarz, B. Kunnecke, K. Scheffler, R. Haselhorst and J. Seelig.
Biocenter of the University, Basel, Switzerland.

1166. A Colloidal Drug Carrier Model for Oral Dosage Forms – Intragastric Distribution Studied by MRI.
H. Faas, T. Rades, C. Feinle, P. Kunz, C. Ramseyer, M. Fried, W. Schwizer and P. Boesiger.
University and ETH, Zurich, Switzerland; Hoffmann-La Roche, Basle, Switzerland and University Hospital Zurich, Switzerland.

1167. Effect of Resection of Retroperitoneal Fat on Glucose Tolerance in Obese Zucker and Wistar Rats.
M. Szayna, L. Polikova, J. Egan and R.G.S. Spencer.
National Institutes of Health, Baltimore, MD, USA.

1168. Fast and Accurate Determination of Abdominal Adipose Tissue Distribution.
S.A. Gronemeyer, R.G. Steen, W.M. Kauffman, W.E. Reddick and J.O. Glass.
St. Jude Children's Research Hospital, Memphis, TN, USA.

Contrast Agents

1169. Hepatocellular Carcinoma on Ferumoxides-Enhanced T_1-Weighted Gradient-Echo MR Imaging.
K. Ueda, S. Hirohashi, H. Uchida, S. Kitano, N. Marugami and H. Ohishi.
Nara Medical University, Nara, Japan.

1170. ABSTRACT WITHDRAWN.

1171. Magnetic Resonance Cholangiopancreatography: The Usefulness of A Negative Oral Contrast Agent – Mixture of Barium Sulfate and Magaldrate.
G.C. Liu, T.S. Jaw, Y.T. Kuo, C.K. Wang and P.C. Sheen.
Kaohsiung Medical College, Taiwan, ROC.

1172. Fecal Tagging with Swiss Chocolate and Gd-DOTA: A Path to Eliminate the Need for Colonic Cleansing Prior to MR-Colonography.
M.A. Patak, D. Weishaupt, J. Froehlich, S.G. Ruehm, H.H. Quick and J.F. Debatin.
University Hospital, Zurich, Switzerland.

1173. Sequential Fast 3D MRI Following Oral Ingestion of Gd-DOTA A New Means to Assess Intestinal Transit Time.
M.A. Patak, D. Weishaupt, M. Schmidt and J.F. Debatin.
University Hospital, Zurich, Switzerland.

1174. Detection of Intestinal Bleeding Sites: Assessment of a Non-Invasive Concept Based on 3D MRI and a Blood Pool Agent in Pigs.
P.R. Hilfiker, D. Weishaupt, G.M. Kacl, F.H. Hetzer, N.M.T. Griff and J.F. Debatin.
University Hospital, Zurich, Switzerland.

1175. Evaluation of Arterial First Pass Contrast Medium Dynamics as a Function of Intravenous Injection Parameters.
M. Boos, K. Scheffler, R. Haselhorst, E. Reese, P. Huber, J. Frohlich and G. Bongartz.
University-Hospital Basel, Switzerland.

1176. Characterization of T_1 Relaxation and Blood-Myocardial Contrast Enhancement of NC100150 Injection in Cardiac MRI.
J.E. Wagenseil, L.O.M. Johansson and C.H. Lorenz.
Washington University Medical Center, St. Louis, MO, USA.

1177. Determining MRI Signal Intensity Threshold of Gadoteridol using the Nephrectomized Mouse.
P. Wedeking, R. Shukla, Y.T. Kouch, A.D. Nunn and M.F. Tweedle.
Bracco Research USA, Princeton, NJ, USA.

1178. *In Vivo* Imaging of Spin-Tapped Nitric Oxide (NO) in Septic-Shock Rats: MRI Spin-Trapping Method.
H. Fujii, L.J. Berliner and K. Yoshikawa.
Tokyo Metropolitan Institute of Medical Science, Tokyo, Japan; The Ohio State University, Columbus, OH, USA and The University of Tokyo, Tokyo, Japan.

1179. Gadolinium Mesoporphyrin as a MRI Contrast Agent in the Evaluation of Tumors: An Experimental Model Using VX2 Carcinoma in Rabbits.
T.K. Kim, B.I. Choi, S.W. Park, W. Lee, J.K. Han, M.C. Han and H.J. Weinmann.
Seoul National University, Seoul, Korea and Schering AG, Berlin, Germany.

1180. Characterization of Mammary Carcinoma Using Gadolinium Encapsulating Liposomes.
L.J. Wilmes, M.H. Gaber, M. Saeed, M.F. Wendland, K. Hong and N.M. Hylton.
University of California, San Francisco, CA, USA.

1181. Towards Direct MRI Determination of the Thermodynamic (Interstitial) CR Concentrations in Tumors Following Bolus Injections.
C.S. Landis, X. Li, J.A. Coderre, P.L. Micca, W.D. Rooney and C.S. Springer Jr.
Brookhaven National Laboratory, Upton, NY, USA and State University of New York, Stony Brook, NY, USA.

1182. Quantitation of Active Phagocytic Kupffer Cells in the Liver: Evaluation of the Time of Steady State and the Effect of the Different Injection Dose of AMI-25.
S-H. Kim, Y-M. Huh, S-J. Kim, J-S. Suh, E-K. Jeong, J-Y. Choi, H-J. Kim and J-K. Bong.
Yonsei University, College of Medicine, Seoul, Korea.

1183. The Usefulness of MnDPDP in MR Relaxometric Study of Liver.
H. Kang, Y. Chang, H-J. Park, K-J. Suh, R.B. Clarkson and D-S. Kang.
University of Illinois, Urbana-Champaign, IL, USA and Kyungpook National University Hospital, Taegu, Korea.

1184. Binding of Lipophilic MRI Contrast Agents to Albumin: A Spin-Labeling EPR Study.
T.I. Smirnova, A.I. Smirnov, R.L. Belford and R.B. Clarkson.
University of Illinois, Urbana, IL, USA.

1185. N-2-(Azol-1(2)-yl) Ethyliminodiacetic Acids; A Novel Series of Gd(III) Chelators as T_2 Relaxation Agents for High Field Magnetic Resonance Imaging.
P. Lopez, C.G. Seipelt, P. Merkling, L. Sturz, A. Dolle, M.D. Zeidler, J. Alvarez, S. Cerdan and P. Ballesteros.
UNED, Madrid, Spain; RWTH, Aachen, Germany and C.S.I.C., Madrid, Spain.

1186. Synthesis, Characterization, and Bio-Distribution of a Peptide Based MR Contrast Agent: Protamine-Gd-DTPA.
M-Y. Su, M.K. Samoszuk, Y. Song, A. Najafi and O. Nalcioglu.
University of California, Irvine, CA, USA.

1187. Fast T_1 Measurement of Gd-DTPA Bolus Passage in Normal and Diseased Brain Using EPI.
H.B.W. Larsson, S. Rosenbaum, I. Andersen and E. Rostrup.
Hvidovre University Hospital, Copenhagen, Denmark.

1188. The Effects of Hematocrit on T_2* of Blood in the Presence of Dy(III)DTPA-BMA and Gd(III)DTPA-BMA.
P.A. Schornack and W.H. Perman.
Saint Louis University School of Medicine, St. Louis, MO, USA.

1189. Manganese Dipyridoxyl Diphosphate (MnDPDP): MRI Contrast Agent with Antioxidant and Cardioprotective Properties?
H. Brurok, J.O.G. Karlsson, I. Laursen and P. Jynge.
Norwegian University of Science and Technology, Trondheim, Norway; Linkoping University, Linkoping, Sweden and Danish University of Technology, Lyngby, Denmark.

1190. Relaxation Effects of Clustered Particles.
A. Tanimoto, M. Suematsu, D. Pouliquen, D.D. Stark, Y. Yuasa and K. Hiramatsu.
Keio University School of Medicine, Tokyo, Japan; Faculte de Medecine, Angers, France and University of Nebraska Medical Center, Omaha, NE, USA.

1191. Dynamic Water Proton Relaxation in Human Venous Blood Following Double Gd-DTPA Administrations at 1.5 T Correlated with Intra-Vascular Contribution in BOLD fMRI.
C.X. Tan.
National Institutes of Health, Bethesda, MD, USA.

1192. Comparison of USPIO and a Prototype Macromolecular Contrast Agent in Their Abilities to Estimate Permeability Changes of the Blood Bone Marrow Barrier.
H.E. Daldrup, T.M. Link, D. Wiedermann, S. Konemann, S. Blasius, W. Heindel and E.J. Rummeny.
University Hospital of Muenster, Germany.

1193. Effects of Local Diffusion Coefficient in Image Contrast.
K-T. Yung and P.C. Lauterbur.
University of Illinois, Urbana, IL, USA.

1194. Multisite Evaluation of Precision of NMRD.
R.B. Shukla, J. Tian, S. Eaton, S.A. Klinger, A.D. Nunn and M.F. Tweedle.
Bracco Research USA, Princeton, NJ, USA.

1195. Quantification of Macroscopic Susceptibility Effects in Whole Body 1.5T and 8T MRI Systems.
A.M. Abduljalil, R. Burgess, S.M. Lee, D.W. Chakeres, A. Kangru, B. Xu, B.D. Clymer, P. Schmalbrock and P.M. Robitaille.
The Ohio State University, Columbus, OH, USA.

1196. Dynamic Relaxometry: Application to Iron Uptake by Ferritin.
V. Herynek, J.W.M. Bulte, T. Douglas and R.A. Brooks.
National Institutes of Health, Bethesda, MD, USA and Temple University, Philadelphia, PA, USA.

1197. Determination of pH Using Water Proton Chemical Exchange: Potential pH Sensitive MRI Contrast Agents.
K.M. Ward and R.S. Balaban.
National Institutes of Health, Bethesda, MD, USA.

1198. Equilibrium Transcytolemmal Water Exchange *in Vivo*.
C.S. Landis, X. Li, G. Vetek and C.S. Springer.
Brookhaven National Labaratory, Upton, NY, USA and State University of New York, Stony Brook, NY, USA.

1199. Statistical Analysis of Contrast Enhanced MRI Data.
R.G. Pautler and A.P. Koretsky.
Carnegie Mellon University, Pittsburgh, PA, USA.

1200. Phase III Double-Blind, Efficacy Evaluation of Gadobenate Dimeglumine (MultiHance™) in Malignant Lesions of the Brain.
V.M. Runge, D.L. Rubin, V.M. Haughton, R.G. Barr, K.R. Maravilla and M.J. Kuhn.
University of Kentucky, Lexington, KY, USA.

1201. Evaluation of Fractional Blood Volume by Means of Functional Blood Pool Mapping in Experimentally Induced Rat Liver Tumors Using Dynamic MRI with Ultrasmall Iron Oxide Particles (USPIO).
C. Poeckler-Schoeniger, J. Koepke, O. Schueler, W. Schreiber, M. Georgi and P. Bannasch.
University of Heidelberg, Mannheim, Germany.

1202. Modeling Gd-DTPA Contrast Agent Kinetics Using a Reference Tissue.
D.L. Buckley, L. Rice, P. Narayan and S.J. Blackband.
University of Florida, Gainesville, FL, USA.

1203. Analysis of Dynamic Contrast-Enhanced MRI in Tumors: Optimization of Acquisition Parameters.
S. Krishnan, T. Chenevert and J.L. Evelhoch.
University of Michigan, Ann Arbor, MI, USA and Wayne State University, Detroit, MI, USA.

1204. Measurement of Gd-DTPA Concentration in Flowing Blood with MRI.
J.O. Fredrickson, F.G. Sommer and N.J. Pelc.
Stanford University, Stanford, CA, USA.

1205. Monte Carlo Simulation Study to Determine the Confidence Limits for the Plasma and Tissue Concentration Time Curves in Dynamic Gd-DTPA Enhanced MRI.
C. Karmonik and E.F. Jackson.
University of Texas M.D. Anderson Cancer Center, Houston, TX, USA.

Body MR Angiography

1206. Timing of 3-D Abdominal MRA using Single Slice Fluoroscopic Imaging with Real Time Complex Subtraction and Real Time Display.
J.F.M. Meaney, M. Saysell, J.P. Ridgway, J.A. Roberts, A. Radjenovic, A. Kassner and M. Kouwenhoven.
Leeds General Infirmary, Leeds, UK and Philips Medical Systems, Best, The Netherlands.

1207. Multi-Phase 3D High Resolution Dynamic Contrast-Enhanced MR Angiography of the Abdominal Aorta and Lower Extremities.
L.A. Kramer, J.B. Kogan, E.P. Tamm, R.D. Ernst and A.M. Cohen.
University of Texas Health Science Center, Houston, TX, USA.

1208. Does a Weakly Protein Binding Gd-Chelate Improve MR Angiography: Initial Findings using GD-BOPTA for Multiphasic 3D MRA.
M.V. Knopp, F. Floemer, S.O. Schoenberg, M. Bock, H. von Tengg Kobligk, R. Hentrich, K. Lodemann and G. van Kaick.
German Cancer Research Center, Heidelberg, Germany and Bracco-Byk Gulden, Konstanz, Germany.

1209. Magnetic Resonance Angiography in the Follow up of AAA Treated with Stent Grafts.
P. Pavone, C. Catalano, A. Laghi, F. Fanelli, V. Panebianco, G. Luccichenti and R. Passariello.
University of Rome "La Sapienza", Rome, Italy.

1210. Renal Artery Stenosis: Identification with ceMRA, Grading with Flow Sensitized Segmented GRE with Echo Sharing and Interpolation.
W.R. Nitz, S. Engl, M. Lenhart, B. Djavidani, C. Paetzel, C. Manke, M. Strotzer, P. Kasprzak and S. Feuerbach.
University Clinic, Regensburg, Germany and University of Lubeck, Germany.

1211. Breathhold Gadolinium Enhanced MR-Angiography in Living (Un)Related Renal Donors: A New Technique with Arterial Pitfalls.
W.J. Boeve, Th. Kok, A.M. Tegzess, W.J. van Son, R.J. Ploeg, R.A. Prinsze and R.L. Kamman.
University Hospital Groningen, Groningen, The Netherlands, and Siemens Netherlands.

1212. 3D Gadolinium-Enhanced MRA in Liver Transplant Patients: Technique and Clinical Applications.
J.F. Glockner, A.R. Forauer, L.F. Haddad, T.P. Bocchini and W.H. Perman.
St. Louis University Hospital, St. Louis, MO, USA.

1213. Gadolinium Enhanced MR-Angiography after Pancreas and/or Kidney Transplantation: A Useful New Diagnostic Tool.
W.J. Boeve, T. Kok, A.M. Tegzess, W.J. van Son, R.J. Ploeg, R.A. Prinsze and R.L. Kamman.
University Hospital Groningen, Groningen, The Netherlands, and Siemens Netherlands.

1214. Portal Hypertension in Liver Cirrhosis; Evaluation with Contrast Enhanced Multiphase Three Dimensional Subtraction MR Portography.
S. Kitano, S. Hirohashi, H. Uchida, K. Ueda, N. Marugami, T. Yoshioka and H. Ohishi.
Nara Medical University, Nara, Japan.

1215. Superior Acceptance of Breathhold 3D Contrast Enhanced MR-Angiography Compared to Intra-Arterial DSA in Transplantation Medicine.
W.J. Boeve, E.B. Haagsma, A.M. Tegzess, W.J. van Son, R.J. Ploeg, M.J.H. Slooff, R.A. Prinsze and R.L. Kamman.
University Hospital Groningen, The Netherlands, and Siemens Netherlands.

1216. Costs of MR-Angiography and DSA in Transplantation Medicine.
W.J. Boeve, C.M. Knol, A. Geertsma, E.M. ten Vergert and R.L. Kamman.
University Hospital Groningen, Groningen, The Netherlands.

1217. Turbo-MRA of the Renal Arteries-Techniques and Pitfalls: A Preliminary Clinical Experience.
A. Shetty, K. Bis, G. Pappas, J. Weintraub and G. Laub.
William Beaumont Hospital, Royal Oak, MI, USA and Siemens AG, Erlangen, Germany.

1218. Pulse Wave of Portal Vein Detected by Cine Phase Contrast MR Imaging.
M. Ohki, S. Nakano, K. Fukunaga, Y. Mori, Y. Toyama, I. Hino and M. Ohkawa.
Kagawa Medical University, Kagawa, Japan.

Pediatric Vascular MR Imaging

1219. Contrast-Enhanced Thoracic 3D-MR Angiography in Infants and Children.
C. Holmqvist, E-M. Larsson, F. Stahlberg and S. Laurin.
University Hospital, Lund, Sweden.

1220. Dynamic Contrast MR Angiography of the Thorax in Infants and Small Children in Pre- and Post-Operative States.
T. Masui, M. Katayama, K. Yoshihara, S. Kobayashi, T. Ito, M. Seguchi and M. Koide.
Seirei Hamamatsu General Hospital, Hamamatsu, Shizuoka, Japan.

1221. Initial Clinical Experience with Non-Breath-Hold Gadolinium-Enhanced 3D-MR Angiography of Thorax and Abdomen in Infants and Children with Pathology.
H.N. Pawlik and T. Chung.
University of Freiburg, Freiburg, Germany and Children's Hospital, Boston, MA, USA.

1222. Applications of Three-Dimensional Gadolinium-Enhanced MR Angiography in Children.
M. Haliloglu, F.A. Hoffer and S.A. Gronemeyer.
St. Jude Children's Research Hospital, Memphis, TN, USA.

Peripheral MR Angiography

1223. Practical Approach to Peripheral CE MRA: Resolution Requirements.
M. Boos, K. Scheffler, P. Huber, E. Reese and G. Bongartz.
University-Hospital Basel, Switzerland.

1224. Multistation Gadolinium-Enhanced MR Angiography of the Lower Extremities: Effect of Multiple Injections on Image Quality.
L.R. Davis, A.J. Duerinckx and A. Shaaban.
West Los Angeles VA and UCLA Medical Centers, Los Angeles, CA, USA.

1225. 3D Contrast-Enhanced MRA of Pelvis and Lower Extremity Arterial Vasculature with a Dedicated Peripheral Vascular Coil.
S.G. Ruehm, T.F. Hany, M. Schmidt, T. Pfammatter, E. Schneider and J.F. Debatin.
University Hospital, Zurich, Switzerland.

1226. Contrast-Enhanced MR Angiography from the Aortic Arch to the Ankle Including the Renal Arteries in 2 Times 2 Minutes.
T. Leiner, K.Y. Ho and J.M.A. van Engelshoven.
Maastricht University Hospital, Maastricht, The Netherlands.

1227. MR Angiography of the Vascular Tree from Aorta to the Foot: Combining 2D Time-of-Flight with 3D Contrast Enhanced Techniques and using Body Coil and Head/Neck Coil.
W. Li, M. Zhang, S. Sher and R.R. Edelman.
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

1228. Complete Outflow MR Angiography Compared with Duplex Ultrasonography in Patients with Peripheral Arterial Occlusive Disease.
T. Leiner, K.Y. Ho, A.G.H. Kessels, P.J.E.H.M. Kitslaar and J.M.A. van Engelshoven.
Maastricht University Hospital, Maastricht, The Netherlands.

1229. Does Combined Use of Ultrafast 3D MRDSA with Moving Bed Contrast MRA Provide Additional Information?
H. Masunaga, Y. Takehara, H. Isoda, S. Isogai, N. Kodaira, M. Kaneko, H. Takeda, H. Narita and A. Nozaki.
Hamamatsu University School of Medicine, Hamamatsu, Japan and GE YMS, Tokyo, Japan.

1230. Comparison Between Bloodpool-Enhanced and Gadolinium-Chelate-Enhanced MR Angiography for Imaging the Peripheral Arteries.
K.Y. Ho, T. Leiner, M.W. de Haan, A. Kessel and J.M.A. van Engelshoven.
University Hospital and University of Maastricht, Maastricht, The Netherlands.

1231. Clinical Usefulness of Contrast Enhanced 3D-MR Angiography using Automated Stepping Table Method.
H. Kubo, H. Sakuma, N. Katoh, H. Maki, G. Asanuma, A. Araki and K. Takeda.
Mie University Hospital and Mie University School of Medicine, Mie, Japan.

1232. Blood Pool MR Angiography of the Peripheral Vasculature.
W.J. Niessen, A.D. Montauban van Swijndregt, B.H.P. Elsman, O. Wink, M.A. Viergever and W.P.T.M. Mali.
Utrecht University/University Hospital, Utrecht, The Netherlands.

1233. The Effectiveness of Digital Subtraction Technique in Contrast-Enhanced MR Angiography.
J.M. Lee, Y. Chang, Y.J. Kim and D.S. Kang.
Kyungpook National University, Taegu, Korea.

1234. The Availability of Low-Dose Contrast-Enhanced MR Angiography: Two-Station Study of Lower Extremities.
J.M. Lee, Y. Chang, Y.J. Kim and D.S. Kang.
Kyungpook National University, Taegu, Korea.

1235. Artery-Vein Separation Using MR Angiographic Data in 25 Patients.
T. Lei, J.K. Udupa, P.K. Saha, D. Odhner, R. Baum, S.K. Tadikonda and K. Yucel.
University of Pennsylvania, Philadelphia, PA, USA and EPIX Medical, Inc., Cambridge, MA, USA.

1236. Magnetic Resonance Angiography in the Evaluation of Peripheral Vascular Disease.
C. Catalano, P. Pavone, A. Laghi, F. Fraioli, F. Pediconi, A. Napoli and R. Passariello.
University of Rome "La Sapienza", Rome, Italy.

1237. 3D Contrast Enhanced Phase Contrast Angiography: Utility for Arterial/Venous Segmentation.
D.A. Bluemke, R.D. Darrow, R. Gupta, S.K. Tadikonda and C.L. Domoulin.
Johns Hopkins University School of Medicine, Baltimore, MD, USA; General Electric Corporate Research and Development, Schenectady, NY, USA and Epix Medical, Inc, Cambridge, MA, USA.

MR Angiography of Chest and Upper Extremities

1238. 3-D Pulmonary MR Angiography Using a New MR Blood Pool Agent (NC100150): Normal and Abnormal Anatomy.
A.J. Duerinckx, A.M. Shaaban, D. Teich, L.R. Davis, S.Y. To, R.K. Bakhda and G. Peters.
West Los Angeles VA and UCLA, Los Angeles, CA, USA.

1239. Pulmonary MRA using Short Echo Train Spacing, Overlapped Signal T_2 Blurring, and Less Flow Dephasing.
M. Miyazaki, S. Sugiura, N. Ichinose, Y. Kassai, F. Tateishi and H. Abe.
Toshiba Nasu Works, Tochigi, Japan; Kumamoto Central Hospital, Kumamoto, Japan and Fukuoka Prefectural Asakura Hospital, Japan.

1240. NC100150 Injection for Pulmonary MR Angiography and Perfusion.
M. Saeed, T. Roberts, J. Bremerich, R. Wyttenbach, C.B. Higgins and M.F. Wendland.
University of California, San Francisco, CA, USA.

1241. Variable Appearance of Normal Central Venous Anatomy and Thoracic Inlet Veins with Dynamic Contrast-Enhanced MRA.
A.J. Duerinckx, A.M. Shaaban, D. Brisbois and L.R. Davis.
West Los Angeles VA and UCLA, Los Angeles, CA, USA and Les Cliniques St Joseph, Liege, Belgium.

1242. Subclavian Artery Artifact in 3D MRA: Optimization of Gadolinium Injection Schemes.
M. Neimatallah, T.L. Chenevert, R.J. Carlos, F. Londy, Q. Dong and M.R. Prince.
University of Michigan, Ann Arbor, MI, USA.

1243. Effect of the Number of Iterations in Partial k-space Reconstructions on Gadolium Enhanced MRA.
M.A. Bernstein, S.B. Fain, J. Huston III and S.J. Riederer.
Mayo Clinic and Foundation, Rochester, MN, USA.

1244. Contrast-Enhanced 3D MR Angiography: Value of Various Postprocessing and a Role of Time Resolved MR Angiography.
K. Ohgi, K. Satoh, H. Yokote, T. Higami, K. Kobori, T. Furukawa, H. Akiyama, S. Kimura, K. Uehara, K. Murata, M. Higashi, K. Gotoh and Y. Yamashita.
Japanese Red-Cross Medical Center, Tokyo, Japan; Kasukabe-Shuwa Hospital, Saitama, Japan; Kitazato-Institute Hospital, Tokyo, Japan and Toshiba Medical Inc., Japan.

1245. Magnetic Resonance Angiography of the Human Finger.
M. Klarhofer, B. Csapo, C. Balassy, C. Szeles and E. Moser.
University of Vienna, Austria; University Medical School and County Hospital, Debrecen, Hungary and University Hospital of Vienna, Austria.

1246. Differential Diagnosis of Hypothenar-Hammer Syndrome with Contrast-Enhanced MR-Angiography (CE-MRA).
K.U. Wentz, F. Seeber, M. Pfyffer, R. Jenelten, K.E. Leupi-Skibinski and C. Zollikofer.
Cantonal Hospital, Winterthur, Switzerland.

1247. Monitoring Wall Motion of Blood Vessels by 1-D MRI of Perpendicular Diameters.
Y.H. Chia, M.L. Wood, W. Leung and D.B. Plewes.
University of Toronto, Toronto, Ontario, Canada.

1248. Standard Dose Gadolinium-Enhanced Dynamic 3D MRA of Thorax in Congenital and Acquired Diseases.
V.K. Sundararaman, K. Murali, M.S. Ranjith and R. Sridhar.
Sri Ramachandra Medical College & Research Institute, Chennai, India.

Coronary MR Angiography

1249. Accelerated Coronary MRA in Volunteers and Patients Using Double-Oblique 3D Acquisitions with SMASH Reconstruction.
D.K. Sodickson, M. Stuber, R.M. Botnar, K.V. Kissinger and W.J. Manning.
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA and Philips Medical Systems, Best, The Netherlands.

1250. Improved Contrast Enhancement in Coronary Trees Imaging Using Dual-Enhanced Breath Hold Three-Dimensional Spoiled Gradient-Echo MRA with ECG-Gating.
K. Cho, H. Saitoh, H. Nakajo, K. Tomisato, T. Tsuchihashi, M. Ishihara, S. Kumita, S. Okada, T. Kumazaki, A. Nozaki and Y. Takahashi.
Nippon Medical School and GE-YMS, Tokyo, Japan.

1251. MR Coronary Angiography Using Connectivity.
H.E. Cline, D.R. Thedens, C.H. Meyer, D.G. Nishimura, T.K. Foo and S. Ludke.
GE Corporate Research and Development, Schenectady, NY, USA and Stanford University, Stanford, CA, USA.

1252. Evaluation of Internal Mammary Artery Graft Flow Patency Using 3D Contrast Enhanced MR Angiography and Phase Contrast Flow Analysis.
Y. Liu, R.K. Breger, J. Blechinger and A.J. Tector.
St. Luke's Medical Center, Milwaukee, WI, USA.

1253. A Combined Magnetization Transfer-Fat Saturation Pulse for Coronary MRA.
M. Saranathan, R.S. Balaban and T.K.F. Foo.
GE Medical Systems, Milwaukee, WI, USA and National Institutes of Health, Bethesda, MD, USA.

1254. Correlation of 3D MR Coronary Angiography with Diagnostic Angiography - Impact of the Novel Motion Adapted Gating Technique.
C. Weber, R. Sinkus, T. Dill, C. Hamm, P. Bornert and P. Steiner.
University Hospital Eppendorf and Philips Research Laboratories, Hamburg, Germany.

1255. Three-dimensional MR Coronary Angiography with a Segmented Echo-Planar Sequence and Retrospective Respiratory Gating.
G.M. Beck, D. Li, E.M. Haacke, T.G. Noll, K.F. Kreitner, T. Voigtlander, W.G. Schreiber and M. Thelen.
Johannes Gutenberg-University, Mainz, Germany; Washington University, St. Louis, MO, USA and University of Technology, Aachen, Germany.

1256. Gadolinium Enhanced MR Coronary Artery Imaging: Mode of Slow Infusion.
J. Zheng, D. Li, K.T. Bae, P. Woodard and E.M. Haacke.
Bracco Diagnostics and Northwestern University, Chicago, IL, USA and Washington University, St. Louis, MO, USA.

1257. 3D MR Coronary Artery Imaging with Prospective Real-Time Respiratory Navigator: Comparison with Conventional Coronary Angiography.
F. Lethimonnier, A. Furber, O. Morel, P. Geslin, P. L'Hoste, A. Tadei, P. Jallet, C. Caron-Poitreau and J.J. Le Jeune.
University Hospital of Angers, Angers, France and GE Medical Systems, Buc, France.

1258. Evaluation of 3D Magnetic Resonance Coronary Angiography with AngioMARK in Humans: Correlation with X-Ray Angiography.
C.H. Lorenz, L.O.M. Johansson, R.M. Setser, M.B.M. Hofman, S.E. Fischer and S.A. Wickline.
Barnes-Jewish Hospital at Washington University Medical Center, St. Louis, MO, USA; Vrije Universiteit, Amsterdam, The Netherlands and Philips Medical Systems, Best, The Netherlands.

1259. A Comparison of Prospective and Retrospective Respiratory Navigator Gating in 3D MR Coronary Angiography.
Y.P. Du, E.R. McVeigh, D.A. Bluemke, H.A. Silber and T.K.F. Foo.
GE Medical Systems, Milwaukee, WI, USA and Johns Hopkins University School of Medicine, Baltimore, MD, USA.

1260. 3D Breath-hold, First-pass Contrast-Enhanced Coronary Artery Imaging Using MR Fluoroscopy Triggering, Partial k-space Acquisition, and Inversion Recovery.
D. Li, T. Munger, J. Zheng, R. Kroeker, R.J. Kim, O.P. Simonetti, E.M. Haacke and J.P. Finn.
Northwestern University, Bracco Diagnostics and Siemens Medical Systems, Chicago, IL, USA and Washington University, St. Louis, MO, USA.

1261. Comparison of Signal to Noise Ratios for Different Approaches to Magnetic Resonance Coronary Angiography.
L.O.M. Johansson and C.H. Lorenz.
Barnes-Jewish Hospital at Washington University Medical Center, St. Louis, MO, USA.

1262. Gadolinium-Enhanced 3D Breath-Hold Magnetic Resonance Angiography for Detection of Coronary Artery Stenosis in Oblique Projection Angiograms.
M. Regenfus, D. Ropers, S. Achenbach, W. Kessler, D. Zink, W. Moshage, G. Laub and W.G. Daniel.
University of Erlangen-Nuernberg and Siemens Medical Engineering Group, Erlangen, Germany.

1263. Motion Adapted Gating for 3D Coronary Angiography – Initial Clinical Results.
R. Sinkus, P. Bornert, K. Nehrke, S. Weiss, T. Schaeffter, C. Weber, T. Dill and D. Holz.
Philips Research Laboratories and Universitats-Krankenhaus Eppendorf, Hamburg, Germany.

1264. Postoperative Evaluation of Coronary Bypass Patency and Flow using MR-Imaging and Color-Doppler Techniques – Correlation with Intraoperative Flow Measurement.
B.H. Walpoth, I. Genyk, B. Aeschbacher, U. Althaus, T. Carrel and M. Muller.
University Hospital, Berne, Switzerland.

1265. Locally Focused Three-Dimensional Coronary Imaging.
G.Z. Yang, P. Burger, P.D. Gatehouse, J. Keegan, R.H. Mohiaddin and D.N. Firmin.
Royal Brompton Hospital, London, UK.

1266. Four-Dimensional Imaging of Coronary Arteries.
L. Dougherty and W.D. Dockery.
Hospital of the University of Pennsylvania, Philadelphia, PA, USA.

1267. Tracking the Motion of the Coronary Arteries with the Correlation Coefficient.
M.S. Sussman, A.B. Kerr, J.M. Pauly, N. Merchant and G.A. Wright.
University of Toronto, Toronto, Ontario, Canada and Stanford University, Stanford, CA, USA.

1268. Three-Dimensional Coronary MR Angiography with AngioMARK™ (MS-325).
P.K. Woodard, D. Li, J. Zheng, V. Narra, J. Lasala, A. Braverman, E.M. Haacke and R.J. Gropler.
Washington University, St. Louis, MO, USA and Northwestern University, Chicago, IL, USA.

1269. Stenosis Detection using Gadomer-17-Enhanced Coronary MR Angiography.
P.K. Woodard, D. Li, J. Zheng, D. Abendschein, E.M. Haacke, J. Mintorovitch, H.J. Weinmann and R.J. Gropler.
Washington University, St. Louis, MO, USA; Northwestern University, Chicago, IL, USA; Berlex Laboratories, Inc., Wayne, NJ, USA and Schering AG, Berlin, Germany.

1270. Motion-Matched k-space Sampling to Reduce Cardiac Motion Effects in Contrast Enhanced Breath-hold 3D Coronary MR Angiography.
Y. Wang, R. Watts, P.A. Winchester, L. Yu, H.M. Lee, N.M. Khilnani and D.W. Trost.
Weill Medical College of Cornell University, New York, NY, USA.

1271. 3D Coronary Angiography using Spiral Imaging.
P. Bornert, B. Aldefeld, J. Groen, K. Nehrke and R. Sinkus.
Philips Research, Hamburg, Germany and Philips Medical Systems, Best, The Netherlands.

Myocardial Viability

1272. Monitoring of Progression of Myocardial Necrosis During Reperfusion of Ischemically Injured Myocardium Using Contrast Enhanced MR Imaging.
M. Saeed, M.F. Wendland, J. Bremerich, R. Wyttenbach and C.B. Higgins.
University of California, San Francisco, CA, USA.

1273. Assessing Spin-Echo Signal Decay Behaviour in the Myocardium *in vivo*.
W.D. Foltz, N. Merchant and G.A. Wright.
University of Toronto, Toronto, Ontario, Canada.

1274. Cardiac Magnetic Resonance Imaging during Workload Transition in Mouse Heart Missing Muscle and Mitochondrial Creatine Kinase.
T.C.C. Hu and A.P. Koretsky.
Carnegie Mellon University, Pittsburgh, PA, USA.

1275. Assessment of Myocardial Perfusion Post PTCA Using SE-EPI.
F.B. Gao, Y.G. Gao, B.S. Qiu, Y. Liang, Y.Q. Cai, J.M. Cai, M. Shang, T.S. Yang and X. Ma.
PLA General Hospital and GE Medical Systems China, Beijing, China.

1276. Three-Dimensional MR Imaging of Myocardial Perfusion.
O. Simonetti, J. Zheng, D. Li, J. Bundy and F. Klocke.
Siemens Medical Systems, Bracco Diagnostics, Northwestern University and Feinberg Cardiovascular Research Institute, Chicago, IL, USA.

1277. Heterogeneity of BOLD-indexed Myocardial Perfusion Reserve.
D.A. Herzka, J.L. Boxerman, W.S. Post, S.B. Reeder, A.Z. Faranesh, B.B. Chin, M.N. Hill, E.P. Shapiro, J.L. Weiss, E.R. McVeigh and G.M. Beache.
Johns Hopkins University School of Medicine, Baltimore, MD, USA.

1278. Application of Breath-hold T_2-Weighted, First-Pass Perfusion and Gadolinium-Enhanced T_1-Weighted MR Imaging for Assessment of Myocardial Viability.
S.I. Choi, C.Z. Jiang, S.H. Choi, S.T. Kim, K.H. Lim, C.H. Lim, G.Y. Gong, D.H. Moon and T-H. Lim.
Asan Medical Center, University of Ulsan College of Medicine and Asan Institute for Life Science, Seoul, Korea.

1279. Investigation of a Necrotic Tissue-Specific MR Contrast Agent (Gadophrin-2) for Assessment of Myocardial Viability in Reperfused Myocardial Infarction in a Cat Model.
S.I. Choi, S.H. Choi, S.T. Kim, K.H. Lim, C.H. Lim, G.Y. Gong, H.Y. Kim, H.J. Weinmann and T-H. Lim.
Asan Medical Center, University of Ulsan College of Medicine and Asan Institute for Life Science, Seoul, Korea and Schering AG, Berlin, Germany.

1280. Prolonged Postinfarction Myocardial Edema in Humans Visualized by Magnetic Resonance Imaging.
J.C. Nilsson, G. Nielsen, T. Fritz-Hansen, L. Sondergaard, G.B. Jensen and H.B.W. Larsson.
University of Copenhagen, Denmark.

1281. Qualitative and Quantitative Assessment of Regional Left Ventricle Wall Motion in Short Axis MR Images of Patients with Acute Anterior Myocardial Infarction in Comparison to Normal Database.
T. Ibrahim, S. Nekolla, J. Dirschinger, U. Schricke, A. Schomig and M. Schwaiger.
Technische Universitat Munchen, Munchen, Germany.

Cardiovascular MR Imaging: Tagging, Function, High Speed, High Field

1282. Segmented TrueFISP Cine Imaging of the Heart.
J. Bundy, O. Simonetti, G. Laub and J.P. Finn.
Siemens Medical Systems and Northwestern University, Chicago, IL, USA.

1283. LV Motion Reconstruction from Tagged MRI: A Comparison.
J. Declerck, T. Denney, W. O'Dell, C. Ozturk and E. McVeigh.
Johns Hopkins University, Baltimore, MD, USA and Auburn University, Auburn, AL, USA.

1284. *In-Vivo* Validation of 4D B-Spline-Based Motion Tracking Algorithm for Cardiac Tagged MRI.
C. Ozturk and E.R. McVeigh.
Johns Hopkins University School of Medicine, Baltimore, MD, USA.

1285. Comparison of DENSE to 2D Tagging in Canine Models.
A.H. Aletras, S.S. Ambati, R.S. Balaban and H. Wen.
National Institutes of Health, Bethesda, MD, USA.

1286. High Resolution Strain Analysis of the Human Heart with Fast-DENSE.
A.H. Aletras, R.S. Balaban and H. Wen.
National Institutes of Health, Bethesda, MD, USA.

1287. High Frame Rate Tagged MRI Can Quantitate the Rate of Diastolic Relaxation.
C.H. Scott, V.A. Ferrari, Q. Yuan, E. Haber, Y. Batkov, B. Ivey, L. Axel and M.G. St. John Sutton.
University of Pennsylvania School of Medicine, Philadelphia, PA, USA.

1288. Direct Application of Slice-Following Imaging Overestimates Left Ventricular Systolic Volume and Underestimates Global Systolic Function.
M.L. Chuang, P.G. Danias, M. Stuber, K.V. Kissinger, C.J. Salton and W.J. Manning.
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

1289. Multi-Shot Cine EPI for Evaluating Cardiac Function in Patients with Severe Coronary Artery Disease: Experience in 100 Exams.
J.N. Oshinski, G.P. Chatzimavroudis, R. Muthupillai and R.I. Pettigrew.
Emory University School of Medicine, Atlanta, GA, USA.

1290. Transesophageal MRI of Thoracic Aorta in Vivo in Patients with and without Atherosclerosis.
K.A. Shunk, E. Atalar, C. Rochitte and J.A.C. Lima.
Johns Hopkins University School of Medicine, Baltimore, MD, USA.

1291. Virtual Transducer Color Flow MRI of Septal Defects and Valvular Disease.
S.E. Fischer, S.A. Wickline and C.H. Lorenz.
Washington University Medical Center, St. Louis, MO, USA and Philips Medical Systems, Best, The Netherlands.

1292. Evaluation of Modified Fontan Hemodynamics Using 3-D Reconstruction of Magnetic Resonance Phase Velocity Mapping Data.
A.E. Ensley, T.M. Healy, G.P. Chatzimavroudis, K. Hopkins, S. Sharma and A.P. Yoganathan.
Georgia Institute of Technology and Emory University School of Medicine, Atlanta, GA, USA.

1293. Adaptive Partial-FOV Reconstruction of Dynamic Images.
H. Sedarat, A.B. Kerr, J.M. Pauly and D.G. Nishimura.
Stanford University, Stanford, CA, USA.

1294. Validation of an Active Contour Based LV Analysis Technique.
M.J. Graves, R.A.R. Coulden, D.J. Lomas and F.H. Epstein.
University of Cambridge, Cambridge, UK and GE Medical Systems, Milwaukee, WI, USA.

1295. Multi Slice Dynamic Imaging: Complete Three-dimensional Functional Examination of the Heart Within 15 Seconds.
A. Bornstedt, E. Nagel, B. Schnackenburg, J. Smink, L. Mollevanger and E. Fleck.
Humboldt University and German Heart Institute, Berlin, Germany and Philips Medical Systems, Best, The Netherlands.

1296. Quantification of Left Ventricular Volume and Function with MR Images Acquired in Real Time.
R.M. Setser, S.E. Fischer and C.H. Lorenz.
Barnes-Jewish Hospital at Washington University Medical Center, St. Louis, MO, USA and Phillips Medical Systems, Best, The Netherlands.

1297. Real-Time MRI to Determine Correlation Between Cardiac and Respiratory Motion During Ergometer Stress.
P. Kunz, A. Roest, W. Helbing, J. Doornbos, H.J. Lamb, E.E. van der Wall and A. de Roos.
Leiden University Medical Center, Leiden, The Netherlands and Interuniversity Cardiology Institute of the Netherlands, Leiden, The Netherlands.

1298. Real Time Heart Function Assessment under Physically Induced Stress.
M. Spiegel, O. Weber, M.B. Scheidegger, R. Luechinger and P. Boesiger.
University and ETH, Zurich, Switzerland.

1299. Interactive Real-Time MRI for the Examination of Left Ventricular Function.
O.M. Weber, H. Eggers, M.A. Spiegel, M.B. Scheidegger, P. Boernert and P. Boesiger.
University of Zurich and Swiss Federal Institute, Zurich, Switzerland and Philips Research Laboratories, Hamburg, Germany.

1300. Real-Time MR Assessment of Flow Changes in the Ascending Aorta During Ergometer Stress and Recovery.
P. Kunz, A. Roest, J. Doornbos, H.J. Lamb and A. de Roos.
Leiden University Medical Center, Leiden, The Netherlands and Interuniversity Cardiology Institute of the Netherlands, Leiden, The Netherlands.

1301. *In Vivo* Magnetic Resonance Imaging of Canine Heart at 9.4 Tesla.
N.V. Tsekos, H. Merkle and K. Ugurbil.
University of Minnesota, Minneapolis, MN, USA.

1302. *In Vivo* ^{23}Na Imaging of the Normal Canine Heart at 9.4T.
N.V. Tsekos, H. Merkle, Y. Zhang and K. Ugurbil.
University of Minnesota, Minneapolis, MN, USA.

Cardiac MR Imaging: Miscellaneous New Techniques

1303. Clinical Application of Vectorcardiographic Triggered MR Imaging.
J.M. Chia, S.E. Fischer, S.A. Wickline and C.H. Lorenz.
Washington University Medical Center, St. Louis, MO, USA and Philips Medical Systems, Best, The Netherlands.

1304. Fast 3D ^{23}Na Gradient Echo MRI of the Human Heart.
A. Greiser, F. Odoj, M. von Kienlin and A. Haase.
Physikalisches Institut, Wurzburg, Germany.

1305. 3D ^{23}Na MRI Can be Used for Discrimination of Infarcted and Intact Myocardium in Chronically Infarcted Rat Hearts.
C. Weidensteiner, M. Horn, T. Lanz, E. Fekete, A. Haase, S. Neubauer and M. v Kienlin.
Universitat Wurzburg, Germany.

1306. MR-CAT Scan: Cardiac Imaging with a New Hybrid Approach.
P.M. Jakob, C. Hillenbrand, J. Sandstede, W. Kenn, T. Pabst, D. Hahn and A. Haase.
Universitat Wurzburg, Wurzburg, Germany.

1307. Magnetic Resonance Imaging of Mouse Hearts.
M. Zhang, M. Griswold, J. Munasinghe, R. Laham, M. Simons and D. Burstein.
Beth Israel Deaconess Medical Center, Boston, MA, USA.

1308. Rodent Heart Imaging in the Drug Discovery Environment.
S-P. Williams, H. Jin, R. Yang, A. Ogasawara and N. van Bruggen.
Genentech Inc., South San Francisco, CA, USA.

1309. Mitochondrial Contribution to Magnetization Transfer in Cardiac Tissue.
K.M. Ward and R.S. Balaban.
National Institutes of Health, Bethesda, MD, USA.

1310. MT Contrast Optimization for a Breathold 3D Sequence: Applications to Cardiac Imaging.
S. Sinha, U. Sinha, A. Daniell and A. Gomes.
University of California, Los Angeles, CA, USA.

1311. How Can We Detect Ischemia Inside the Magnet?
R. Summers, S. Andres, M. Ede, N. Pizzi, J. Rendell, R. Deslauriers and R.L. Somorjai.
National Research Council Canada, Winnipeg, Canada.

1312. Relationship Between Circumferential Shortening and Torsion of the Left Ventricle using SPAMM-Tagged MR Imaging: Normal Control vs. Hypertrophied Heart.
M. Motooka, N. Yamada, S. Urayama, M. Takamiya, T. Uyama, T. Matsuda and S. Sasayama.
National Cardiovascular Center, Osaka, Japan and Kyoto University, Kyoto, Japan.

1313. Microscopic Coronary Angiography of the Mouse *In Vivo*.
J. Ruff, F. Wiesmann, T. Lanz, E. Rommel and A. Haase.
Universitat Wurzburg, Germany.

1314. Left Ventricular Function Parameters and Mass in Healthy Young Adults: Gender Differences after Indexing for Body Size.
J.T. Marcus, L.K. DeWaal, J.P.A. Kuijer, M.J.W. Gotte, R.J. van der Geest, R.M. Heethaar and A.C. Van Rossum.
Vrije Universiteit, Amsterdam, The Netherlands and Leiden University Medical Centre, Leiden, The Netherlands.

1315. Cardiac Scouting Using Reduced Field-Of-View MR-Fluoroscopy.
V. Rasche, T. Schaffter, D. Holz and G. Mens.
Philips Research, Hamburg, Germany and Philips Medical Systems, Best, The Netherlands.

1316. Effect of Skeletal Muscle Assistance on Left Ventricular Function: Assessment using MR Tissue-Tagging.
A.S. Blom, J.J. Pilla, S.V. Pusca, H.J. Patel, L. Dougherty, Q. Yuan, V.A. Ferrari, M.A. Acker and L. Axel.
University of Pennsylvania Medical Center, Philadelphia, PA, USA.

1317. The Effects of Aging on Myocardial Efficiency.
A.M. Kates, P. Moustakidis, P. Herrero, W.E. Oellerich, B. Cupps, D.A. Delano, V.G. Davila-Roman, M.K. Pasque and R.J. Gropler.
Washington University School of Medicine, St. Louis, MO, USA.

1318. Abnormal Myocardial T_1 in Patients with Fabry's Disease.
A.E. Arai, F.H. Epstein, R.S. Balaban and R. Schiffmann.
National Institutes of Health, Bethesda, MD, USA.

1319. MRI in Atrial Septal Defects Pre and Post Occlusion by Amplatzer Occluder.
C. Weber, O. Franzen, C. Hamm, R. Maas, E. Bucheler and P. Steiner.
University Hospital Eppendorf, Hamburg, Germany.

1320. Atrial Volume Measurements with MRI: A Method for Rapid Quantification in Chronic Mitral Regurgitation.
R. Krittayaphong, D. Gopalakrishnan, P. Saiviroonporn, V. Davila-Roman, S.A. Wickline and C.H. Lorenz.
Washington University School of Medicine, St. Louis, MO, USA and Mahidol University, Bangkok, Thailand.

1321. Magnetic Resonance Imaging (MRI) in Cardiac Masses - Comparison with Histological Findings.
U. Hoffmann, S. Globits, C. Loewe, R. Loewe, G. Oberhuber, C. Herold and H. Frank.
University of Vienna, Austria.

1322. Cardiac Alterations in Mice with Altered GLUT4 Expression.
J.S. Laidlaw, M.J. Charron and L.A. Jelicks.
Albert Einstein College of Medicine, Bronx, NY, USA.

Tumor Angiogenesis and Vascularity

1323. How Dormant are Dormant Tumors? Oscillations in the Angiogenic Switch.
A. Gilead, A. Uziel, Z. Agur and M. Neeman.
The Weizmann Institute of Science, Rehovot, Israel and Tel Aviv University, Tel Aviv, Israel.

1324. Effect of ZD4190, a VEGF Receptor Tyrosine Kinase Inhibitor, on Endothelial Permeability in Human Tumour Xenografts.
D. Checkley, B. Curry, M. Dukes, J. Kendrew, J.J. Tessier, J.C. Waterton and S.R. Wedge.
Zeneca Pharmaceuticals, Macclesfield, Cheshire, UK.

1325. Dynamic Flow Studies in Mammary Carcinomas after Treatment with the PKC Inhibitor Bryostatin-1.
J.P. Dyke, C.M. Matei, G. Schwartz, D.J. Ballon, J.A. Koutcher and K.L. Zakian.
Memorial Sloan-Kettering Cancer Center, New York, NY, USA.

1326. Protamine as an Anti-angiogenesis Agent for Cancer Therapy: Blood Coagulation of Tumor Feeding Vessels Measured by MRI.
M-Y. Su, M.K. Samoszuk, Y. Song and O. Nalcioglu.
University of California, Irvine, CA, USA.

1327. Dynamic Contrast-Enhanced MR Imaging of Uterine Cervical Cancer: Pharmacokinetic Analysis with Histologic Correlation and its Prognostic Significance after Radiation Therapy.
Y. Yamashita, T. Baba, Y. Baba, R. Nishimura, M. Takahashi and H. Okamura.
Kumamoto University School of Medicine, Kumamoto, Japan.

1328. Uterine Cervical Carcinoma: Comparison of Standard and Pharmacokinetic Analysis of Time-Intensity Curves for Assessment of Tumor Angiogenesis and Patient Survival.
H. Hawighorst, P.G. Knapstein, M. Essig, S. Schonberg, P. Vaupel, G. Brix and G. van Kaick.
German Cancer Research Center, Heidelberg, Germany and University of Mainz, Germany.

1329. Radiosurgery of Malignant Glioma: Prediction of Tumor Response after Irradiation by Pharmacokinetic MR Imaging.
H. Hawighorst, J. Debus, K. Eichhorn, H. Schlemmer, M.V. Knopp and G. van Kaick.
German Cancer Research Center and University of Heidelberg, Heidelberg, Germany.

1330. Necrotic Fraction Estimation of Osteogenic Sarcomas Undergoing Induction Chemotherapy using FMPSPGR Dynamic Perfusion Imaging.
J.P. Dyke, D.M. 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.

1331. Investigation of the Enhanced Delivery of Small and Macromolecular Agents into Tumors under Hypertension Condition Induced by a Vasoconstrictor.
M-Y. Su and O. Nalcioglu.
University of California, Irvine, CA, USA.

1332. Drug Delivery to Tumors: Potential of MR for Measurement and Prediction.
D. Artemov and Z.M. Bhujwalla.
The Johns Hopkins University School of Medicine, Baltimore, MD, USA.

1333. Evaluating the Anti-Tumour Activity of New Vascular Damaging Agents using Magnetic Resonance Spectroscopy.
T. Breidahl, F.U. Nielsen, R.J. Maxwell, H.S. Joergensen and M.R. Horsman.
Aarhus University Hospital, Aarhus, Denmark and Mount Vernon Hospital, Northwood, UK.

1334. Evaluation of Tumor Perfusion by ^{2}H-MRI of MCF7 Breast Cancer.
L. Bogin, R. Edgar, R. Margalit, J. Mispelter and H. Degani.
Weizmann Institute of Science, Rehovot, Israel and Centre Universitaire, Orsay, France.

1335. Tumor Oxygen Tension Mapping Using the Vascular Volume Fraction as Measured by the Dynamic Contrast Enhanced MRI.
Z. Wang, M-Y. Su and O. Nalcioglu.
University of California, Irvine, CA, USA.

1336. Tumor Vascularity and Reactivity: Human Glioma in a Nude Rat Model.
S.D. Packard, J.B. Mandeville, K. Ikeda, E.A. Chiocca, B.R. Rosen and J.J.A. Marota.
Massachusetts General Hospital, Charlestown, MA, USA.

1337. A Strategy to Quantitatively Estimate Tumor Blood Volume with Gd-DTPA.
M. Karlsson and B. Nordell.
Karolinska Institute, Stockholm, Sweden.

1338. Quantification of Fractional Blood Volume Under Effects of Inflow and Water Exchange.
Y.R. Kim, R. Cox and K.M. Donahue.
Medical College of Wisconsin, Milwaukee, WI, USA.

1339. Quantitative Evaluation of Glioma Vascularization, Permeability and Interstitial/Cell Volume by MRI.
L. Ludemann and C. Zimmer.
Charite, Berlin, Germany.

1340. Quantitative Measurement of Vascular Permeability of Gliomas by Double Echo Dynamic MRI: A Preliminary Study.
H. Uematsu, M. Maeda, N. Sadato, T. Matsuda, Y. Koshimoto, H. Yamada, H. Kimura, Y. Kawamura, N. Hayashi, Y. Yonekura and Y. Ishii.
Fukui Medical University, Fukui, Japan and GE-Yokogawa Medical Systems, Tokyo, Japan.

1341. Improved Imaging of Tumor Vasculature: MR Spectroscopic Imaging of the Water Resonance Combined with a Superparamagnetic Contrast Agent.
G.S. Karczmar, J.N. River, K. Tarlo, K. Kellar, X. Fan, H. Al-Hallaq, M. Zamora and C. Rinker-Schaeffer.
University of Chicago, Chicago, IL, USA and Nycomed Amersham Imaging, Wayne, PA, USA.

Tumor MR Spectroscopy and Imaging - Models

1342. Altered Glucose Handling is an Early Event in Apoptosis.
N.R. Maisey, T.A.D. Smith, M.O. Leach and S.M. Ronen.
Royal Marsden Hospital, Sutton, Surrey, UK.

1343. Multinuclear NMR Studies of Apoptotic Changes in a Human Tumour Cell Line During Miltefosine Treatment.
J. Henke, U. Flogel, J. Pfeuffer and D. Leibfritz.
University of Bremen, Bremen, Germany.

1344. Gonadotropin Regulation of Adhesion in MLS Human Ovarian Center Cells.
Y.S. Schiffenbauer, R.B. Shavit and M. Neeman.
The Weizmann Institute of Science, Rehovot, Israel and Hadassah-University Hospital, Jerusalem, Israel.

1345. Metabolic Boyden Chamber Detects Significant Differences in Invasion for Metastatic and Nonmetastatic Prostate Cancer Cells.
U. Pilatus, E.A. Ackerstaff, D. Artemov, N. Mori, R.J. Gillies and Z.M. Bhujwalla.
The Johns Hopkins University School of Medicine, Baltimore, MD, USA and University of Arizona, Tucson, AZ, USA.

1346. Herpes Simplex Virus (HSV-1) Mediated Viral Therapy of Murine Brain Tumors Monitored by MRI.
H. Poptani, C.G. Miller, N.W. Fraser and J.D. Glickson.
University of Pennsylvania, Philadelphia, PA, USA.

1347. ^{19}F -MRS Studies of the Novel Thymidylate Synthase (TS) Inhibitor, ZD9331.
P.M.J. McSheehy, A.S.E. Ojugo, M.O. Leach, I.R. Judson and J.R. Griffiths.
St. George's Hospital Medical School, London, UK and Institute of Cancer Research, Sutton, Surrey, UK.

1348. Accumulation of Phosphocholine in MCF7 Human Breast Cancer; The Role of Choline Transport and Phosphorylation.
R. Katz-Brull, R. Margalit, P. Bendel and H. Degani.
Weizmann Institute of Science, Rehovot, Israel.

1349. *In Vivo* TQF ^{23}Na MRS of Morris Hepatoma 7777 Using TmDOTP^{5-}.
P.M. Winter, H. Poptani, J.D. Glickson and N. Bansal.
University of Pennsylvania, Philadelphia, PA, USA.

1350. Uptake and Washout of Borocaptate Sodium (BSH) and Borono-Phenylalanine (BPA) in Melanoma Cells: an in-vitro Multinuclear NMR Study.
V. Panov, Y. Salomon, G.W. Kabalka and P. Bendel.
The Weizmann Institute of Science, Rehovot, Israel and University of Tennessee, Knoxville, TN, USA.

1351. FDG (2'-Fluoro-2'-Deoxyglucose) Tumor Metabolism Detected by ^{19}F -MRS *in vivo* Correlates with Therapeutic Response.
P.M.J. McSheehy, M.O. Leach, I.R. Judson and J.R. Griffiths.
St. George's Hospital Medical School, London, UK and Institute of Cancer Research, Sutton, Surrey, UK.

1352. Fluorine-19 NMR Imaging of the Biodistribution and Metabolization of the Antienoplastic Agent Gemcitabine in Tumor-Bearing Rats.
M.E. Bellemann, U. Haberkorn, L. Gerlach, J. Blatter and G. Brix.
German Cancer Research Center, Heidelberg, Germany and Lilly Deutschland GmbH, Bad Homburg, Germany.

1353. Biodistribution and Pharmacokinetics of the Radiosensitizer 3-Aminobenzamide: Assessment with Fluorine-19 NMR Imaging.
M.E. Bellemann, A. Schlicker, W. Mier, P. Peschke and G. Brix.
German Cancer Research Center, Heidelberg, Germany and University of Applied Sciences, Jena, Germany.

1354. Investigations of Modulation of 5-Fluorouracil (FU) Pharmacokinetics by 5-Ethyl-2'Deoxyuridine (EUdR) in Tumor-Bearing Mice and Rats.
P.M.J. McSheehy, J. Kralovansky, A. Jeney, E. Pandi, C. Katona, P. Noordhuis, G.F. Peters, L.M. Rodrigues and J.R. Griffiths.
St. George's Hospital Medical School, London, UK; Institutes of Oncology and Pathology, Budapest, Hungary and Free University, Amsterdam, The Netherlands.

1355. Biochemical Modulation of the Anticancer Drug 5-Fluorouracil by Bromovinyluracil: Assessment with Metabolic ^{19}F MR Imaging.
G. Brix, M.E. Bellemann, L. Gerlach and U. Haberkorn.
Federal Office for Radiation Protection, Neuherberg, Germany and German Cancer Research Center, Heidelberg, Germany.

1356. ^{1}H MRS of Cell Extracts Can Monitor the Effects on Cell Metabolism Due to Growth Impairment in Gamma Irradiated HeLa Cells.
S. Grande, A.M. Luciani, A. Rosi, V. Viti and L. Guidoni.
Istituto Superiore di Sanita, Rome, Italy.

1357. Metabolic Effects of an IFN-[gamma]/TNF-[alpha] Combination Therapy on HT-29 Cells as Determined by High-Resolution ^{31}P and ^{1}H NMR Spectroscopy of PCA Extracts.
N.W. Lutz and P.J. Cozzone.
Faculte de Medecine, Marseille, France.

1358. Effect of 6-Aminonicotinamide on Human Tumor Metabolism, and Response to Chemotherapy and Radiation.
A. Holleran, Y. Chen and J.A. Koutcher.
US Patent Office and Memorial Sloan Kettering Cancer Center, New York, NY, USA.

1359. Characterization of Lactate Levels in Normal and Malignant Human Mammary Epithelial Cells.
E.O. Aboagye and Z.M. Bhujwalla.
The Johns Hopkins University School of Medicine, Baltimore, MD, USA.

1360. Measurements of Lactate Turnover in Rat Intracerebral C6 and 9L Gliomas Using ^{1}H {^{13}C} MRS.
M. Terpstra, M. Mescher and M. Garwood.
University of Minnesota Medical School, Minneapolis, MN, USA.

1361. Tumour Selective in Vivo ^{13}C-CP NMR Assessment of Glycolytic Rate Under Various Oxygenation States.
F.U. Nielsen, M.R. Horsman, P. Daugaard, H. Stodkilde-Jorgensen and R.J. Maxwell.
Aarhus University, Denmark and Mount Vernon Hospital, Northwood, UK.

1362. Glucose Metabolism in MCF7 Breast Cancer; *In Vivo* ^{13}C MRS Studies.
D. Rivenzon-Segal, R. Margalit, P. Bendel and H. Degani.
Weizmann Institute of Science, Rehovot, Israel.

1363. Detection and Assignment of Phosphocreatine Signal *in vivo* in ^{1}H NMR Spectra at 9.4 Tesla.
J. Pfeuffer, I. Tkac, K. Ugurbil, M. Garwood and R. Gruetter.
University of Minnesota Medical School, Minneapolis, MN, USA.

1364. Effects of Bafilomycin A_1 on Tumor pH, Metabolism and Growth.
P.M.J. McSheehy, C. Box, L. Kelly, L. Kelland, M.O. Leach, I.R. Judson and J.R. Griffiths.
George's Hospital Medical School, London, UK and Institute of Cancer Research, Sutton, Surrey, UK.

1365. Towards a quantitative understanding of tumor pH and metabolism.
P.A. Schornack, T.W. Secomb and R.J. Gillies.
University of Arizona, Tucson, AZ, USA.

1366. Does Lactate Distribution Across the Cell Membrane Reflect the Transmembrane pH in Tumour and Normal Tissue?
M. Stubbs, S.P. Robinson, C.A. Parkins and J.R. Griffiths.
St. George's Hospital Medical School, London, UK and Mount Vernon Hospital, Northwood, Middlesex, UK.

1367. pH Heterogeneity in Spheroids by ^{1}H MRSI Microscopy.
J. Alvarez-Perez, R. van Sluis, N. Raghunand, Z. Bhujwala, S. Cerdan, R.J. Gillies and P. Ballesteros.
C.S.I.C., Madrid, Spain; University of Arizona, Tucson, AZ, USA; John Hopkins University, Baltimore, MD, USA and UNED, Madrid, Spain.

1368. ^{31}P MRS Measurements of Tumor pH in Mice Subjected to Acute Metabaolic Alkalosis.
N. Raghunand, B. Mahoney, R. van Sluis, B. Baggett and R.J. Gillies.
University of Arizona Health Sciences Center, Tucson, AZ, USA.

1369. Intravenous Administration of Perfluorocarbons Overestimates Tumor Oxygen Tension in the GH3 Xenograft.
D.J.O. McIntyre, C.L. McCoy, S.P. Robinson, D.R. Collingridge and J.R. Griffiths.
St. George's Hospital Medical School, London, UK and Yale University School of Medicine, New Haven, CT, USA.

1370. Changes in Tumor Oxygenation/Perfusion Monitored by Gradient Echo Imaging.
L. Nadal, H. Poptani, J.E. Biaglow and J.D. Glickson.
University of Pennsylvania, Philadelphia, PA, USA.

1371. Correlation of Proton and Fluorine-19 MR Measurements of Tumor Oxygenation.
H.A. Al-Hallaq, M. Zamora and G.S. Karczmar.
University of Chicago, Chicago, IL, USA.

1372. Effects of Different Levels of Hypercapnic Hyperoxia on Tumour GRE MR Image Intensity and Arterial Blood Gases.
S.P. Robinson, L.M. Rodrigues, M. Stubbs and J.R. Griffiths.
St. George's Hospital Medical School, London, UK.

1373. Dynamic Diffusion Weighted MRI to Monitor Ca^{2+} Channel Blocker-Induced Changes in Tumor Microcirculation.
M. Muruganandham, N.R. Jagannathan, P.C. Jain and V. Jain.
University of Delhi, Delhi, India and All India Institute of Medical Sciences, New Delhi, India.

1374. Dynamic Contrast-Enhanced MRI to Monitor Perfusion and Permeability Changes in Human Tumours during Treatment by the Vascular Targeting Agent DMXAA.
S.M. Galbraith, N.J. Taylor, J.J. Stirling, G. Rustin and H. Baddeley.
Mount Vernon Hospital, Northwood, Middlesex, UK.

1375. Imaging Blood Flow in Brain Tumors Using Arterial Spin Labeling.
A.C. Silva, S-G. Kim and M. Garwood.
University of Minnesota Medical School, Minneapolis, MN, USA.

1376. Diffusion Compartmentation in Multicellular Tumor Spheroids.
E. Smouha and M. Neeman.
Weizmann Institute of Science, Rehovot, Israel.

1377. Histologic Characterization of Tumor Heterogeneity by Diffusion MRI; Mapping the Extracellular Volume Fraction at High Spatial Resolution.
Y. Paran, R. Edgar, P. Bendel and H. Degani.
Weizmann Institute of Science, Rehovot, Israel.

1378. Return-to-the-Origin Probability and ADC Mapping as Indicators of Efficacy of Chemotherapy in RIF-1 Tumors.
M.R. Meiler, K.G. Helmer and C.H. Sotak.
Worcester Polytechnic Institute and University of Massachusetts Medical School, Worcester, MA, USA.

1379. Comparison of the Return-to-the-Origin Probability and Apparent Diffusion Coefficient of Water to Map Murine Tumor Necrosis.
M.R. Meiler, K.G. Helmer and C.H. Sotak.
Worcester Polytechnic Institute and University of Massachusetts Medical School, Worcester, MA, USA.

1380. Comparison Between MR Diffusion Imaging and Pathological Findings of the VX2 Carcinoma in Rabbits after Ethanol Injection.
M. Kuginuki, M. Matoba, Y. Kuginuki, H. Yokota, H. Tonami and I. Yamamoto.
Kanazawa Medical University, Ishikawa, Japan.

1381. Increases in Water Mobility Detected by MR Diffusion Mapping Predict Treatment Responses in Experimental Brain Tumors Follow Chemo- and Gene Therapy.
T.L. Chenevert, L.D. Stegman, A. Rehemtulla and B.D. Ross.
University of Michigan, Ann Arbor, MI, USA.

1382. *In Vivo* Measurements of Size of Lipid Droplets in C6 Rat Glioma: ^{1}H Diffusion Measurements.
H. Lahrech, C. Remy, R. Farion, S. Zoula and M. Decorps.
Hopital A. Michallon, Grenoble, France.

1383. Inhibition of Tetraphenylphosphonium-induced NMR-visible Lipid Accumulation by Chlorpromazine.
N. Sathasivam, S. Brammah, L.C. Wright and E.J. Delikatny.
University of Sydney and Concord Hospital, Sydney, NSW, Australia.

1384. Mobile Lipid (ML) Production in C6 Perfused Cells: Effect of Confluence and Acid pH Stress.
I. Barba, P. Mann, M. Cabanas, C. Arus and C. Gasparovic.
Universitat Autonoma de Barcelona, Spain and University of New Mexico, Albuquerque, NM, USA.

1385. ^{1}H-NMR Spectroscopic Study of Lipid Signals in Sensitive, Drug-Resistant and Revertant K562 Cells: T_1 Measurements and Subcellular Localization by Nile Red Staining.
P. Legouin, L. Le Moyec, M. Kawakami, D. Briane, B. Collet, G. Leray and J.D. de Certaines.
Universite de Rennes l, Rennes, France; CSSB-UFR SMBH, Bobigny, France and Centre Regional de lutte contre le cancer, Rennes, France.

1386. NMR Imaging of the Development of Hepatic Tumours in an Animal Model.
L.M. Foley, R.A. Towner, P. Russell and D.M. Painter.
James Cook University, Townsville, Queensland, Australia and Royal Prince Alfred Hospital, Sydney, NSW, Australia.

1387. Mapping White Matter Tracts Involved with the Dissemination of Primary Brain Tumors: A Preliminary Investigation in Rats Using Intracerebral Albumin-(Gd-DTPA) with MRI.
J. Portnow, D. Artemov, S. Eller, M. Solaiyappan, S.A. Grossman and Z. Bhujwalla.
Johns Hopkins University, Baltimore, MD, USA.

MR Spectroscopy of Brain Tumors

1388. Automated Classification of *In Vivo* Short-Echo Time ^{1}H Spectra of Human Brain Tumours from Two Different Centres Using Principal Component Analysis.
A.R. Tate, S.J. Barton, F. Howe, J.R. Griffiths, A. Moreno, I. Barba and C. Arus.
St George's Hospital Medical School, London, UK and Centre Diagnostic Pedralbes and Universitat Autonoma de Barcelona, Barcelona, Spain.

1389. Grade-Dependent Cellular Metabaolite Changes in Patients with Glial Tumors: Assessment with *in vivo* ^{1}H MR Spectroscopy.
G-W. Jeong, J-J. Seo, H-K. Kang, Y-H. Kim, Y-Y. Jeong, J-G. Park, J-B. Kim, S-J. Park and H-J. Kim.
Chonnam University Hospital and Chonnam National University, Kwang-Ju, Korea.

1390. Short-Echo Time ^{1}H Macromolecule and Metabolite Spectra of Intracranial Tumors.
T. Nagele, U. Seeger, I. Mader, U. Klose, M. Bitzer, W. Grodd and K. Voigt.
University of Tubingen, Germany.

1391. Correlation of ^{1}H MRSI, rCBV, and ADC to Image Guided Biopsies of Human Brain Tumors.
M. Hanna, S. Noworolski, R. Henry, A. Bollen, M. Day, C. Dowling, M. McDermott, M. Berger, W. Dillon, S. Nelson and D. Vigneron.
University of California, San Francisco, CA, USA.

1392. Quantitative Brain Tumor Pathology with HRMAS Proton MR Spectroscopy.
L.L. Cheng, D.C. Anthony, D.N. Louis, A.A. Tzika, P.M. Black and R.G. Gonzalez.
Massachusetts General Hospital, Boston Children's Hospital, Brigham and Women's Hospital and Harvard Medical School, Boston, MA, USA.

1393. Detection of an Unknown ^{1}H MRS Signal at 2.37-2.40 ppm in Patients with Severe Late-delayed Radiation Injuries.
D. Yeung, Y.L. Chan, S.F. Leung, G. Cao and C. Metreweli.
Prince of Wales Hospital, Chinese University of Hong Kong and Philips Medical Systems, Hong Kong, China.

1394. Single Voxel Proton MRS Matches CSI in Efficacy of Human Brain Tumor Differentiation and Treatment Response Diagnosis.
A. Lin, S. Bluml, W. Caton, C. Duma, A. Mamelak, R. Rand, S. Wiseman and B.D. Ross.
Huntington Medical Research Institutes, Pasadena, CA, USA; Rudi Schulte Research Institute, Santa Barbara, CA, USA and Southern California Clinical Spectroscopy Service, Pasadena, CA, USA.

1395. Quantitative Proton-Decoupled ^{31}P MRS of Human Brain Tumors.
A.P. Lin, S. Bluml, K.J. Seymour, J.P. Tan, R. Rand and B.D. Ross.
Huntington Medical Research Institutes, Pasadena, CA, USA; Rudi Schulte Research Institute, Santa Barbara, CA, USA; Southern California Clinical Spectroscopy Service, Pasadena, CA, USA and John Wayne Cancer Center, Santa Monica, CA, USA.

1396. Phosphorus-31 NMR Spectroscopy in Patients with Advanced Neck Tumors During Radiotherapy.
M. Becker, H.P. Schlemmer, P. Bachert, A. Dietz, B. Vanselow, V. Rudat, M.V. Knopp, H. Weidauer, M. Wannenmacher and G. van Kaick.
University of Heidelberg, Heidelberg, Germany.

1397. Nosologic Image: A Tool for Analyzing Proton Magnetic Resonance Spectroscopic Images (^{1}H MRSI) of Brain Tumors.
C. Rubin, F. Szabo de Edelenyi, C. Segebarth, M. Decorps, C. Remy, F. Esteve, S. Grand and J.F. Lebas.
Centre Hospitalier Universitaire, Grenoble, France.

1398. Statistical Classification of Metabolites in Low Grade Gliomas with ^{1}H MRSI.
T.R. McKnight, S.M. Noworolski, W.P. Dillon, D.B. Vigneron and S.J. Nelson.
University of California, San Francisco, CA, USA.

MR Spectroscopy of Human Brain

1399. Age-Related Decrease in NAA Concentration and NAA/Creatine Ratio Revealed by Single Voxel ^{1}H-MRS and Compartmentation Analysis in Fifty Subjects.
J.C.W. Brooks, N. Roberts, G.J. Kemp, M.A. Gosney, V. Spark, M. Lye and G.H. Whitehouse.
University of Liverpool, Liverpool, UK.

1400. Reversal of Cerebral Metabolite Abnormalities with Highly Active Antiretroviral Therapy (HAART) in Mild HIV-1 Dementia.
L. Chang, T. Ernst, M. Leonido-Yee, M. Witt, O. Speck, I. Walot and E. Miller.
UCLA School of Medicine, Harbor-UCLA Medical Center, Torrance, CA, USA.

1401. ECT Effects on Cortical GABA Levels as Determined by ^{1}H-MRS.
G. Sanacora, G.F. Mason, D.L. Rothman, R.M. Berman, D.S. Charney, J.J. Ciarcia and J.H. Krystal.
Yale University School of Medicine, New Haven, CT, USA.

1402. Choline Abnormalities in Panic Disorder: A Link Between Anxiety and Depression?
S.D. Friedman, M.E. Layton, T.R. Richards, W. Strauss, S. Posse and S.R. Dager.
University of Washington, Seattle, WA, USA and Institut fur Medizin, Julich, Germany.

1403. Early Cerebral Markers of Endocrine Responsiveness in Man.
J. Tan, S. Bluml, C.F. Sharp, M. Linsey and B.D. Ross.
Huntington Medical Research Institutes, Pasadena, CA, USA; Rudi Schulte Research Institute, Santa Barbara, CA, USA and Huntington Memorial Hospital, Pasadena, CA, USA.

1404. Thalamic Metabolism in Neurofibromatosis Type 1: Evaluation with Proton MR Spectroscopic Imaging.
P.Y. Wang, C.W. Koth, M.B. Denkla and P.B. Barker.
Johns Hopkins University, Baltimore, MD, USA.

1405. Lesch-Nyhan Disease and Lesch-Nyhan Variants: Evaluation with Quantitative Proton MR Spectroscopic Imaging.
P.Y. Wang, J.C. Harris, A. Horska, H.A. Jinnah and P.B. Barker.
Johns Hopkins University, Baltimore, MD, USA.

1406. Neuronal Dysfunction in Patients with Chronic Alcoholism by *In Vivo* ^{1}H MRS.
B-Y. Choe, C-W. Lee, I-H. Baik, H-K. Lee, S-E. Kim, T-S. Suh, H-K. Lee and K-S. Shinn.
The Catholic University of Korea, Seoul, Korea.

1407. Effect of Chronic Opioid Abuse on the NAA Concentration in the Human Frontal Lobe as Detected by ^{1}H MRS.
R. Haselhorst, K. Dursteler, K. Scheffler, D. Bilecen, J. Seelig, D. Ladewig, R. Stohler and E. Seifritz.
University of Basel, Switzerland; University of Zurich, Switzerland and University of Freiburg, Germany.

1408. Relationship of Brain Metabolites Detected by Proton MR Spectroscopy and Cognitive Impairment in Alcohol Dependent Patients Without Major Medical Complications.
S.Y. Kim, C.Y. Kim, C.H. Lee, H.J. Yoo, J.H. Lee and O.S. Han.
Asan Medical Center, University of Ulsan and Asan Institute of Life Sciences, Seoul, Korea.

1409. Lithium and Bipolar Disorder: CNS Neurochemical Changes Associated with Mood Stabilization.
G.J. Moore, J.M. Bebchuk, M.W. Faulk, I.B. Wilds, N. Seraji-Bozorgzad, C.L. Arfken, J. Strahl-Bevacqua, K. Hasanat, L. Jolkovsky and H.K. Manji.
Wayne State University School of Medicine, Detroit, MI, USA.

1410. Does Hepatitis C Virus Infection Affect the Brain? A Proton Magnetic Resonance Spectroscopy Study.
D. Forton, A. Fletcher, N. Talwar, M. Crossey, G. Foster, H.C. Thomas, I.J. Cox and S.D. Taylor-Robinson.
Hammersmith Hospital and Imperial College School of Medicine, St Mary's Hospital, London, UK.

1411. Investigation of Hippocampal Choline in Depression.
G. Ende, D.F. Braus, S. Walter, W. Weber-Fahr and F.A. Henn.
Central Institute of Mental Health, Mannheim, Germany.

1412. Unidentified Bright Object Prediction in Infants with Neurofibromatosis Type 1.3D Multivoxel ^{1}H MRS.
O. Gonen, A.K. Viswanathan, Z.J. Wang, P.T. Molloy and R.A. Zimmerman.
Fox Chase Cancer Center and Children's Hospital of Philadelphia, Philadelphia, PA, USA.

1413. *In vivo* Brain Proton MR Spectroscopy in Viral Infections: Illustrative Case Reports.
J. Vion-Dury, A.M. Salvan, S. Confort-Gouny and P.J. Cozzone.
Faculte de Medecine, Marseille, France.

1414. Proton Spectroscopic Imaging in Primary CNS Lymphoma: Characterization and Assessment of Response to Chemotherapy.
K.L. Zakian, J. Raizer, S. Xu, E. Lis, L. Abrey, L. DeAngelis and J.A. Koutcher.
Memorial Sloan-Kettering Cancer Center, New York, NY, USA.

1415. Evaluation of Selegiline Treatment Response in HIV Associated Cognitive Impairment Using Proton MR Spectroscopic Imaging.
M.G. Pomper, N.C. Sacktor, A. Horksa, P.Y. Wang, C.D. Constantinides, J.C. McArthur and P.B. Barker.
Johns Hopkins University, Baltimore, MD, USA.

1416. Comparison of Proton Metabolite T_2 Relaxation Times in Putamen and Insular Cortex at 3.0 Tesla.
N. Gelman, M.D. Boska, J.M. Gorell, H.P. Hetherington and P.B. Barker.
Henry Ford Hospital, Detroit, MI, USA; Brookhaven National Laboratory, Upton, NY, USA and Johns Hopkins University School of Medicine, Baltimore, MD, USA.

1417. Reductions in Cortical GABA Levels in Panic Disorder.
A.W. Goddard, G.F. Mason, D.L. Rothman, K.L. Behar, D.S. Charney and J.H. Krystal.
Yale University School of Medicine, New Haven, CT, USA.

1418. Measurements of Human Brain Ethanol Methyl T_2 by Spectroscopic Imaging at 4.0T.
M.K. Sammi, J.W. Pan, F.W. Telang, D. Schuhlein, P.E. Molina, N.D. Volkow, C.S. Springer and H.P. Hetherington.
Brookhaven National Laboratory, Upton, NY, USA and State University of New York, Stony Brook, NY, USA.

1419. Comparing *In-Vivo* Brain ^{31}P Spectroscopy: 1.5T ^{1}H-Decoupled vs. 4.0T ^{1}H-Coupled in Normal Human Volunteers.
J.E. Jensen, D.J. Drost, P.C. Williamson and R.S. Menon.
St. Joseph's Health Centre and University of Western Ontario, Toronto, ON, Canada.

1420. Chemical Imbalances in Familial Hemiplegic Migraine Detected by ^{31}P Spectroscopic Imaging.
M.D. Boska, L. Schultz, J.A. Nelson and K.M.A. Welch.
Henry Ford Hospital, Detroit, MI, USA and University of Kansas School of Medicine, Kansas City, KS, USA.

1421. "Secondary" Leber's Hereditary Optic Neuropathy Mitochondrial DNA Mutations Do Not Further Impair Brain and Muscle Oxidative Metabolism. An *in vivo* ^{31}P-MRS Study.
R. Lodi, P. Montagna, P. Cortelli, S. Iotti, S. Cevoli, V. Carelli and B. Barbiroli.
Universita di Bologna, Italy.

1422. TCA Cycle Rate Measurement in Human Brain by $^{1}H\{^{13}C\}$ NMR in Presence of Partial Volume Effects.
G.F. Mason, J.W. Pan, W-J. Chu, B.R. Newcomer, Y. Zhang and H.P. Hetherington.
Yale University, New Haven, CT, USA; Brookhaven National Laboratory, Brookhaven, NY, USA and University of Alabama at Birmingham, Birmingham, AL, USA.

1423. ^{1}H-MRS Measures Human Intelligence: A Study in Normal Brain.
R.E. Jung, W.M. Brooks, D.C. Weers, R.A. Yeo and W.L. Sibbitt Jr.
University of New Mexico, Albuquerque, NM, USA.

MR Spectroscopy of Seizure and Stroke

1424. Qualitative Reading of ^{1}H MRS Images in the Presurgical Evaluation of Temporal Lobe Epilepsy Patients.
A.A. Capizzano, P. Vermathen, K. Laxer, G. Ende, D. Norman, G.B. Matson, A.A. Maudsley and M.W. Weiner.
DVA Medical Center and University of California, San Francisco, CA, USA.

1425. Effects of Vigabatrin on Brain GABA Levels in Epileptics Monitored by ^{1}H Spectral Editing MRS: Comparison between Focus-Distant and Focus-Near Measurements.
A.H. Trabesinger, S.G. Mueller, O.M. Weber, C.O. Duc, B. Weber, D. Meier, H.G. Wieser and P. Boesiger.
University and ETH and University Hospital, Zurich, Switzerland.

1426. Pattern Analysis of Data From ^{1}H-MR Spectroscopic Imaging and MR Volumetry of Mesial Temporal Lobe Structures Predict Results of Prolonged Video-EEG Monitoring in Temporal Lobe Epilepsy Patients.
L.M. Li, Z. Caramanos, F. Cendes, S. Antel, F. Andermann, F. Dubeau and D.L. Arnold.
McGill University, Montreal, Quebec, Canada.

1427. Applications of Neural Network Analyses to *in vivo* ^{1}H Magnetic Resonance Spectroscopy of Epilepsy Patients.
I.S. Gribbestad, I.J. Bakken, D. Axelson, K.A. Kvistad, B. Muller, J. Aasly and E. Brodtkorb.
SINTEF Unimed, Trondheim, Norway; Queen's University, Kingston, Ontario, Canada and University Hospital, Trondheim, Norway.

1428. Reduced Frontal Lobe *N*-Acetyl Aspartate in Patients with Juvenile Myoclonic Epilepsy as Detected by Localized MRS *in vivo*.
I. Savic, A. Lekvall, D. Greitz and G. Helms.
Karolinska Institutet, Stockholm, Sweden.

1429. Differences of Metabolites in Mesial and Lateral Temporal Lobes.
Y. Wang, B. Yang and T.C. Ng.
The Cleveland Clinic Foundation, Cleveland, OH, USA.

1430. Reproducibility of Hippocampal Proton MR Spectroscopy in Single Voxel Spectrosocpy and Chemical Shift Imaging.
Y-Y. Hsu, K-E. Lim and C. Chang.
Chang Gung Memorial Hospital and Academia Sinica, Taipei, Taiwan.

1431. Double Quantum Filtered ^{1}H Spectroscopy of GABA in the Human Temporal Lobe.
A.L. Busza, M.A. McLean, S.R. Williams, L.L. Wald and J.S. Duncan.
National Society for Epilepsy, Chalfont St Peter, UK; University College London, UK and Massachusetts General Hospital, Charlestown, MA, USA.

1432. Proton Magnetic Resonance Spectroscopic Imaging in CADASIL.
D.P. Auer, J.O. Heidenreich, T. Schirmer and M. Dichgans.
Max Planck Institute of Psychiatry and GE Medical Systems, Munich, Germany.

1433. Localized ^{1}H MR Spectroscopy for Children with Moyamoya Disease.
S.M. Lim, H.K. Lee, C.G. Choi, K-H. Lim, J.H. Lee, Y.S. Na and D.C. Suh.
Asan Medical Center, University of Ulsan College of Medicine and Asan Institute for Life Sciences, Seoul, Korea.

MR Spectroscopy of White Matter Disease and Degeneration

1434. Donepezil's Effect on *N*-Acetyl Aspartate Levels of Alzheimer's Patients using Proton Magnetic Resonance Spectroscopy.
X. Yu, K.R.R. Krishnan, J. Mintzer, R. Weisler, C. Perdomo, R. Pratt, J. Ieni and H.C. Charles.
Duke University, Durham, NC, USA; Medical University of South Carolina, Charleston, SC, USA and Eisai Inc., Teaneck, NJ, USA.

1435. Dementia Syndrome: Correlation of Biochemical Markers as Assessed by ^{1}H-MR Spectroscopy with the Severity of Dementia.
C. Gorriz, S. Herminghaus, U. Pilatus, L. Frolich, J. Wittsack, T. Dierks, W. Moller-Hartmann, K. Maurer, H. Lanfermann and F.E. Zanella.
University of Frankfurt, Frankfurt, Germany.

1436. Difference Between Slowly Progressive Aphasia without Generalized Dementia and Alzheimer's Disease by Proton Chemical Shift Imaging.
O. Kizu, S. Naruse, S. Furuya, K. Yamada, M. Ikejiri and T. Maeda.
Kyoto Prefectural University of Medicine, Kyoto, Japan.

1437. Regional Pattern of Diminished Levels of Cortical NAA in Alzheimer's Disease and Vascular Dementia.
N. Schuff, A.A. Capizzano, D. Amend, A. Gamst, W. Jagust, G. Fein, A.A. Maudsley and M.W. Weiner.
DVA Medical Center and University of California, San Francisco, CA, USA; University of California, San Diego, CA, USA and Lawrence Berkeley Laboratories, Berkeley, CA, USA.

1438. Decreased Cortical NAA in Subcortical Ischemic Vascular Dementia.
A.A. Capizzano, N.W. Schuff, D.L. Amend, J.L. Tanabe, D. Norman, A.A. Maudsley, W. Jagust, H. Chui, G. Fein and M.W. Weiner.
VA Medical Center and University of California, San Francisco, CA, USA.

1439. Influence of Partial Volume Effect on Metabolite Concentrations in Multiple Sclerosis Lesions Estimated from Localized Proton MR Spectra.
L. Stawiarz, G. Helms, P. Kivisakk, S. Fredrikson, J. Hillert and H. Link.
Huddinge University Hospital, Huddinge, Sweden and Karolinska Hospital, Stockholm, Sweden.

1440. Creatine and *Myo*-Inositol are Increased in Multiple Sclerosis Normal Appearing White Matter.
M. Vermathen, W.D. Rooney, D.E. Goodkin and M.W. Weiner.
DVA Medical Center and University of California, San Francisco, CA, USA and Brookhaven National Laboratory, Upton, NY, USA.

1441. Quantitation of Total Brain NAA Decline and Atrophy with Disease Duration in Relapsing-Remitting MS.
Y. Ge, O. Gonen, J.S. Babb, L.J. Mannon, D. Kolson, J.K. Udupa and R.I. Grossman.
University of Pennsylvania Medical Center and Fox Chase Cancer Center, Philadelphia, PA, USA.

1442. T_2 Measurement, Magnetisation Transfer and Segmentation of Extra- and Intracellular Volumes on Discrete "Black Hole" Multiple Sclerosis Lesions.
G. Helms, L. Stawiarz and H. Link.
Karolinska Institutet, Stockholm, Sweden.

1443. Comparison of Primary Progressive and Relapsing Remitting Multiple Sclerosis by ^{1}H MRSI.
J. Suhy, W.D. Rooney, D.E. Goodkin, A.A. Capizzano, A.A. Maudsley and M.W. Weiner.
University of California San Francisco and DVA Medical Center, San Francisco, CA, USA and Brookhaven National Laboratory, Upton, NY, USA.

1444. Quantitating Total Brain NAA and Its Decline with Age in Multiple Sclerosis Using Non-Echo ^{1}H MRS.
O. Gonen, I. Catalaa, S.V. Swaminathan, J.S. Babb, L.J. Mannon, D. Kolson and R.I. Grossman.
Fox Chase Cancer Center and University of Pennsylvania Medical Center, Philadelphia, PA, USA.

1445. Depletion of Glutamate in the Motor Cortex in Huntington's Disease Measured using Short Echo STEAM at 3 Tesla.
C.C. Hanstock, R.B. Thompson, M. Wieler, P.S. Allen and W.R.W. Martin.
University of Alberta, Edmonton, Alberta, Canada.

1446. Metabolic Concentration of Basal Ganglia in Patients with Schizophrenia by *in vivo* Proton MRS.
T. Fujimoto, T. Matsumoto, T. Nakano, T. Takano, K. Takeuchi, M. Nakashima, Y. Atsuji, K. Kiue, T. Nakano, K. Nakamura and H. Akimoto.
South Japan Health Science Centre, Fujimoto Hospital, Miyakonojo, Japan.

1447. Brain Proton Magnetic Resonance Spectroscopy of Patients with the Sjogren-Larsson Syndrome.
A. Heerschap, M. Willemsen, P. van Domburg, H. Thijssen, J. De Jong, F. Gabreels and J. Rotteveel.
University Hospital Nijmegen, Nijmegen, The Netherlands.

1448. Magnetization Transfer Attenuation of Creatine Resonances in Localized Proton MRS of Human Brain.
G. Helms and J. Frahm.
Biomedizinische NMR Forschungs GmbH, Gottingen, Germany.

1449. ^{1}H-MR Spectroscopy in Myotonic Dystrophy.
Y. Koshimoto, H. Kimura, M. Maeda, H. Yamada, Y. Kawamura and Y. Ishii.
Fukui Medical University, Fukui, Japan.

1450. ^{31}P Chemical Shift Imaging in Patients with Schizophrenia.
T. Fujimoto, T. Matsumoto, T. Yamamoto, T. Takano, K. Takeuchi, K. Nakamura, T. Uchida and H. Akimoto.
Fujimoto Hospital, Miyakonojo, Japan and Hokkaido University, Hokkaido, Japan.

1451. An MR Study of Lesion Heterogeneity in Patients with Secondary Progressive MS: Correlation between Metabolic Concentration, T_1 Relaxation Time and Appearance on T_1-Weighted MRI.
P.A. Brex, S.M. Leary, G.J.M. Parker, P.D. Molyneux, C.A. Davie, A.J. Thompson and D.H. Miller.
University College London, London, UK.

1452. Competitive Blood-Brain-Barrier Dynamics Observed by ^{1}H MR Spectroscopy and EEG in Patients with Phenylketonuria.
R. Kreis, J. Pietz, J. Slotboom, A. Rupp, E. Mayatepek, D. Rating, H.J. Bremer and C. Boesch.
University Bern, Switzerland and University Heidelberg, Germany.

1453. ^{1}H MR Spectroscopy and Quantitative Cerebropetal Blood Flowmetry in Idiopathic Anatomic Megalencephaly.
K.P.J. Braun, J. van der Grond and R.H.J.M. Gooskens.
University Hospital, Utrecht, The Netherlands.

1454. Proton MRS and Neuropsychological Assessments in the AIDS Dementia Complex: A Multi-Center Study.
P.L. Lee, C. Yiannoutsos, L. Chang, T. Ernst, E. Miller, D. Kolson, R.R. Lenkinski, B.A. Navia and R.G. Gonzalez.
Massachusetts General Hospital, Harvard Medical School, Charlestown, MA, USA; Harvard School of Public Health, Boston, MA, USA; Harbor-UCLA Medical Center, Torrance, CA, USA; University of Pennsylvania, Philadelphia, PA, USA New England Medical Center, Boston, MA, USA.

1455. ^{1}H-MRS is a Functional Measure: A Study of Cognition in Systemic Lupus Erythematosus.
W.M. Brooks, R.E. Jung, C.A. Stidley, R.A. Yeo and W.L. Sibbitt Jr.
University of New Mexico, Albuquerque, NM, USA.

1456. The Contribution of Magnetic Resonance to Explaining Phenylketonuria Brain Lesions.
M. Dezortova, M. Hajek, J. Tintera, L. Hejcmanova and E. Sykova.
Institute for Clinical and Experimental Medicine, Third Medical Faculty and Second Medical Faculty UK and Institute for Experimental Medicine, ASCR, Prague, Czech Republic.

1457. Self-Organizing Neural Network for Pattern Recognition of Short Echo Time ^{1}H NMR Brain Spectra.
E. Cabanes, S. Confort-Gouny, Y. Le Fur, A.M. Salvan, J. Vion-Dury and P.J. Cozzone.
Faculte de Medecine de Marseille, France.

1458. Short-Echo Time Localized ^{1}H Spectroscopy of the Brain for Follow-Up Examination of Hepatic Encephalopathy after Transjugular Intrahepatic Portosystemic Shunting (TIPS).
T. Nagele, U. Seeger, P. Pereira, I. Mader, M. Eisold, U. Klose, F. Schick, S. Miller, W. Grodd and K. Voigt.
University of Tubingen, Germany.

1459. Short Echo Proton MR Spectroscopy of Macromolecules in White Matter Disease.
I. Mader, U. Seeger, R. Weisert, U. Klose, T. Naegele and W. Grodd.
Eberhard-Karls-University, Tuebingen, Germany.

1460. Clinical Utility of 3D Proton Magnetic Resonance Spectroscopic Imaging (3D-MRSI) Using Short-TE PRESS in AIDS Patients; Evaluation of Simple Method for Semi-Quantitative Analysis of Cerebral Metabolites.
K. Yoshikawa, Y. Inoue, S. Asai, Y. Hoshino, A. Iwamoto, T. Ogino, M. Umeda and T. Matsuda.
University of Tokyo and National Institute of Neuroscience, Tokyo, Japan; College of Oriental Medicine, Kyoto, Japan and GE Yokogawa Medical Systems, Ltd., Tokyo, Japan.

1461. Brain Metabolic Alterations in Cushing's Syndrome as Monitored by Proton Magnetic Resonance Spectroscopy.
A. Khiat, C. Bard, A. Lacroix, J. Rousseau and Y. Boulanger.
CHUM, Montreal, Quebec, Canada.

MR Spectroscopy of the Pediatric Brain

1462. 3D ^{1}H MR Spectroscopic Imaging of the Neonatal Brain.
D.B. Vigneron, A.J. Barkovich, M.R. Day, S.M. Noworolski, R.G. Henry, J.C. Partridge and D.M. Ferriero.
University of California, San Francisco, CA, USA.

1463. Normal Developments in Cerebral Metabolism for Newborn Infants to Children by Localized ^{1}H MR Spectroscopy.
K-S. Kim, T-S. Koh, J.H. Kim, S-T. Kim, J.H. Lee and S-Y. Pi.
Asan Medical Center, University of Ulsan College of Medicine and Asan Institute for Life Sciences, Seoul, Korea.

1464. Regional and Age Differences in Metabolite Concentrations in the Young Brain: An *In Vivo* Quantitative ^{1}H MRSI Study.
A. Horska, P. Wang, J.C. Harris and P.B. Barker.
Johns Hopkins University School of Medicine, Baltimore, MD, USA.

1465. Proton MRS in Neonates with Suspected Cerebral Ischemic Encephalopathy.
A.A. Tzika, N. Petridou, R.L. Robertson, A. Dupplessis, T.Y. Poussaint, C.D. Robson and P.D. Barnes.
Children's Hospital and Harvard Medical School, Boston, MA, USA.

1466. MRI and MRS Investigations in the Brain of Hypoxic Ischemic Injury for Newborn Infants.
J.H. Lee, K-S. Kim, C.H. Yoon, S.M. Lim, S-T. Kim and T-H. Lim.
Asan Institute for Life Sciences and Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea.

1467. Predictors of Tumor Growth as Assessed by Proton MRS in Pediatric Brain Tumors.
A.A. Tzika, S. Vajapeyam, D. Zurakowski, T.Y. Poussaint, L. Goumnerova, P.D. Barnes, D.C. Anthony, A.L. Billett, N.J. Tarbell, R.M. Scott and P.M. Black.
Children's Hospital and Harvard Medical School, Boston, MA, USA.

1468. Long Term Cerebral Metabolites Changes on Proton Magnetic Resonance Spectroscopy after Intrathecal Methotrexate and Cranial Irradiation.
Y.L. Chan, D. Roebuck, D. Yeung, M.P. Yuen, K.Y. Lau, C.K. Li and K.W. Chik.
Prince of Wales Hospital, The Chinese University of Hong Kong, Hong Kong, China.

1469. Assessment of Brain Hamartomas in Children with Neurofibromatosis using ^{1}H Magnetic Resonance Spectroscopy.
C.M.A. Coutinho, A.P. Jones and W.J. Gunawardena.
Royal Preston Hospital, Preston, UK.

1470. Proton Spectroscopic Imaging in Pedriatic Depression.
J.R. Roebuck, G.J. Moore, F.P. MacMaster, M.W. Faulk and D.R. Rosenberg.
Wayne State University School of Medicine, Detroit, MI, USA.

1471. Frontal Lobe ^{1}H MR Spectroscopy of Children with Bipolar Disorder.
K. Yue, P. Davanzo, M. Strober and M.A. Thomas.
University of California, Los Angeles, CA, USA.

1472. Investigation of Neuronal Pathology in Autistic Children Using ^{1}H Magnetic Resonance Spectroscopic Imaging.
I.B. Wilds, D.C. Chugani and G.J. Moore.
Wayne State University School of Medicine, Detroit, MI, USA.

1473. Metabolic Asymmetries as an Early Indicator for Temporal Lobe Epilepsy in Children. A Comparison with EEG and High Resolution MRI.
T. Thiel, C. Panow, J. Hennig and E. Martin.
Children's Hospital Zurich, Zurich, Switzerland and University of Freiburg, Freiburg, Germany.

1474. Effectiveness of the New Pharmaceutical Therapy Evaluated by Proton MRS, Diffusion-Weighted MRI on Leigh Disease and Comparison with Clinical Symptom and Laboratory Data.
K. Yoneda, M. Harada, S. Hisaoka, T. Okada, H. Nishitan and K. Mori.
University of Tokushima, Tokushima, Japan.

1475. Brain Cell Volume and Osmolality in Human Hydrocephalus.
J. Tan, S. Bluml, C.F. Cuento, S.D. Silva, J.G. McComb and B.D. Ross.
Huntington Medical Research Institutes, Pasadena, CA, USA; Rudi Schulte Research Institute, Santa Barbara, CA, USA and Children's Hospital of Los Angeles, CA, USA.

1476. Predictive Value of Proton MRS in Closed Head Injury in Children.
B.A. Holshouser, S. Ashwal, S. Shu, D. Knierim, R.M. Perkin, L.G. Tomasi, D. Christensen and D.B. Hinshaw Jr.
Loma Linda University Medical Center, Loma Linda, CA, USA.

MR Spectroscopy of Brain: Animal Models

1477. Effects of Nitric Oxide Synthase Inhibitor on Acute Ischemic –Reperfused Cat Brain Investigated by ^{1}H and ^{31}P MR Spectroscopy.
P-H. Park, E-A. Suk, K.H. Lim, J.H. Lee and T-H. Lim.
Asan Medical Center, University of Ulsan College of Medicine and Asan Institute for Life Sciences, Seoul, Korea.

1478. Brain Metabolite Alterations After Oral Cortisol: A Proton MRS Study of Tree Shrews.
T. Michaelis, F. Ohl, E. Fuchs and J. Frahm.
Biomedizinische NMR Forschungs GmbH and Deutsches Primatenzentrum, Gottingen, Germany.

1479. Cerebral Metabolite Levels, Energy Status and Intracelluar pH during Hypoxia in Fetal Lambs, as Monitored by ^{1}H and ^{31}P MR Spectroscopy.
A.M. van Cappellen van Walsum, M. Rijpkema, A. Heerschap, J.G. Nijhuis and H.W. Jongsma.
University Hospital, Nijmegen, The Netherlands.

1480. Long-Term Effects of *In Utero* Nicotine or Cocaine Exposure as Detected by *Ex Vivo* ^{1}H MRS.
C.C. Cloak, L. Chang, T. Ernst, L. Smith and R.E. Poland.
Harbor-UCLA Medical Center, Torrance, CA, USA and UCLA Brain Research Institute, Los Angeles, CA, USA.

1481. NAA Losses in the Rat Striatum and Changes in Dopamine-Related Behavior Following Lesions of Medial Prefrontal Neurons.
J.L. Roffman, B.K. Lipska, A. Bertolino, P. Van Gelderen, A.W. Olson and D.R. Weinberger.
National Institutes of Health, Bethesda, MD, USA.

1482. *In vivo* and *in vitro* NMR Spectroscopic Studies of Thiamine Deficient Rat Brains.
H. Lee, A. Keel, G. Holburn, P.R. Martin and R. Price.
Vanderbilt University Medical Center, Nashville, TN, USA.

1483. Temporal Study of Acute 3-Nitropropionic Acid-Induced Excitotoxic Damage in Rat Brain Using Localized ^{1}H-MRS and Diffusion-Weighted MRI.
C.S. Lee and C. Chang.
Academia Sinica, Taipei, Taiwan, ROC.

1484. *In Vivo* ^{1}H MRS Study of Ts65Dn Mouse Brain Pre- and Post-Lithium Treatment.
W. Huang, Z. Galdzicki, P. van Gelderen, M.B. Schapiro and S.I. Rapoport.
State University of New York, Stony Brook, NY, USA and National Institutes of Health, Bethesda, MD, USA.

1485. How Maternal Insulin-Induced Hypoglycemia Affects Fetal Brain Neuronal-Glia Function. A Metabolic Study Using ^{13}C MRS Isotopmer Analysis.
S. Haber and A. Lapidot.
The Weizmann Institute of Science, Rehovot, Israel.

Cardiac MR Spectroscopy

1486. Intra- and Inter-Individual Reproducibility of Double-Triggered ^{1}H-MR Spectroscopy (^{1}H-MRS) of the Human Heart.
R. Kreis, J. Felblinger, B. Jung and C. Boesch.
University of Bern, Switzerland.

1487. *In Vivo* Murine Cardiac Energy Metabolism and Function.
V.P. Chacko, F. Aresta, S.M. Chacko and R.G. Weiss.
Johns Hopkins University School of Medicine, Baltimore, MD, USA.

1488. Improvements in Human *In-Vivo* Cardiac Phosphorus Spectroscopy at 3.0 Tesla in Comparison with 1.5 Tesla for Ischemic Heart Disease.
A. Bruner, H-W. Kim, D. Peterson, J. Fitzsimmons, C. Pepine, S. Buchthal, J. den Hollander and K. Scott.
University of Florida and the Veterans Affairs Medical Center, Gainesville, FL, USA and University of Alabama, Birmingham, AL, USA.

1489. Metabolic Evidence of Ischemia in Women with Chest Pain but No or Minimal Coronary Artery Disease.
S.D. Buchthal, J.A. den Hollander, W.J. Rogers and G.M. Pohost.
University of Alabama at Birmingham, Birmingham, AL, USA.

1490. Is Contrast-Induced T_1 Shortening Necessarily Correlated with Myocardial Injury? Assessment of Myocardial Infarction Using Contrast-Enhanced MR Imaging and Localized ^{31}P Spectroscopy on Isolated Pig Hearts.
G. Tian, J. Mark, G. Dai, B. Xiang, J. Sun, Z. Luo, N. Lazarow and R. Deslauriers.
National Research Council Canada and University of Manitoba, Winnipeg, Manitoba, Canada.

1491. Three-Dimensional ^{87}Rb Imaging of K^+ Uptake in Normal and Post-Ischemic Pig Hearts.
V.V. Kupriyanov, B. Xiang, J. Sun, G. Dai, V. Dao and R. Deslauriers.
National Research Council of Canada, Winnipeg, Canada.

1492. Alkolosis-Activated Cation Transporter Mediates Rb^+ and Li^+ Efflux from Rat Hearts.
V.V. Kupriyanov, B. Xiang and R. Deslauriers.
National Research Council of Canada, Winnipeg, Canada.

1493. The Role of Na^+ in Mitochondrial Bioenergetic Function in Diabetic Rat Heart.
N.M. Doliba, A.M. Babsky, N.M. Doliba, I.A. Crestanello, S.L. Wehrli and M.D. Osbakken.
University of Pennsylvania and Children's Hospital of Philadelphia, Philadelphia, PA, USA.

1494. TQF NMR Intracellular Na Measurement in a Rodent Heart during Stop-Flow Ischemia.
V.D. Schepkin, I.O. Choy and W.M. DeCampli.
University of Illinois, Urbana, IL, USA; University of California at Davis, East Bay, Oakland, CA, USA and Beth Israel Medical Center, Newark, NJ, USA.

1495. Increased Mortality and Aggravated Hypertrophy are Caused by Severe Phosphocreatine Depletion with Beta-Guanidinopropionate in Rats After Myocardial Infarction.
M. Horn, H. Remkes, M. de Groot, K. Hu, J.S. Ingwall and S. Neubauer.
Medizinische Universitatsklinik, Wurzburg, Germany and Harvard Medical School, Boston, MA, USA.

1496. The Influence of Erythrocytes on Substrate Competition in Isolated Hearts: Implications for Studies of Myocardial Energetics.
P.E. Meyer, K. Malik, R.Y. Chao, J.B. Patel, C.R. Malloy, D.M. Meyer and M.E. Jessen.
University of Texas Southwestern Medical Center at Dallas, TX, USA.

1497. Functional and Metabolic Consequences of Aortic Valve Replacement Assessed with MR Imaging and ^{31}P-MR Spectroscopy.
H.J. Lamb, H.P. Beyerbacht, A. van der Laarse, J. Doornbos, E.E. van der Wall and A. de Roos.
Leiden University Medical Center, Leiden, The Netherlands.

1498. *In Vivo* Cardiac ^{31}P MRS in Transgenic Mice Overexpressing Growth Hormone.
E. Omerovic, E. Bollano, B. Madhu, M. Bohlooly, J. Tornell, F. Waagstein, J. Isgaard and B. Soussi.
Sahlgrenska University Hospital and University of Goteborg, Sweden.

1499. ^{13}C-NMR Spectroscopy and Mathematical Model for Evaluating the Citric Acid Cycle Flux in Glucose-Perfused Rat Hearts.
S. Tran-Dinh, J.A. Hoerter, P. Mateo and M. Herve.
S.B.P.M./D.B.C.M., Gif-sur-Yvette, France and Universite Paris Sud, Chatenay-Malabry, France.

1500. Simultaneous Optical Fluorescence and ^{31}P NMR Spectroscopy *in vivo*.
R.J. McNichols, S.M. Wright, G.L. Cote and J.S. Wasser.
Texas A&M University, College Station, TX, USA.

MR Spectroscopy of the Abdomen and Pelvis

1501. ^{1}H MRS of Inflammatory Bowel Diseases: Detecting Early Inflammatory Changes in the Normal Looking Parts of the Colon.
T. Bezabeh, I.C.P. Smith, R.L. Somorjai and C.N. Bernstein.
National Research Council and University of Manitoba, Winnipeg, Manitoba, Canada.

1502. Differential Diagnosis of Pancreatic Cancer from Chronic Focal Pancreatitis Using *in vivo* ^{31}P Magnetic Resonance Spectroscopy.
D.W. Seo, J.H. Lee, S.K. Lee, M.H. Kim, D.J. Suh, Y.I. Min and M.G. Lee.
Asan Medical Center, University of Ulsan and Asan Institute for Life Science, Seoul, Korea.

1503. Localised ^{31}P MRS in the Assessment of Residual Masses Following Treatment of Lymphoma.
N.R. Maisey, A.J. Schwarz, D.J. Collins, A.R. Padhani, D.C. Cunningham, J.E.S. Husband and M.O. Leach.
Royal Marsden Hospital, Sutton, Surrey, UK.

1504. *In vivo* Human Gall Bladder Spectroscopy: Report of Detected Spectra and Influence of Motion.
A.S.K. Dzik-Jurasz, P.S. Murphy, A. Schwarz, P. Revell, M.O. Leach and I.J. Rowland.
The Institute of Cancer Research and The Royal Marsden NHS Trust, Sutton, Surrey, UK.

1505. Preliminary *in vivo* ^{1}H-MRS Studies of Rectal and Anal Carcinomas.
A.S.K. Dzik-Jurasz, P.S. Murphy, P. Revell, I.J. Rowland and M.O. Leach.
The Institute of Cancer Research and The Royal Marsden NHS Trust, Sutton, Surrey, UK.

1506. Normal and Diseased Gallbladder Bile: Spectral Analysis by *in vivo* Proton MRS.
C.H. Suh, S.G. Cho, M.H. Yoon, K.H. Lee and H.J. Kim.
Inha University College of Medicine, Inchon, Korea.

1507. Changes of Proton MR Spectroscopic Features of Rabbit Liver According to the Change of Parenchymal Iron Content by SPIO Infusion.
S.G. Cho, C.H. Suh, Y.B. Kim and H.J. Kim.
Inha University College of Medicine, Inchon, Korea.

1508. *Ex-vivo* Proton Magnetic Resonance Spectroscopy Subcategorises Prostate Cancer Pathology.
S. McCredie, P. Swindle, C. Lean, S. Dowd, P. Russell and C. Mountford.
University of Sydney, NSW, Australia.

1509. ^{1}H MRS of the Prostate Using a Surface Coil: Its Possible Role in the Diagnosis of Large Prostatic Tumors.
K. Imamura, A. Kitagawa, I. Tani, Y. Nakajima, T. Chikaraishi, T. Iwamoto, A. Kazama and M. Tadokoro.
St. Marianna University School of Medicine, Kawasaki, Japan.

1510. Absence of Citrate in Single-Voxel ^{1}H MR Spectra of Prostatic Cancers: Relation to the Images.
K. Imamura, I. Tani, K. Sasaka, Y. Nakajima, T. Chikaraishi, T. Iwamoto, A. Kazama and M. Tadokoro.
St. Marianna University School of Medicine, Kawasaki, Japan.

1511. Renal and Adrenal Applications of Line Scan Spectroscopic Imaging.
H. Shinmoto, R.V. Mulkern, K. Oshio, Y. Yuasa, A. Tanimoto and M. Jinzaki.
Keio University School of Medicine, Tokyo, Japan and Children's Hospital, Boston, MA, USA.

1512. Role of Intracellular Buffering Power on the Mitochondria-Cytosol pH Gradient in the Rat Liver Perfused at 4 C.
T. Durand, M.C. Delmas-Beauvieux, P. Canioni and J.L. Gallis.
Universite Victor Segalen, Bordeaux, France.

1513. Elevated Hepatic Gluconeogenesis in Lung Cancer and Relation with Weight Loss as Observed by ^{31}P MRS with L-Alanine Infusion.
S. Leij-Halfwerk, P.E. Sijens, J.W.O. van den Berg, M. Oudkerk and P.C. Dagnelie.
University Hospital, Rotterdam, The Netherlands and Maastricht University, Maastricht, The Netherlands.

1514. Hepatic ATP Recovery Following Graded Hypoxic Insults.
K.K. Changani, A. El Desoky, J.D. Bell, A. Seifalian and B.R. Davidson.
Royal Free and University College Hospital and Imperial College, Hammersmith Hospital, London, UK.

1515. Liver Injury Following Intestinal Ischemia-Reperfusion Demonstrated by ^{31}P Magnetic Resonance Spectroscopy *in vivo*.
P. Vejchapipat, S.R. Williams, V. Lauro, A. Pierro and L. Spitz.
University College London, UK.

1516. Quantitative Measurement of Intracellular Triglyceride Content by ^{1}H MRS *in vivo*.
D.T. Stein, L.S. Szczepaniak, E.E. Babcock, R.L. Dobbins, D.K. Burns and J.D. McGarry.
AECOM, Bronx, New York, NY, USA and University of Texas Southwestern Medical Center, Dallas, TX, USA.

1517. A Method for Measuring the TCA Cycle Rate in the Liver of Awake Rats Using [3-^{13}C] Alanine.
V.P. Lebon, B.M. Jucker, G.W. Cline, K.S. Cadman, N. Barucci, P. Brown and G.I. Shulman.
Yale University School of Medicine, New Haven, CT, USA.

1518. Hormone Ablation of Localized Prostate Cancer: Effects of Duration of Therapy on Prostate Metabolism Demonstrated by 3D ^{1}H MR Spectroscopy.
U.G. Mueller-Lisse, J. Kurhanewicz, A. Bessette, R. Males, M. Swanson, A. Fang, S. Nelson, H. Hricak, I. Barken and D. Vigneron.
University of California, San Francisco, CA, USA.

1519. Localization of Prostate Cancer After Hormone Ablation of MRI and 3D ^{1}H MRSI: Case-Control Study with Pathologic Correlation.
A. Bessette, U.G. Mueller-Lisse, M. Swanson, D. Vigneron, J. Scheidler, A. Srivastava, P. Wood, H. Hricak, P. Carroll, S. Nelson and J. Kurhanewicz.
University of California, San Francisco, CA, USA.

Musculoskeletal MR Spectroscopy

1520. Temperature Dependence of Human Gastrocnemius pH and High Energy Phosphate Concentrations by Non-Invasive Techniques.
T. Binzoni, E. Hiltbrand, F. Terrier, P. Cerretelli and D. Delpy.
University of Geneva, Geneva, Switzerland; Consiglio Nazionale delle Ricerche, Segrate, Italy and University College London, London, UK.

1521. ^{1}H Spectroscopic Characterization of Red Bone Marrow in Young Adults using Interleaved Data Acquisition (INTACTSPEC).
J. Machann, F. Schick, H. Einsele, J. Forster, S.H. Duda, O. Lutz and C.D. Claussen.
Eberhard-Karls-Universitat, Tubingen, Germany.

1522. Differentiation Between the Action of Different Enzymes on the Structure of Articular Cartilage Using Multiple Quantum Filtered ^{23}Na NMR.
O. Danziger, H. Shinar, U. Eliav and G. Navon.
Tel Aviv University, Tel Aviv, Israel.

1523. Muscular Energy Metabolism in Immunosuppressed Transplant Patients: A ^{31}P NMR Study.
P. Van Hecke, M. Francaux, L. Versieux and P. Cordier.
Universite Catholique de Louvain, Louvain-la-Neuve, Belgium.

1524. ^{1}H MRS of Synovial Tissue: Correlating the Degree of Inflammation with Spectral Features in Rheumatoid Arthritis Patients.
T. Bezabeh, C. Hitchons, J. Canvin, J. Marwaha, I.C.P. Smith and H. El-Gabalawy.
National Research Council of Canada and Health Sciences Centre, Winnipeg, MB, Canada.

1525. Accumulation of Intramuscular Triglycerides in Patients with Myotonic Dystrophy.
P. Scifo, M. Comola, F. De Cobelli, A.A. Silva Leao, R.L.A. Vanzulli, L. Luzi, A. Del Maschio and G. Perseghin.
H San Raffaele, Milan, Italy.

1526. Effect of Ischemia on Skeletal Muscle in Wildtype Mice and Mice Lacking Adenylate Kinase, Monitored by ^{31}P-MRS.
A.W. Simonetti, E. Janssen, H.J.A. in't Zandt, F. Oerlemans, B. Wieringa and A. Heerschap.
University Hospital Nijmegen and Nijmegen University, Nijmegen, The Netherlands.

1527. Simultaneous ^{31}P Muscle PCr and Pulmonary VO_2 Kinetics in Moderate and Heavy Intensity Quadriceps Exercise with Reference to The Slow Component of O_2 Uptake.
V.L. Doyle, H.B. Rossiter, F.A. Howe, S.A. Ward, B.J. Whipp and J.R. Griffiths.
St. George's Hospital Medical School, London, UK and University of Glasgow, Glasgow, UK.

1528. Regulation of Cartilage Water Mobility by Aggrecan: Characterization of Multiple T_2 Components in Nanomelic Fetal Chicken Cartilage.
T.J. Mosher, Q. Chen and M.B. Smith.
The Penn State University College of Medicine, Hershey, PA, USA.

1529. Characterization of Fatty Acids using Natural Abundance Broad-band ^{1}H Decoupled ^{13}C MRS: Potential Clinical Applications to Dietary Therapy.
J.H. Hwang, S. Bluml and B.D. Ross.
Huntington Medical Research Institutes, Pasadena, CA, USA and Rudi Schulte Research Institute, Santa Barbara, CA, USA.

1530. Dynamic Changes in Sodium Levels in Human Exercising Muscle Measured with ^{23}Na MRI.
R. Ouwerkerk, R.F. Lee and P.A. Bottomley.
Johns Hopkins Hospital, Baltimore, MD, USA.

1531. Determination of Lactate Production by ^{1}H and ^{31}P Methods.
A.C. Hsu and M.J. Dawson.
University of Illinois at Urbana-Champaign, IL, USA.

1532. *In Vivo* Regulation of Mitochondrial Respiration in Human Skeletal Muscle: Potential Role of Changes in Oxidative Capacity with Work.
C.A. Combs, A.H. Aletras and R.S. Balaban.
National Institutes of Health, Bethesda, MD, USA.

1533. Detecting Altered Gene Expression by Magnetic Resonance: Analysis of Contractile Economy in Rat Skeletal Muscles.
R.W. Wiseman and J.A.L. Jeneson.
University of Washington, Seattle, WA, USA.

1534. ^{31}P Magnetic Resonance Spectroscopy Investigation of Gender Impact on Muscle Energetics in Untrained Subjects.
J.P. Mattei, D. Bendahan, M. Roussel, Y. Lefur and P.J. Cozzone.
Faculte de medecine and Hopital de la Conception, Marseille, France.

1535. Evaluation of Juvenile Dermatomyositis (JDM) Patients Using MRI and ^{31}P MRS.
K.J. Niermann, J.H. Park, N. Ryder, A. Das, A. Lawton and N.J. Olsen.
Vanderbilt Medical School, Nashville, TN, USA.

1536. Abnormalities in Magnesium (Mg^{2+}) and ATP Levels in Muscle Disorders: Dermatomyositis and Fibromyalgia.
J.H. Park, K.J. Niermann, A. Das, B.N. Carr and N.J. Olsen.
Vanderbilt Medical School, Nashville, TN, USA.

1537. The Relationship Between Creatine Kinase Reaction Kinetics and Exercise Intensity in Human Forearm is Unchanged by Age.
A. Horska, K.W. Fishbein, J.L. Fleg and R.G.S. Spencer.
Johns Hopkins University School of Medicine and National Institutes of Health, Baltimore, MD, USA.

1538. Investigations of Human *m. Gastrocnemius* During Dynamic Exercise using ^{31}P MR Spectroscopy *in vivo* – Influence of Pre-Exercise Acidification.
P. Kulinowski, J. Zoladz, Z. Sulek, A. Jasinski, K. Szybinski, J. Kibinski, J. Majerczak and K. Duda.
Institute of Nuclear Physics and Academy of Physical Education, Krakow, Poland.

1539. *In vivo* ^{1}H-MRS of Skeletal Muscle in Galactosemia.
S.F. Dreha, Z.J. Wang, G.T. Berry, S. Segal, J.S. Leigh and R.A. Zimmerman.
University of Pennsylvania and The Children's Hospital of Philadelphia, Philadelphia, PA, USA.

1540. Cytosolic Free [Mg^{2+}] in the Human Calf Muscle in Different Metabolic Conditions: *in vivo* ^{31}P MRS and Computer Simulation.
S. Lotti, R. Tarducci, G. Gottardi and B. Barbiroli.
Universita di Bologna, Italy and Azienda Ospedaliera di Perugia, Italy.

MR Spectroscopy of Cells, Body Fluids, and Other

1541. Metabolic Differences Between Rat and Human Astrocytes Detected by ^{1}H-NMR Spectroscopy.
J.E. Le Belle, K.K. Bhakoo, M.D. King and S.R. Williams.
University College London Medical School, London, UK and University of Oxford, Oxford, UK.

1542. Use of a Single Resonance of Glutamate for Measuring Oxygen Consumption in Intact Tissue.
F.M. Jeffrey, A. Reshetov, C.J. Storey, R.A. Carvalho, A.D. Sherry and C.R. Malloy.
University of Texas Southwestern Medical Center, Dallas, TX, USA.

1543. The Energy Demand of Acid-Base Regulation in Isolated Muscle Tissue Investigated by *in vivo* ^{31}P-NMR.
H.O. Portner, C. Bock and A. Reipschlager.
Alfred-Wegener-Institute for Polar and Marine Research, Bremerhaven, Germany.

1544. **^{31}P and ^{13}C-NMR Studies of Intact, Well-Oxygenated, Perfused RINm5F Cells.**
K.K. Papas, M.A.C. Jarema, E.S. Roos, M.J. Shapiro and J.S. Gounarides.
Novartis Institute for Biomedical Research, Summit, NJ, USA.

1545. **NMR Studies of the Bioenergetics and Metabolism of RINm5F Monolayers Exposed to Hyperoxia, Normoxia, and Anoxia: Correlation to Insulin Secretion and Viability.**
K.K. Papas, M.A.C. Jarema, E.S. Roos, M.J. Shapiro and J.S. Gounarides.
Novartis Institute for Biomedical Research, Summit, NJ, USA.

1546. **ABSTRACT WITHDRAWN.**

1547. **Analysis of Unsaturated Fatty Acid Resonances in Blood Plasma Lipids of Patients with Hepatic Encephalopathy.**
W. Willker, T. Nagele, W. Grodd, S. Kaiser, M. Gregor and D. Leibfritz.
Universitat, Bremen, Germany and Radiologische Uni-Klinik and Medizinische Klinik, Tubingen, Germany.

1548. **Solid-State and Magic Angle Spinning ^{31}P NMR Spectra from Erythrocytes Ghosts and Natural Skeletal Muscle Plasma Membranes.**
C. Moreau, N. Toullec, M. Le Floch and E. Le Rumeur.
Faculte de Medecine and Faculte des Sciences, Rennes, France.

1549. **^{1}H-NMR Investigation of Human Synovial Fluid in Progressive Osteoarthritis.**
A. Damyanovich, J. Staples and K.W. Marshall.
University of Toronto, Toronto, Ontario, Canada.

1550. **Identifying Subtle Changes in Endogenous Metabolism Using Pattern Recognition Analysis of High Resolution ^{1}H Spectra of Urine.**
A.R. Tate, J.C. Lindon, J.K. Nicholson and S.J.P. Damment.
Imperial College, London, UK and Glaxo Wellcome, Ware, Herts, UK.

1551. **Magnetic Resonance Spectroscopy of Plasma and CSF to Assess Metabolic Profiles of Patients Undergoing Postural Headache after Lumbar Puncture.**
L. Le Moyec, V. Larue, H. Alchaar, J. Weil-Fugazza and M. Lanteri-Minet.
CSSB, UFR SMBH, Bologny, France and Hopital Pasteur, Nice, France.

1552. **Detection of Metastases in Lymph Nodes of Breast Cancer Patients Using Proton Magic Angle Spinning (MAS) MRS.**
W. Lo, S. Dowd, P. Malycha, P. Russell, C. Mountford and C. Lean.
University of Sydney, Australia.

1553. **Evaluation for Spectral Patterns of Malignant Ovarian Tumors by ^{1}H NMR Spectroscopy.**
Y.M. Kim, J.H. Na, J.H. Lee, K.S. Cho, J.H. Kim, Y.T. Kim, J.H. Nam and J.E. Mok.
University of Ulsan College of Medicine, Asan Medical Center and Asan Institute for Life Sciences, Seoul, Korea.

Spectroscopic Quantitation

1554. Correction for Off-Resonance Effects and Incomplete Saturation in Saturation Transfer Experiments.
P.B. Kingsley and W.G. Monahan.
North Shore University Hospital, Manhasset, NY, USA and New York University School of Medicine, New York, NY, USA.

1555. Metabolite T_1 Relaxation Differs Between and Within Regions in Normal Human Brain.
E. Brief, K.P. Whittall, A.L. MacKay and D.K.B. Li.
University of British Columbia, Vancouver, BC, Canada.

1556. Precision of MRS Metabolite Peak Area Ratios in Human Brain at Short TE.
E. Brief, K.P. Whittall, A.L. MacKay and D.K.B. Li.
University of British Columbia, Vancouver, BC, Canada.

1557. FIR-Filter Based Frequency Selective Quantitation of Biomedical MRS Signals.
T. Sundin, L. Vanhamme, P. Van Hecke and S. Van Huffel.
Uppsala University, Uppsala, Sweden and Katholieke Universiteit, Leuven, Belgium.

1558. Extensions of AMARES to Quantitate Series of Biomedical MRS Signals.
L. Vanhamme, S. Van Huffel and P. Van Hecke.
Katholieke Universiteit Leuven, Belgium.

1559. The Water Content of Brain Tissue in Infants Determined Using MR Imaging: The Internal Reference of Quantitative MR Spectroscopy.
H. Kugel, B. Roth, G. Benz-Bohm, W. Heindel and K. Lackner.
University of Cologne, Koln, Germany.

1560. Automated Image Segmentation for MRSI Quantitation Using SPM96.
W. Weber-Fahr, G. Ende, D.F. Braus, B. Schmitt, M. Ruf, C. Buechel and F.A. Henn.
Central Institute of Mental Health, Mannheim, Germany and Wellcome Department of Cognitive Neurology, London, UK.

1561. Two-Dimensional Fitting with Prior Knowledge Constraints: The Solution for Glutamate/Glutamine Quantitation at 1.5T?
J. Slotboom, L. Hofmann, C. Boesch and R. Kreis.
University of Bern, Switzerland.

1562. Interactive ROI Analysis in ^{1}H-CSI.
M.A. McLean, G.J. Barker, P. Tofts and J.S. Duncan.
National Society for Epilepsy, Chalfont St. Peter, Bucks, UK and University College London, UK.

1563. Cerebral Metabolite Levels in Patients Awaiting Liver Transplantation Observed with ^{1}H MR Spectroscopy.
M.A. Thomas, A. Huda, B. Guze, J. Ventura, P. Davanzo, P. Martin and G. Gitnick.
University of California, Los Angeles, CA, USA.

1564. Detection fo Elevated GABA Signals in the Human Brain in 1.5 Tesla using Phase-Sensitive 2D J-Resolve ^{1}H Spectroscopy.
J.H. Hwang, H. Levenson, W. Sutherling, N. Sailasuta, R.E. Hurd and B.D. Ross.
Huntington Medical Research Institutes and Huntington Memorial Hospital, Pasadena, CA, USA; Rancho Los Amigos Hospital, Downey, CA, USA; Rudi Schulte Research Institute, Santa Barbara, CA, USA and GE Medical Systems, Fremont, CA, USA.

1565. Quantitative ^{1}H MR Spectroscopy of Human Vertebra in Normal Subjects.
C-S. Lin, A. Finley, B. Davis and D. Schellinger.
Georgetown University, Washington, DC, USA.

1566. $^{13}CO_2$-H$^{13}CO_3$ – Exchange Studied by Saturation Transfer.
D. Ohliger, R.E. Forster and K. Wroblewski.
University of Pennsylvania, Philadelphia, PA, USA.

1567. Magnetization Transfer in Water Suppressed ^{1}H NMR Brain Spectroscopy.
J. Knight-Scott.
University of Virginia Health Sciences Center, Charlottesville, VA, USA.

1568. Suppression of Signal Contributions from Short T_1 Macromolecules in Short Echo Time ^{1}H NMR Spectroscopy of Human Brain.
J. Knight-Scott.
UVA Health Sciences Center, Charlottesville, VA, USA.

1569. Quantification of the Coupled ^{1}H Metabolites Using PRESS – Numerical Modeling and Basis Function Calculation.
R.B. Thompson and P.S. Allen.
University of Alberta, Edmonton, Alberta, Canada.

1570. Quantitative ^{1}H MRS Demonstrates Cerebral Osmolyte Changes in Normal Pregnancy.
D.J. Dubowitz, S. Bluml, M. Scadeng and B.D. Ross.
Huntington Medical Research Institutes, Pasadena, CA, USA.

1571. Bulk Magnetic Susceptibility Effects on the Assessment of Intra- and Extra- Cellular Lipids *in vivo*.
L.S. Szczepaniak and D.T. Stein.
University of Texas Southwestern Medical Center, Dallas, TX, USA and AECOM, Bronx, NY, USA.

1572. Quantification Precision of *In-Vivo* Short Echo ^{1}H STEAM Spectra at 1.5 Tesla and 4.0 Tesla.
R. Bartha, D.J. Drost, P.C. Williamson and R.S. Menon.
University of Western Ontario, London, Ontario, Canada.

1573. Whole Brain *N*-Acetylaspartate Quantitation Using Non-Echo, Non- T_1 or T_2 Weighted ^{1}H-MRS.
O. Gonen, A.K. Viswanathan, I. Catalaa, J.S. Babb and R.I. Grossman.
Fox Chase Cancer Center and University of Pennsylvania Medical Center, Philadelphia, PA, USA.

1574. High Resolution Spectroscopic Imaging of Human Brain Glutamate.
J.W. Pan and H.P. Hetherington.
Brookhaven National Laboratory, Upton, NY, USA.

1575. Application of LCModel for Quality Control and Quantitative *In Vivo* ^{1}H MR Spectroscopy by Short Echo Time STEAM Sequence.
M. Hajek, M. Dezortova and M. Burian.
Institute for Clinical and Experimental Medicine, Prague, Czech Republic.

1576. Description and Estimation of Signal Loss in Volume Localized ^{1}H MRS of *J*-Coupled Systems.
D.J. Meyerhoff.
DVA Medical Center, University of California, San Francisco, CA, USA.

1577. Quantitation of Measurement Error for Motor Cortex NAA in ALS.
J. Suhy, N. Schuff, R.G. Miller, N. Gatto, A.A. Maudsley and M.W. Weiner.
University of California and DVA Medical Center, San Francisco, CA, USA.

MR Spectroscopy Methods

1578. *In Vivo* Glucose Detection by Homonuclear Spectral Editing.
R.A. de Graaf, R.M. Dijkhuizen, G.J. Biessels, K.P.J. Braun and K. Nicolay.
Utrecht University, Utrecht, The Netherlands.

1579. A New Zero-Quantum Filter Offering Simultaneous Detection of Lactate, Choline and Creatine Resonances.
J.M. Star-Lack and D.M. Spielman.
Stanford University, Stanford, CA, USA.

1580. Simultaneous Lactate Editing and Observation of Other Metabolites Using a Stimulated-Echo Enhanced Double-Quantum Filter.
H. Lei and J. Peeling.
The University of Manitoba, Winnipeg, Manitoba, Canada.

1581. Brain GABA Editing without Macromolecule Contamination.
P-G. Henry, C. Dautry, P. Hantraye and G. Bloch.
Service Hospitalier Frederic Joliot, Orsay, France.

1582. Measurement of Macromolecule of Metabolite Nulled *in vivo* Proton NMR Spectra of the Rat Brain.
Z. Starcuk, I. Tkac, Z. Starcuk Jr, J. Horky and R. Gruetter.
Academy of Sciences of the Czech Republic, Brno, Czech Republic; University of Minnesota, Minneapolis, MN, USA and National Research Council of Canada, Winnipeg, MB, Canada.

1583. A Spatially Localized, One-Dimensional Correlation Spectroscopy (COSY) Experiment.
A.H. Trabesinger, D. Meier and P. Boesiger.
University and ETH, Zurich, Switzerland.

1584. Detection of Downfield ^{1}H Resonances in Human Brain Using Single Voxel and SI Methods.
P. Vermathen, V. Govindaraju, G.B. Matson and A.A. Maudsley.
University of California, San Francisco, CA, USA.

1585. Methodological Standardization for a Multi-Institutional *In Vivo* Trial of Localized ^{31}P MR Spectrosocpy in Human Cancer Research.
F. Arias-Mendoza, T.R. Brown, H.C. Charles, K. Zakian, A. Schwarz, V.L. Doyle, S.J. Nelson, M. Rijpkema, J.D. Glickson and J.L. Evelhoch.
Multi-Institutional Group on MRS Application to Cancer.

1586. ***In Vivo* Proton MR Spectroscopy of Thyroid Tumors: Toward Non-Invasive Management.**
S.B. King, L.N. Ryner, J.C. Sharp, K.T. Riese and I.C.P. Smith.
National Research Council of Canada, University of Manitoba and St. Boniface General Hospital, Winnipeg, Canada.

1587. **Determination of Choline Content in Breast Tumors with ^{1}H MR Spectroscopy: An External Standard Method.**
I.S. Gribbestad, I.J. Bakken, T.E. Singstad and K.A. Kvistad.
SINTEF Unimed and University Hospital, Trondheim, Norway.

1588. **^{31}P MRS Studies of Ifosfamide *in vivo*: Observation and Optimisation.**
G.S. Payne, C.R. Pinkerton and M.O. Leach.
Institute of Cancer Research and Royal Marsden NHS Trust, Sutton, Surrey, UK.

1589. **Investigation of Microenvironmental Factors Influencing the Longitudinal Relaxation Times of Drugs.**
A.S.K. Dzik-Jurasz, M.O. Leach and I.J. Rowland.
Institute of Cancer Research, Sutton and The Royal Marsden NHS Trust, Sutton, Surrey, UK.

1590. **EPR Studies on Nitrite Reduction to Nitric Oxide in *Pseudomonas* Bacteria.**
S.W. Norby and R.B. Clarkson.
University of Illinois, Urbana, IL, USA.

1591. **Simplified Doubly Resonant Coil with Dual Inductive Feeds for *in vivo* NMR Spectroscopy.**
R.J. McNichols and S.M. Wright.
Texas A&M University, College Station, TX, USA.

1592. **Pattern Recognition Methods in the Assessment of Osteoarthritic Progression: Application to ^{1}H-NMR Spectra of Human Synovial Fluid.**
A. Damyanovich, R. Neal, J. Staples and K.W. Marshall.
University of Toronto, Toronto, Ontario, Canada.

1593. **Evaluation of Unilateral Testicular Trauma in Rat Testis by MR Imaging and ^{31}P MR Spectroscopy.**
M.N. Degaonkar, M. Srinivas, P. Raghunathan and D.K. Mitra.
All India Institute of Medical Sciences, New Delhi, India.

1594. **Using Nearest-Neighbour Analysis to Evaluate ^{31}P-MRS Recovery Indices Relative to Conditioning and Metabolic State at Rest and End of Exercise.**
J.T. Chen, M.C. Tartaglia, T. Taivassalo, R.E. Kearney and D.L. Arnold.
McGill University, Montreal, Quebec, Canada and Presbyterian Hospital, Dallas, TX, USA.

Spectroscopic Localization and Imaging

1595. **A Fast Variant of ^{1}H Spectroscopic U-FLARE Imaging Using Adjusted Chemical Shift Phase Encoding.**
A. Ebel, W. Dreher and D. Leibfritz.
Universitat Bremen, Bremen, Germany.

1596. Characterization and Correction of the Eddy Current Effect in Echo Planar Spectroscopic Imaging.
K. Heberlein, S. Sarkar, X. Zhang and X. Hu.
University of Minnesota, Minneapolis, MN, USA.

1597. 3D 16x16th Order Longitudinal Hadamard Multivoxel ^{1}H MRS of the Human Brain.
A.K. Viswanathan, G. Goelman and O. Gonen.
Fox Chase Cancer Center, Philadelphia, PA, USA and Hadassah Hebrew University Hospital, Jerusalem, Israel.

1598. Non-Echo 3D Multivoxel ^{1}H MRS of the Human Brain Using 2D 8th Order Hadamard/1D x16 CSI.
S.V. Swaminathan, G. Goelman, P. Patriotis and O. Gonen.
Fox Chase Cancer Center, Philadelphia, PA, USA and Hadassah Hebrew University Hospital, Jerusalem, Israel.

1599. Image-Based Quantification of Direct ^{1}H Metabolite Images: Evaluation and Comparison with MRS, *in vitro* and *in vivo*.
A.J. Schwarz, M. Rauscher, D.J. Collins and M.O. Leach.
The Institute of Cancer Research & Royal Marsden Hospital, Sutton, Surrey, UK.

1600. A Multiscale Approach for Analyzing Spectroscopic Imaging Data.
X. Zhang, K. Heberlein, S. Sarkar and X. Hu.
University of Minnesota, Minneapolis, MN, USA.

1601. Serial Precision of Metabolite Peak Area Ratios in Proton MRSI.
C. Monk, A. Simmons and S.C.R. Williams.
Institute of Psychiatry and Maudsley Hospital, London, UK.

1602. *In Vivo* Proton MRS of the Human Brain at 4 T Without Solvent Suppression.
D.B. Clayton, M.E. Elliott and R.E. Lenkinski.
University of Pennsylvania, Philadelphia, PA, USA.

1603. Concatenated Refocusing for Improved Selectivity in PRESS.
K.P. Pruessmann, H. Faas and P. Boesiger.
University and ETH, Zurich, Switzerland.

1604. Elimination of Spectral Artifacts in Spatially Selective Excitation Sequences.
I. Sersa and S. Macura.
Mayo Clinic, Rochester, MN, USA.

1605. SrPRESSed Technique for Lactate Editing in Localized Volume Spectroscopy.
D.A. Yablonskiy and J.J.H. Ackerman.
Washington University, St. Louis, MO, USA.

1606. T_2 Measurement of *J*-Coupled Spin Systems Using Volume Localization.
K. Young, V. Govindaraju, A.A. Maudsley and D.J. Meyerhoff.
University of California and DVA Medical Center, San Francisco, CA, USA.

1607. Completing the Transition from ISIS to PRESS: A Double-Shot Short Echo Time Localization Experiment for *in vivo* ^{1}H NMR Spectroscopy.
J. Knight-Scott.
UVA Health Sciences Center, Charlottesville, VA, USA.

1608. Efficient ^{1}H Lactate Imaging on a 1.5 T Clinical System using MQC Editing and SLIM./GSLIM Reconstruction.
J.B.M. Goense, M.J. Dawson and P.C. Lauterbur.
University of Illinois at Urbana-Champaign, Urbana, IL, USA.

1609. Motion-Insensitive Three-Point Dixon Technique Incorporated into FSE with the Acquisition of All the Three Points in Each Scan.
J.Y. Chung, S.K. Kim and K.J. Jung.
Medison Co., Taejon, Korea.

1610. Spin-Echo Planar ^{1}H Spectroscopic Imaging for Fast Lipid Characterization in Bone Marrow.
R.V. Mulkern, S. Bao, C.R.G. Guttmann, J.P. Mugler III, J.R. Brookeman, L.P. Panych, R.A. Kraft, K. Oshio, D. Jaramillo, F.A. Jolesz and D.S. Williamson.
Children's Hospital and Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA and University of Virginia, Charlottesville, VA, USA.

1611. High Sensitive ^{1}H-^{13}CHSQC Spectroscopy Using a High Strength Gradient System.
H. Watanabe, M. Umeda, Y. Ishihara, K. Okamoto, M. Oda, T. Kanamatsu and Y. Tsukada.
Toshiba R&D Center, Kawasaki, Japan and Soka University, Hachioji, Japan.

1612. 4-ms Echo-Time ^{1}H NMR Spectra of Human Brain Measured in a 4 Tesla/90cm Magnet Using a Body Gradient Coil.
I. Tkac, P. Andersen, G. Adriany, R. Gruetter and K. Ugurbil.
University of Minnesota, Minneapolis, MN, USA.

1613. Localized ^{1}H MR Spectroscopy of Human Globe.
M.A. Thomas, K. Yue, Q. Cheng and D.A. Lee.
University of California, Los Angeles, CA, USA.

Rapid Imaging Acquisition and Data Processing

1614. A New Subsecond Acquisition Scheme that Acquires within 1 Meausurement a T_2 and a T_1-weighted Image: Implementation and First Experience.
H. Bosmans, S. Dymarkowski and G. Marchal.
Katholieke Universiteit, Leuven, Belgium.

1615. 3D RARE with a Projection Reconstruction Trajectory.
E. Esparza-Coss, W.F. Block, F.R. Korosec, D.C. Peters and C.A. Mistretta.
CINVESTAV, Mexico City, Mexico; Universidad de Guanajuato, Leon, Mexico and University of Wisconsin, Madison, WI, USA.

1616. Signal-to-Noise Consideration in Static Displacement, Stimulated Echo NMR Elasticity Imaging.
D.D. Steele, T.L. Chenevert, S.Y. Emelianov and M. O'Donnell.
The University of Michigan, Ann Arbor, MI, USA.

1617. Measurement of Harmonic Motion for MR Elastography.
J.B. Weaver, E. van Houten, M.I. Miga, F.E. Kennedy, A. Hartov, S.P. Poplack, H.M. Nagy and K.D. Paulsen.
Dartmouth-Hitchcock Medical Center and Dartmouth College, Hanover, NH, USA.

1618. Applications of Shifted-Interleaved Multi-Volume Acquisition (SIMVA) with Suppressed Slab Boundary Artifact.
K. Liu, Y. Xu and M. Loncar.
Picker International Inc., Cleveland, OH, USA.

1619. Reduction in GR-EPI Intravoxel Dephasing Using Thin Slices and Short TE.
A. Jesmanowicz, B.B. Biswal and J.S. Hyde.
Medical College of Wisconsin, Milwaukee, WI, USA.

1620. Improved Fast Spin-Echo Imaging of the Heart using Zonal Selection, A Reduced Acquisition Window and Navigator Echoes.
C.L. Charrier, P.D. Gatehouse and D.N. Firmin.
Royal Brompton Hospital and Imperial College, London, UK.

1621. Echo Placement Strategies for 3D Interleaved-Cylindrical Spin-Echo Sequences.
K. Ruppert and J.P. Mugler III.
University of Virginia Health Sciences Center, Charlottesville, VA, USA.

1622. Electric Current Density Imaging of Wood by Alternating and Direct Electric Currents.
U. Mikac, I. Sersa, K. Beravs and F. Demsar.
Jozef Stefan Institute, Ljubljana, Slovenia.

1623. Line Scan Imaging Using 2D-Selective RF Pulses.
J. Finsterbusch and J. Frahm.
Biomedizinische NMR Forschungs GmbH, Gottingen, Germany.

1624. Measurement of k-Space Trajectories using Excitation of Single Voxels.
C. Oesterle, T. Thiel and J. Hennig.
University Hospital, Freiburg, Germany.

1625. Dual-frequency Amplitude-Modulated BURST Imaging Based on Fast-SE.
H. Itagaki, Y. Taniguchi, H. Ochi and K. Tsukada.
Hitachi, Ltd., Tokyo, Japan.

1626. 3D-One-Shot-Imaging by Using Dual-Frequency Amplitude-Modulated BURST Imaging Method.
H. Ochi, Y. Taniguchi, H. Itagaki and K. Tsukada.
Hitachi, Ltd., Tokyo, Japan.

1627. Rapid Multi-Slice Interleaved Spirals MR Imaging.
S. Rosenthal, A. Montag and H. Azhari.
Technion, Haifa, Israel and General Electric Medical Systems Israel - MRI, Israel.

1628. Simple Methods to Optimize a Two-phase RF Pulse Train in BURST Imaging.
S. Urayama, T. Matsuda, H. Inoue, K. Hayashi, N. Yamada and C. Uyama.
National Cardiovascular Center, Osaka, Japan and Kyoto University and Rakuwakai Otowa Hospital, Kyoto, Japan.

1629. T_2* Prepared Ultra Fast Low Angle Rare: Optimisation of Sequence Parameters for a Clinical MR Scanner.
A. Stepney, G.J. Barker and M.R. Symms.
University College London, London, UK.

1630. Implementation of a 3D Interleaved-Cylindrical Spin-Echo Sequence.
K. Ruppert and J.P. Mugler III.
University of Virginia Health Sciences Center, Charlottesville, VA, USA.

1631. Three-Dimensional Spin-Echo-Train Proton-Density-Weighted Imaging Using Shaped Signal Evolutions.
J.P. Mugler III, S. Bao, R.V. Mulkern, C.R.G. Guttmann, F.A. Jolesz and J.R. Brookeman.
University of Virginia School of Medicine, Charlottesville, VA, USA; Brigham and Women's Hospital and Children's Hospital, Harvard Medical School, Boston, MA, USA.

1632. Empirical Optimization of Segmented Fast Cardiac Imaging Using an Echo-Planar Readout.
F.H. Epstein and A.E. Arai.
National Institutes of Health, Bethesda, MD, USA.

1633. Fetal Brain MRI with TrueFISP: Theories and Results Compared with HASTE.
H-W. Chung and C-Y. Chen.
National Taiwan University and Tri-Service General Hospital, Taipei, Taiwan, ROC.

1634. Multiple View Real-Time Imaging for Dobutamine Cardiac Stress Tests on Clinical Scanner.
S.E. Fischer, J.P. Groen, S.A. Wickline and C.H. Lorenz.
Washington University Medical Center, St. Louis, MO, USA and Philips Medical Systems, Best, The Netherlands.

1635. A Variable Bandwidth Fast Spin Echo (VB-FSE) Sequence.
M.C. Steckner.
Picker International, Cleveland, OH, USA.

1636. PURR-TURBO: A Novel Pulse Sequence for Relaxographic Imaging.
J-H. Lee.
Brookhaven National Laboratory, Upton, NY, USA.

1637. Off-Centered Spiral Trajectories.
C-M. Tsai, L-C. Man and D.G. Nishimura.
Stanford University, Stanford, CA, USA.

1638. Real-Time Black-Blood MRI.
K.S. Nayak, J.M. Pauly, A.B. Kerr and D.G. Nishimura.
Stanford University, Stanford, CA, USA.

1639. Amplitute Optimized Single-Shot-Hybrid-QUEST Imaging.
R. Jerecic, M. Bock and L.R. Schad.
Deutsches Krebsforschungszentrum (DKFZ), Heidelberg, Germany.

1640. Respiratory Related Phase-sensitive EPI-Measurements of Pulsating CSF-Flow.
C. Kiefer and U. Klose.
University of Tubingen, Germany.

1641. Single Shot GRASE Sub-Second 3D imaging.
D.A. Feinberg, M. McAvoy, J. Ollinger and R.C. McKinstry.
Washington University, St Louis, MO, USA.

1642. Fluid Enhanced MRI: Comparison of T_2 Weighted Imaging Between Fast Recovery Fast Spin Echo and Conventional Fast Spin Echo Techniques.
K. Tomisato, H. Saitoh, K. Cho, K. Inoue, T. Tsuchihashi, M. Ishihara, Y. Kawamura, S. Okada, T. Kumazaki, A. Nozaki and Y. Takahashi.
Nippon Medical School and GE-YMS, Tokyo, Japan.

1643. A New Approach for the Simultaneous Determination of Skeletal Muscle Perfusion, Oxygenation and Energy Metabolism.
J.S. Raynaud, P.G. Carlier, C. Wary, S. Duteil, A. Leroy-Willig and A. Nauerth.
Pitie-Salpetriere, Paris, France and Bruker Medical, Ettlingen, Germany.

1644. Efficient Region of Interest Approximation for MR Image Acquisition.
W.S. Hoge, D. Brooks, H. Lev-Ari, W.C. Karl, L.P. Panych and E.L. Miller.
Northeastern University, Boston University and Brigham and Women's Hospital, Boston, MA, USA.

1645. Generalization of the Fourier Sampling Theorem to Irregular Regions of Support.
S.K. Nagle and D.N. Levin.
University of Chicago, Chicago, IL, USA.

1646. Fast, Automatic Slice Shimming Optimizing All First-Order Shims, All In-slice Second- and Third-Order Shims.
J. Shen.
The Nathan S. Kline Institute for Psychiatric Research, Orangeburg, NY, USA and New York University School of Medicine, New York, NY, USA.

1647. Object Dependent Phase Encoding Technique.
Y.M. Ro.
Information and Communication University (ICU), Taejon, Korea.

1648. A SMASH/SENSE Related Method Using Ratios of Array Coil Profiles.
J. Wang and A. Reykowski.
Siemens Medical Engineering, Erlangen, Germany.

1649. Real-Time Reconstruction for Sensitivity Encoded Magnetic Resonance Imaging.
H. Eggers, M. Weiger, R. Proksa, K.P. Pruessmann and P. Boesiger.
Philips Research, Hamburg, Germany; University of Zurich and Swiss Federal Institute of Technology, Zurich, Switzerland.

1650. [omega]-Space Adaptive Acquisition Technique for Magnetic Resonance Imaging from Projections.
G. Placidi, M. Alecci and A. Sotgiu.
University of L'Aquila, L'Aquila, Italy.

1651. Moving Structure Segmentation and Encoding for Fast Cine Imaging.
G.Z. Yang, J. Keegan and D.N. Firmin.
Royal Brompton Hospital, London, UK.

1652. Phase-Sensitive IR Imaging and its Application for Tissue Segmentation.
J. Ma.
GE Medical Systems, Milwaukee, WI, USA.

1653. Extending the Coverage of True Volume Scans by Continuous Movement of the Subject.
O. Dietrich and J.V. Hajnal.
Hammersmith Hospital, London, UK.

1654. Spherically Symmetric Kernels for Improved Convolution Gridding.
F.E. Boada, I. Hancu and G.X. Shen.
University of Pittsburgh, Pittsburgh, PA, USA.

1655. Rapid Reconstruction of 3D TRICKS Images.
Y. Zhou, D.H. Skuldt and R. Frayne.
University of Wisconsin, Madison, WI, USA.

1656. Isotropic k-Space Sampling Scheme for 3D Fast Spin Echo.
E.G. Kholmovski, A.L. Alexander and D.L. Parker.
University of Utah, Salt Lake City, UT, USA.

1657. Uniform K-Space Sampling with an Interleaved Fibonacci Spiral Acquisition.
H.E. Cline and T.R. Anthony.
General Electric Research and Development Center, Schenectady, NY, USA.

1658. Critical Sampling in k-space and the Point Spread Function.
G.E. Sarty.
Royal University Hospital, Saskatoon, Saskatchewan, Canada.

1659. A Method to Separate Chemical Shift Images in Projection Reconstruction MRI.
M.I. Altbach, R. Van de Walle, T.P. Trouard, R.J. Theilmann, H.H. Barrett and A.F. Gmitro.
University of Arizona, Tucson, AZ, USA and University of Ghent, Ghent, Belgium.

1660. Calculation of Pure Absorption Images from Spectroscopic Data Increases Image Contrast and Resolution.
X. Fan, J.N. River, M. Zamora, C. Rinker-Schaeffer and G.S. Karczmar.
University of Chicago, Chicago, IL, USA.

fMRI Techniques: Acquisition

1661. Improvement of Auditory Stimulation in Event-Related fMRI by Insertion of Silent Intervals.
P-F. Van de Moortele, G. Le Clec'H, L. Hertz-Pannier, C. Chiron, J-B. Poline, S. Dehaene and D. Le Bihan.
Service Hospitalier Frederic Joliot, Orsay, France.

1662. Getting Rid of Acoustic Noise: Functional MRI with Silent Simultaneous Multislice Excitation Gradient Echo (SIMEX) Sequences.
U. Ludwig, T. Loenneker, F. Hennel and J. Hennig.
University Freiburg, Freiburg, Germany and Centre Hospitalier, Rouffach, France.

1663. fMRI Techniques for General Auditory Stimulation and Vocal Response Monitoring.
E. Akbudak, D.A. Gusnard, A.Z. Snyder, H.J. Rosen, M.E. Raichle and T.E. Conturo.
Washington University School of Medicine, St. Louis, MO, USA.

1664. The Effect of Scanner Sound in Visual, Motor and Auditory fMRI.
M.R. Elliott, R.W. Bowtell and P.G. Morris.
Nottingham University, Nottingham, UK.

1665. A Hemodynamic-Response Based Sequence for Event-Related fMRI Studies Without Interference of Scanner Noise.
Y. Yang, A. Engelien, W. Engelien, S. Xu, D.A. Silbersweig and E. Stern.
Cornell University Medical College and Memorial Sloan-Kettering Cancer Center, New York, NY, USA.

1666. Robust Activation in the Hippocampal Formation Using a Randomized Event Related Paradigm at 1.5T.
R.T. Constable, K. Pugh, M. Westerveld, A. Carpentier, M. Schlosser, K. McCarthy and D.D. Spencer.
Yale University School of Medicine, New Haven, CT, USA.

1667. Optimal Design of fMRI Stimuli for Impulse Response Estimation.
B.D. Ward and P.A. Bandettini.
Medical College of Wisconsin, Milwaukee, WI, USA.

1668. An Image Registration Strategy for Multi-Echo fMRI.
T. Jonsson, A.B.A. Wennerberg, H. Forssberg, G. Glover and T-Q Li.
Karolinska Institutet, Stockholm, Sweden and Stanford University, Stanford, CA, USA.

1669. Correction for Signal Drift in fMRI: Use of Interleaved Acquisition of BOLD Sensitive and Insensitive Images.
S.L. Talagala, S.J. Peltier and J.T. Voyvodic.
University of Pittsburgh, Pittsburgh, PA, USA.

1670. K-space Algorithm for Motion Correction of Time Series.
F.M. Kraemer and J. Hennig.
University of Freiburg, Germany.

1671. Reduction of Motion Artifact in fMRI.
O. Josephs, J.J. Wang, B.S. Athwal and R. Turner.
Institute of Neurology, London, UK.

1672. Effect of Signal Fluctuations from the Eyes on fMRI Data and Post-Processing.
S. Vajapeyam, R.V. Mulkern, R.L. Robertson, P.D. Barnes and M.J. Rivkin.
Children's Hospital, Boston, MA, USA.

1673. Post-Registration Spatial Filtering to Reduce Noise in fMRI Data Sets.
L.C. Maas and P.F. Renshaw.
McLean Hospital, Belmont, MA, USA; Harvard University - Massachusetts Institute of Technology Division of Health Sciences and Technology, Cambridge, MA, USA and Harvard Medical School, Boston, MA, USA.

1674. The Impact of Motion and Experiment Duration in fMRI.
M.R. Elliott, R.W. Bowtell and P.G. Morris.
Nottingham University, Nottingham, UK.

1675. Evaluation of Motion Correction in fMRI – Dependency of Spatial Resolution.
S. Kumazawa, T. Yamamoto, N. Nakamura, T. Yamamoto and K. Miyasaka.
Hokkaido University, Sapporo, Japan.

1676. A Quantitative Analysis of Artifacts on fMRI.
T. Yamamoto, S. Kumazawa, N. Nakamura and K. Miyasaka.
Hokkaido University, Sapporo, Japan.

1677. Head Motion Measurement with Non Proton Fiducial Markers.
P.F. Van de Moortele and D. Le Bihan.
Service Hospitalier Frederic Joliot, Orsay, France.

1678. Effect of Motion Correction on the fMRI Activated Areas.
I. Zimine, F. Lazeyras, J.P. Vallee, D.A. Rufenacht and P. Descouts.
University of Geneva, Switzerland.

1679. Estimation of Spatial Registration Error for Talairach-Transformed MR Images.
M. Dzemidzic, M.J. Lowe and V.P. Mathews.
Indiana University School of Medicine, Indianapolis, IN, USA.

1680. Optimization of Motor Task Paradigm Reduces Artifact Contribution.
C. Moritz, E. Meyerand, A. Saykin and V. Haughton.
University of Wisconsin, Madison, WI, USA and Dartmouth Medical School, Lebanon, NH, USA.

1681. Intrinsic Magnetic Field Distortions Caused by Head Motion in Functional MRI Data Sets.
P. Jezzard.
University of Oxford, Oxford, England.

1682. Composite Image Formation in Z-Shimmed Functional MR Imaging.
R.T. Constable and D.D. Spencer.
Yale University School of Medicine, New Haven, CT, USA.

1683. Comparison of Reproducibility and Sensitivity of Motor Activation with Functional MRI Using EPI vs. Spiral Trajectory.
Y-F. Yen, L. Hernandez and J.H. Burdette.
Wake Forest University School of Medicine, Winston-Salem, NC, USA.

1684. Echo-Planar fMRI with 1-mm Cubicle Voxels.
J.S. Hyde, B.B. Biswal and A. Jesmanowicz.
Medical College of Wisconsin, Milwaukee, WI, USA.

1685. Evaluation of Echo-Shifting in Single-Shot fMRI.
N. Petridou and J.H. Duyn.
National Institutes of Health, Bethesda, MD, USA.

1686. Ultra Fast Low Angle RARE: A Comparative Study with EPI for use in fMRI Experiments on a Clinical MR System.
A. Stepney, G.J. Barker and M.R. Symms.
University College London, London, UK.

1687. Comparison Between Susceptibility Weighted UFLARE and EPI: Detection of Visual and Motor Cortex Activation at High Magnetic Field Strength.
T. Niendorf and C.J. Wiggins.
Max-Planck-Institute of Cognitive Neuroscience and GE Medical Systems, Leipzig, Germany.

1688. Contrast-Modified SE- and CPMG-SE-Sequences to Investigate the BOLD-Effect Contribution of CSF.
A.C. Schulte and J. Hennig.
University of Freiburg, Germany.

1689. Functional Line Scan Imaging of Human Brain Activation.
J. Finsterbusch and J. Frahm.
Biomedizinische NMR Forschungs GmbH, Gottingen, Germany.

1690. Real-Time fMRI on a Clinical MR Scanner.
A.M.C. van Muiswinkel, J.S. van den Brink and P.J.M. Folkers.
Philips Medical Systems, Best, The Netherlands.

1691. A Simple Set-up For Tracking Eye Position During fMRI.
D.J. Dubowitz, A. Martinez and J. McDowell.
California Institute of Technology, Pasadena, CA, USA and University of California San Diego, La Jolla, CA, USA.

1692. Mixing Task Paradigm in fMRI for Radiosurgery.
W-C. Liu, M. Schulder, A.J. Kalnin, A. Holodny and A. Gray.
University of Medicine and Dentistry of New Jersey, Newark, NJ, USA.

1693. Characterisation of the Haemodynamic Response Function in Epilepsy using EEG-Correlated fMRI.
M.R. Symms, K. Krakow, F.G. Woermann, G.J. Barker, D.R. Fish and J.S. Duncan.
National Society for Epilepsy, Chalfont St Peter, Bucks, UK and University College, London, UK.

1694. Anatomic MRI Used to Constrain MEG Localization of Interictal Spikes in Epilepsy.
D.P. Schwartz, A.K. Liu, J.W. Belliveau, J. Lewine, J. Davis, G. Heit, C. Destrieux, E. Halgren and A.M. Dale.
Massachusetts General Hospital, Charlestown, MA, USA; The Center for Advanced Medical Technologies, Salt Lake City, UT, USA; Stanford University, Stanford, CA, USA and INSERM, Marseille, France.

1695. Correlation of fMRI and EEG Current Sources during Finger Movement Using Finite Element Head Model and Inverse Method.
T. Kim and M. Singh.
University of Southern California, Los Angeles, CA, USA.

1696. Transcranial Magnetic Stimulation with Simultaneous Undistorted Functional Magnetic Resonance Imaging.
O. Josephs, B.S. Athwal, C. Mackinnon, J. Rothwell and R. Turner.
Institute of Neurology, London, UK.

1697. The Time-Course of the Hemodynamic Response to Similar in Interictal Epileptiform Discharges and Brief Visual Stimuli.
K. Krakow, F.G. Woermann, M.R. Symms, L. Lemieux, G.J. Barker, D.R. Fish and J.S. Duncan.
Institute of Neurology and National Society for Epilepsy, London, UK.

1698. The Effect of EEG Recording on Functional MR Image Quality.
K. Krakow, P.J. Allen, M.R. Symms, L. Lemieux and D.R. Fish.
Institute of Neurology, National Society for Epilepsy and National Hospital for Neurology and Neurosurgery, London, UK.

fMRI Techniques: Processing & Analysis

1699. Improving Detection of Brain Activation by Measuring Subject- and Cortex-Specific Impulse Response.
S. Lai, G.H. Glover, R. Benson, V.P. Clark, S. Fannon, J. Lackey and G. Ramsby.
University of Connecticut Health Center, Farmington, CT, USA and Stanford University, Stanford, CA, USA.

1700. Measure of Agreement Between Two fMRI Trials Using the Kappa Statistic.
S.M. Bragg-Sitton, E.F. Jackson and D.A. Johnston.
University of Texas M.D. Anderson Cancer Center, Houston, TX, USA.

1701. An Improved Metric for Analyzing fMRI Time Courses Based on Wavelet Transform.
S-C. Ngan, X. Shao, V. Cherkassky and X. Hu.
University of Minnesota, Minneapolis, MN, USA.

1702. Three Dimensional Bayesian Processing of Spatiotemporal fMRI Data.
T. Kim, L. Al-Dayeh and M. Singh.
University of Southern California, Los Angeles, CA, USA.

1703. Model Comparison for fMRI Data Analysis.
P.L. Purdon, V. Solo, R.M. Weisskoff and E. Brown.
Massachusetts General Hospital, Charlestown, MA, USA; Harvard-MIT Division of Health Sciences and Technology, Cambridge, MA, USA and Macquarie University, Sydney, NSW, Australia.

1704. Linear Model Identification in fMRI.
B.A. Ardekani, K. Kashikura, A. Kashikura and I. Kanno.
Research Institute for Brain and Blood Vessels, Akita, Japan.

1705. Spatial Distribution of Low Frequency Noise in fMRI.
T.E. Lund and H.B.W. Larsson.
Hvidovre Hospital, Copenhagen, Denmark.

1706. Resting-State Functional Connectivity Study using Independent Component Analysis.
D. Cordes, J. Carew, H. Eghbalnia, E. Meyerand, M. Quigley, K. Arfanakis, A. Assadi, P.A. Turski and V. Haugthon.
University of Wisconsin, Madison, WI, USA.

1707. fMRI Data Reduction and Signficance Testing Without *A Priori* Information.
M.A. Griswold, R.R. Edelman and B.O.M. Bly.
Beth Israel Deaconess Medical Center, Boston, MA, USA and Rutgers University, Newark, NJ, USA.

1708. Sensitivity-Enhancement for fMRI by Reference-Vector Optimization.
D. Gembris, J.G. Taylor, W. Frings, S. Goebels, S. Schor, S. Posse, V.G. Kiselev, S. Wiese, N.J. Shah and D. Suter.
Research Center Julich GmbH, Julich, Germany; Kings College, London, UK and University of Dortmund, Germany.

1709. Crossing the Median: Separating Potential fMRI Activations from Noise.
M. Jarmasz and R.L. Somorjai.
National Research Council of Canada, Winnipeg, Manitoba, Canada.

1710. Statistical Improvment of fMRI Data by Wavelet Denoising.
S. Zaroubi and G. Goelman.
Hadassah Hebrew University Hospital, Jerusalem, Israel.

1711. Gram-Schmidt Orthogonalization to Reduce Aliased Physiologic Noise in Low Sampling Rate fMRI Data.
M.J. Lowe.
Indiana University School of Medicine, Indianapolis, IN, USA.

1712. Reliability of Resting-State Functional Connectivity Maps of fMRI Using Test-Retest Analysis.
B.B. Biswal and J.S. Hyde.
Medical College of Wisconsin, Milwaukee, WI, USA.

1713. Effects of Task Related Activation on Physiological Noise using Functional Connectivity Analysis.
K. Arfanakis, D. Cordes, J.A. Sorenson, V.M. Haughton, M.A. Quigley and M.E. Meyerand.
University of Wisconsin, Madison, WI, USA.

1714. Exploratory Data Analysis of fMR Images: Philosophy, Strategies, Tools and Implementation.
R.L. Somorjai and M. Jarmasz.
National Research Council of Canada, Winnipeg, MB, Canada.

1715. Blind-Source Separation of Multiple Signal Sources of fMRI Data Sets Using Independent Component Analysis.
B.B. Biswal and J.L. Ulmer.
Medical College of Wisconsin, Milwaukee, WI, USA.

1716. Comparison of Independent Component Analysis (ICA) and Statistical Parametric Mapping (SPM) Procedures in an fMRI Visual Activation Study.
J.D. Simeral, Y-F. Yen, L. Hernandez, T.P. Pons, R.E. Hampson and S.A. Deadwyler.
Wake Forest University School of Medicine, Winston-Salem, NC, USA.

1717. Three-Dimensional Cluster Analysis as a Determinant of Right/Left Asymmetry in fMRI of Parkinson's Disease.
M.J. Lowe, M.D. Phillips, J.T. Lurito, V.P. Mathews, M. Dzemidzic and J.M. Wojcieszek.
Indiana University School of Medicine, Indianapolis, IN, USA.

1718. Exploratory Analysis of fMR Images by Fuzzy Clustering: Voxel Preselection via "Self-Similarity".
R.L. Somorjai, M. Jarmasz, R. Baumgartner and W. Richter.
National Research Council of Canada, Winnipeg, MB, Canada.

1719. Comparison of Exploratory Data Analysis Methods in fMRI: Fuzzy Clustering and Principal Component Analysis.
R. Baumgartner, L. Ryner, R. Summers, M. Jarmasz and R. Somorjai.
National Research Council of Canada, Winnipeg, Canada.

1720. Is Fuzziness useful in fMRI Clustering.
H. Fischer and J. Hennig.
University of Freiburg, Germany.

1721. Automatic Iterative Cluster Detection Algorithm for Processing 2D and 3D fMRI Datasets.
J. Hrabe, H.G. Vaughan and C.A. Branch.
Nathan S. Kline Institute, Orangeburg, NY, USA and Albert Einstein College of Medicine, Bronx, NY, USA.

1722. Characterizing Individual Trial Response in fMRI Using Robust Curve-Fitting.
S. Sarkar, E. Yacoub, J. Zhuang, S.M. LaConte and X. Hu.
University of Minnesota, Minneapolis, MN, USA.

1723. An Approach for Detecting Trial Latencies and Improving Average Response in Single Trial fMRI.
S. Sarkar, E. Yacoub, S.M. LaConte, T.H. Le and X. Hu.
University of Minnesota, Minneapolis, MN, USA.

1724. Regional Differences in Visual Cortex Activation Under Monocular and Biocular Visual Stimulation.
C.P. Lin, K.H. Chuang, J.H. Chen and C.Y. Chen.
National Taiwan University and Tri-Service General Hospital, Taiwan, ROC.

1725. Spatial Characteristics of Temporal Delay in Visual Cortex: Demonstrated by Functional MRI.
K.H. Chuang, C.P. Lin, C.Y. Chen and J.H. Chen.
National Taiwan University and Tri-Service General Hospital, Taiwan, ROC.

1726. Separation fo Microvascular and Macrovascular BOLD Signals Using Latency Shifts.
C.G. Thomas and R.S. Menon.
University of Western Ontario and The John P. Robarts Research Institute, London, Ontario, Canada.

1727. Gradient Echo vs Asymmetric Spin Echo fMRI: Separating Static Field Effects from the BOLD Effect.
R.T. Constable and D.D. Spencer.
Yale University School of Medicine, New Haven, CT, USA.

1728. A Study of Global Signal Changes in Sensori-Motor fMRI.
D.W. McRobbie and R.A. Quest.
The Hammersmith Hospitals NHS Trust and Imperial College, London, UK.

1729. Testing of a Model for the fMRI Contrast-to-Noise Ratio.
J.S. Hyde, B.B. Biswal and A. Jesmanowicz.
Medical College of Wisconsin, Milwaukee, WI, USA.

fMRI - Combined CBF and BOLD

1730. Simultaneous Monitoring of Dynamic Changes in Cerebral Blood Flow and Oxygenation During Sustained Activation of the Human Visual Cortex.
G. Kruger, A. Takahashi, A. Kastrup and G.H. Glover.
Stanford University School of Medicine, Stanford, CA, USA.

1731. A Single-Shot Dual-Echo Spiral FAIR Sequence for Simultaneous Measurements of CBF and Oxygenation in fMRI.
T-Q. Li, A. Takahashi, M.E. Moseley and G.H. Glover.
Stanford University, Stanford, CA, USA.

1732. Quantification of Flow Changes Accompanying Task Activation Using Transit Time Sensitive ASL Images.
J. Gonzalez-Atavales, D.C. Alsop and J.A. Detre.
University of Pennsylvania, Philadelphia, PA, USA.

1733. Dependence of fMRI Contrast on Global Blood Flow: Comparison of Whole Brain T_2* Mapping and PET.
L. Kemna, S. Posse, H. Herzog, S. Wiese, D. Gembris, V.G. Kiselev, B. Elghahwagi, L. Tellmann and K. Zilles.
Research Center Julich GmbH, Julich, Germany.

1734. CBF and BOLD during Graded Hypercapnia: Modeling of BOLD Effect.
S-G. Kim, E. Rostrup, H.B.W. Larsson, S. Ogawa and O.B. Paulson.
University of Minnesota, Minneapolis, MN, USA; University of Copenhagen, Copenhagen, Denmark and Bell Laboratories, Lucent Technologies, Murray Hill, NJ, USA.

1735. Application of the Balloon Model to the BOLD Response to Stimuli of Different Duration.
R.B. Buxton, K.L. Miller, E.C. Wong and L.R. Frank.
University of California at San Diego, CA, USA and Stanford University, Stanford, CA, USA.

1736. The Dependence of BOLD and CBF Changes on the CBF Baseline during Somatosensory Stimulation.
A.C. Silva, C. Iadecola and S-G. Kim.
University of Minnesota Medical School, Minneapolis, MN, USA.

1737. Additive Combination of Perfusion Responses to Hypercapnia and Visual Stimulation.
R.D. Hoge, J. Atkinson, B. Gill, G.R. Crelier, S. Marrett and G.B. Pike.
McGill University, Montreal, Quebec, Canada.

1738. Comparison of Early Response, Late Response and Flow Response during Visual Stimulation.
E. Yacoub, S-G. Kim and X. Hu.
University of Minnesota School of Medicine, Minneapolis, MN, USA.

1739. Single Shot I_0 and T_2* Parameter Imaging using a Multi-Echo Spiral Acquisition: I_0 Mirrors T_2* Time Course during Visual Stimulation.
O. Speck, L. Chang and T. Ernst.
UCLA School of Medicine, Harbor-UCLA Medical Center, Torrance, CA, USA.

1740. Separation of Inflow and T_2* Effects on Respiration-Induced Fluctuations by Dual-Echo Gradient-Recalled Echo-Planar Imaging.
X. Zhao, J. Bodurka and S.J. Li.
Medical College of Wisconsin, Milwaukee, WI, USA and University School of Medical Sciences, Bydgoszcz, Poland.

1741. Non-Linear BOLD and Perfusion Dynamic in Human V1.
R.D. Hoge, J. Atkinson, B. Gill, G.R. Crelier, S. Marrett and G.B. Pike.
McGill University, Montreal, Quebec, Canada.

1742. Focal Brain Activation under Normo- and Hypercapnia Induced by Breath Challenge Studied by FAIR and BOLD Techniques.
T-Q. Li, M.E. Moseley and G.H. Glover.
Stanford University, Stanford, CA, USA.

1743. Ultrafast Simultaneous Detection of Changes in Perfusion and BOLD Contrast.
C. Schwarzbauer.
Max-Planck-Institut fur neuropsychologische Forschung, Leipzig, Germany.

1744. Simultaneous Measurement of Perfusion and Vascular Blood Fraction Using Dynamic Arterial Spin Labeling (DASL).
E.L. Barbier, A.C. Silva, S.G. Kim, J. Sau, J.J. Mallet and A.P. Koretsky.
Carnegie Mellon University, Pittsburgh, PA, USA; Faculte de Medecine Grange-Blanche, Lyon, France and University of Minnesota Medical School, Minneapolis, MN, USA.

fMRI - Brain vs. Vein

1745. Activated Areas in fMRI Correlate with Venous Structures in an MR Venogram.
F.G.C. Hoogenraad, P.J.W. Pouwels, M.B.M. Hofman, J.R. Reichenbach, M. Sprenger and E.M. Haacke.
Vrije Universiteit, Amsterdam, The Netherlands; Institut fur Diagnostische und Interventionelle Radiologie (IDIR), Jena, Germany and Mallinckrodt Institute of Radiology, St. Louis, MO, USA.

1746. Venous Blood Effects in Spin Echo fMRI of Human Brain.
J.M.E. Oja, J. Gillen, R.A. Kauppinen, M. Kraut and P.C.M. van Zijl.
Johns Hopkins University, Baltimore, MD, USA and University of Kuopio, Kuopio, Finland.

1747. Can the Different Venous Components of the Haemodynamic Response in BOLD fMRI be Characterised as a Single Function?
R.A. Jones, J.A. Brookes and C. Moonen.
Universite Bordeaux2, Bordeaux, France.

1748. Extra-Vascular BOLD fMRI: a Single Vessel is More Important than a Capillaries Network in Gray Matter.
F.G.C. Hoogenraad, P.J.W. Pouwels, M.B.M. Hofman, J.R. Reichenbach, M. Sprenger and E.M. Haacke.
Vrije Universiteit, Amsterdam, The Netherlands; Institut fur Diagnostische und Interventionelle Radiologie (IDIR), Jena, Germany and Mallinckrodt Institute of Radiology, St. Louis, MO, USA.

1749. Evidence of Extra-Vascularity of Gradient-Echo BOLD fMRI Signal at 1.5T.
C.X. Tan and J.H. Duyn.
National Institutes of Health, Bethesda, MD, USA.

1750. Functional MR BOLD Signal Changes: Evaluation of the Intravascular and Extravascular Contribution.
N. Fujita, H. Tanaka, Y. Watanabe, N. Hirabuki, Y. Ohsiro, M. Takanashi and H. Nakamura.
Osaka University Medical School, Osaka, Japan.

1751. Spatio-Temporal Effects of the Intravascular Signal on the Dynamics of the BOLD Response.
A. Vazquez, F. Boada and D. Noll.
University of Pittsburgh Medical Center, Pittsburgh, PA, USA.

1752. Investigation on Vascular Contribution to CBF-based fMRI at 9.4T.
S-P. Lee, A.C. Silva and S-G. Kim.
University of Minnesota Medical School, Minneapolis, MN, USA.

1753. Investigation on Vascular Contribution to BOLD Signal at 9.4T Using Spin-Echo EPI with Diffusion Gradients.
S-P. Lee, A.C. Silva, K. Ugurbil and S-G. Kim.
University of Minnesota Medical School, Minneapolis, MN, USA.

1754. Distribution of BOLD Signal Changes as a Function of Vessel Size at 4 T: GE-EPI and SE-EPI Measurements.
R.S. Menon and J.S. Gati.
The John P. Robarts Research Institute, London, Ontario, Canada.

1755. fMRI Signal Origin: Comparison Between Gradient-Echo and Spin-Echo MT-Interleaved EPI.
R. Zhang, R.W. Cox, P.A. Bandettini and J.S. Hyde.
Medical College of Wisconsin, Milwaukee, WI, USA and University of Wisconsin, Madison, WI, USA.

1756. Exchange Effects on Blood T_2 Relaxation at 9.4T.
M.J. Silvennoinen, J.M.E. Oja, J.M. Hakumaki, P.C.M. van Zijl and R.A. Kauppinen.
University of Kuopio, Finland and Johns Hopkins University Medical School, Baltimore, MD, USA.

fMRI Mechanisms

1757. Multi-Modal Magnetic Resonance Imaging: Implications for Quantitative Functional MRI.
F. Hyder, R. Renken and D.L. Rothman.
Yale University, New Haven, CT, USA.

1758. Localized Cerebral Energetics under Anesthesia: Implications for Quantitative Functional MRI.
R.G. Shulman, D.L. Rothman and F. Hyder.
Yale University, New Haven, CT, USA.

1759. A Model for the Regulation of Cerebral Oxygen Delivery and Blood Oxygenation: Implications for Functional MRI.
F. Hyder, D.L. Rothman and K.L. Behar.
Yale University, New Haven, CT, USA.

1760. Measuring the Change in CBV in the Visual Cortex Upon Activation using LL-EPI and Gd-DTPA.
J. Pears, S. Francis, S. Butterworth and P. Gowland.
University of Nottingham, Nottingham, UK.

1761. Gradient Sensitization for the Selective Imaging of Blood Volume and Quantification of Oxygen Extraction.
D.C. Alsop and J.A. Detre.
University of Pennsylvania, Philadelphia, PA, USA.

1762. Microscopic Susceptibility Contrast in the Stimulated Echo Imaging Experiment.
C. Ramanathan and R.M. Weisskoff.
Massachusetts General Hospital, Charlestown, MA, USA and Harvard Medical School, Boston, MA, USA.

1763. Dual-Echo PRESTO: Fast 3D fMRI with Simultaneous Measurement of Changes in Baseline Signal I_0 and in T_2*.
J.M. Hoogduin, J.S. van den Brink, P.J.M. Folkers, A.M.C. van Muiswinkel, R.S. Kahn and N.F. Ramsey.
Utrecht University Hospital, Utrecht, The Netherlands and Philips Medical Systems, Best, The Netherlands.

1764. Relationship Between Cerebral Blood Flow and Functional Activation in the Motor Cortex Examined by T_2* Weighted and CINE Phase Contrast MRI in Controls.
S. Bluml and B.D. Ross.
Huntington Medical Research Institutes, Pasadena, CA, USA and Rudi Schulte Research Institutes, Santa Barbara, CA, USA.

1765. Assessment of Cerebral Oxidative Metabolism with Breath Holding and fMRI.
A. Kastrup, G. Krueger, G.H. Glover and M.E. Moseley.
Stanford University, Stanford, CA, USA.

1766. A fMRI Study Using Dynamic ADC Mapping and Alternating Flow Compensated DWI.
T-Q. Li, M.E. Moseley and G.H. Glover.
Stanford University, Stanford, CA, USA.

1767. Enhanced Sensitivity of MR Phase Imaging to the Functional Activation in Brain Regions with High-Iron Deposition.
Y. Liu, J-H. Gao and P.T. Fox.
The University of Texas Health Science Center, San Antonio, TX, USA.

1768. Voxel-Wise Comparison of T_1 Relaxation Times and Simultaneously Measured Perfusion and BOLD Signal Increases During Motor Activation.
W-M. Luh, E.C. Wong, P.A. Bandettini, B.D. Ward and J.S. Hyde.
Medical College of Wisconsin, Milwaukee, WI, USA and University of California, San Diego, CA, USA.

1769. Mismatch Between T_2* and Echo Time Dependence of BOLD Contrast fMRI in Men and Women.
S. Wiese, M.L. Grosse-Ruyken, V.G. Kiselev and S. Posse.
Research Center Julich GmbH, Julich, Germany.

1770. Oxygenation Dependent Spin-Lattice Relaxation of Hyperpolarized ^{129}Xe in Human Blood.
J. Wolber, A. Cherubini, M.O. Leach and A. Bifone.
The Royal Marsden NHS Trust, Sutton, Surrey, UK and University of Rome "La Sapienza", Roma, Italy.

1771. Effects of Hyperoxemia on BOLD fMRI by Pulsed Oxygen Inhalation.
T. Kim, E-N. Kim, M-J. Chu, B-Y. Choe, T-S. Suh, J-M. Lee and K-S. Shinn.
Catholic University School of Medicine and Ewha Women's University, Seoul, Korea.

1772. Different Elasticity of Balloons? – Strong Overshoot Response in the Supplementary Motor Area by a Single Task Experiment.
T. Nakai, K. Matsuo, C. Kato, H. Isoda, Y. Takehara, T. Moriya and T. Okada.
MITI, Tsukuba, Japan; Toyohashi Sozo College, Toyohashi, Japan; Hamamatsu University, Hamamatsu, Japan and Kyoto University, Kyoto, Japan.

1773. Investigation of Linear vs. Non-Linear BOLD Effects in the Transition from Single Event to Continuous Stimulation.
C. Janz, J. Kornmayer and J. Hennig.
University of Freiburg, Germany.

1774. The Structure of BOLD Signal in Functional MRI: Linear and Nonlinear Contribution.
D.A. Yablonskiy, G.L. Bretthorst, M.E. Raichle and J.J.H. Ackerman.
Washington University, St. Louis, MO, USA.

Diffusion MR Imaging in Humans

1775. Additional Diagnostic Information for Late Acute Human Ischemias Provided by Diffusion-Weighted MR Imaging in Combination with Relaxometric Imaging.
J. Bernarding, J. Braun, J. Hohmann, C. Koennecke, K.J. Wolf and T. Tolxdorff.
Medical Center Benjamin Franklin, Free University of Berlin, Berlin, Germany.

1776. FLAIR-Prepared DWI to Reduce the Effect of Partial Volume Averaging on ADC Maps of Cerebral Ischemia in Humans.
L.L. Latour, K.M. Donahue, R. Prost and J. Ulmer.
The Medical College of Wisconsin and IGC-Medical Advances, Inc., Milwaukee, WI, USA.

1777. Longitudinal Evaluation of Apparent Diffusion Coefficients of Edema and Demyelinating Lesion in Progressive Experimental Allergic Enchephalomyelitis.
M.N. Degaonkar, P. Raghunathan, R. Jayasundar and N.R. Jagannathan.
All India Institute of Medical Sciences, New Delhi, India.

1778. Diffusion Tensor Imaging Demonstrates Reduced Anisotropy in a Patient with Cerebral Dysgenesis.
S.H. Eriksson, M.R. Symms, G.J. Barker, U.C. Wieshmann, F.G. Woermann and J.S. Duncan.
National Society for Epilepsy, Chalfont St. Peter, Bucks, UK and University College, London, UK.

1779. Diffusion-Weighted MR Imaging and Apparent Diffusion Coefficients of Various Intracranial Cystic or Necrotic Lesions.
S.H. Park, K.H. Chang, I.C. Song, Y.J. Kim, M.H. Han, K.M. Yeon and M.C. Han.
Seoul National University College of Medicine, Seoul, Korea.

1780. Assessment of the Clinical Benefit of an Alternative Diffusion Weighted Magnetic Resonance Imaging Sequence in Patients with Acute Ischaemic Stroke.
N.C. McMillan, J.E. Foster, M.R. Walters, M. Cockburn and K.R. Lees.
Western Infirmary and University of Glasgow, Glasgow, UK.

1781. A Prospective Study in Eclampsia using Diffusion Weighted Imaging.
M.D. Rana, W.I.D. Rae, P. Corr, J. Moodley and J. Keshab.
King Edward VIII Hospital, Addington Hospital and University of Natal, Durban, South Africa.

1782. Prognostic Value of Diffusion Weighted Imaging in Tuberculous Meningitis (TBM).
M.D. Rana, W.I.D. Rae, P. Corr and S.S. Nadvi.
King Edward VIII Hospital, Addington Hospital and University of Natal, Durban, South Africa.

1783. Apparent Diffusion Coefficient in Human Intervertebral Discs in Healthy Young Volunteers.
L.I. Kerttula, J.P.T. Jauhiainen, O.A. Tervonen and K.A. Koivula.
University of Oulu, Finland.

1784. Diffusion Imaging *in vivo* in Skeletal Muscle Tissue and Correlation to the Arteriosclerosis of the Lower Extremities.
R. Blanco, L. Ahvenjarvi, J. Jauhiainen, J. Oikarinen, T. Siniluoto and O. Tervonen.
Oulu University Hospital, Oulu, Finland.

Diffusion Anisotropy

1785. Reduction of the Sorting Bias in the Eigenvalues of the Diffusion Tensor in Diffusion Weighted Magnetic Resonance Imaging.
K.M. Martin, N.G. Papadakis, C.L.H. Huang, L.D. Hall and T.A. Carpenter.
University of Cambridge, Cambridge, UK.

1786. Evaluating Effects of Diffusion Weighting Choice on Accuracy of Diffusion Tensor MRI of Fixed Mouse Spinal Cord.
D.H. Laidlaw, K.L. Cook and Y.M. Goldfeld.
Brown University, Providence, RI, USA and Caltech Biological Imaging Center, Pasadena, CA, USA.

1787. Parametric Description of Noise in Diffusion Tensor MRI.
S. Pajevic and P.J. Basser.
National Institutes of Health, Bethesda, MD, USA.

1788. Method to Reduce Eigenvalue Sorting Bias in DT-MRI.
P.J. Basser and S. Pajevic.
National Institutes of Health, Bethesda, MD, USA.

1789. Quantitative Statistical Tests for Assessing Changes in the Trace of the Diffusion Tensor: Clinical and Biological Implications.
P.J. Basser and S. Pajevic.
National Institutes of Health, Bethesda, MD, USA.

1790. Non-Parameteric Statistical Analysis of Diffusion Tensor MRI Data Using the Bootstrap Method.
S. Pajevic and P.J. Basser.
National Institutes of Health, Bethesda, MD, USA.

1791. Is an Axially-Symmetric Model Adequate to Describe Diffusion in the Human Brain?
M. Cercignani and M.A. Horsfield.
University of Leicester, Leicester Royal Infirmary, England, UK and University of Milan, Italy.

1792. Improved ADC Estimation from Diffusion Weighted Magnitude Images.
R. Bammer, R. Stollberger, M. Augustin, F. Ebner, H.P. Hartung and F. Fazekas.
University of Graz, Austria.

1793. An Optimal Strategy for Precise Determination of the Diffusion Tensor.
D.K. Jones, M.A. Horsfield and A. Simmons.
University of Leicester, Leicester Royal Infirmary, Leicester, UK and Institute of Psychiatry, London, UK.

1794. A Study of Rotationally-Invariant and Symmetric Indices of Diffusion Anisotropy.
N.G. Papadakis, G.C. Houston, M.F. James, A.A. Parsons, T.A. Carpenter and L.D. Hall.
University of Cambridge, Cambridge, UK and SmithKline Beecham Pharmaceuticals, UK.

1795. A Study of the Effect of the Diffusion-Weighting Gradient Directions on Diffusion Tensor Imaging.
N.G. Papadakis, D. Xing, C.L.H. Huang, T.A. Carpenter and L.D. Hall.
University of Cambridge, Cambridge, UK.

1796. Diffusion Tensor Imaging: Correction of Anisotropic Diffusion Index Maps.
J.G. Hirsch and A. Gass.
Klinikum Mannheim/Universitat Heidelberg, Germany.

1797. Quantifying the Likely Errors Arising When Using the Orthogonal or Tetrahedral Encoding Schemes to Sample Diffusion Anisotropy.
P.A. Armitage.
The University of Edinburgh, Western General Hospital, Edinburgh, Scotland.

1798. Noise Reduction in Diffusion Tensor Imaging – Reducing Systematic Anisotropy Errors.
G.J.M. Parker, D.J. Werring, J.A. Schnabel, M.R. Symms and G.J. Barker.
University College London, London, UK and University Hospital, Utrecht, The Netherlands.

Diffusion MR: Methods and Models

1799. Time-Dependent Noble Gas Diffusion NMR in Porous Media and Implications for Lung Study.
R. Mair, G. Wong, D. Hoffman, S. Patz, M. Hurlimann, L. Schwartz and R. Walsworth.
Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, USA; Brigham and Women's Hospital, Boston, MA, USA and Schlumberger-Doll Research, Ridgefield, CT, USA.

1800. Measuring Diffusion of Xenon in Solution with Hyperpolarized ^{129}Xe NMR.
J. Wolber, S.J. Doran, M.O. Leach and A. Bifone.
The Royal Marsden NHS Trust, Sutton, Surrey, UK and University of Surrey, Guildford, Surrey, UK.

1801. ^{1}H and ^{19}F MRS Investigation of the Influence of Viscosity on Diffusion and Longitudinal Relaxation of Small Molecules.
A.S.K. Dzik-Jurasz, J. Wolber, M.O. Leach and I.J. Rowland.
The Institute of Cancer Research and The Royal Marsden NHS Trust, Sutton, Surrey, UK.

1802. A Phantom Study of Restricted Diffusion of Water in White Matter.
Y. Gauthier and I. Cameron.
Carleton University and Ottawa Hospital - General Campus, Ottawa, ON, Canada.

1803. Test Liquids to Monitor Accuracy in Measuring Apparent Self-Diffusion Coefficient for Multi-Centre Studies.
P.S. Tofts, D. Lloyd, G. Barker, G.J.M. Parker, C.A. Clark, P. McConville, C. Baldock and J.M. Pope.
University College, London, UK and Queensland University of Technology, Brisbane, Australia.

1804. Directional Dependence of Diffusion Weighted BOLD fMRI at 9.4 T.
S-P. Lee, A.C. Silva and S-G. Kim.
University of Minnesota, Minneapolis, MN, USA.

1805. A Comparison of Reduced Encoding Imaging Techniques for Diffusion Tensor Imaging.
E.W. Hsu and C.S. Henriquez.
Duke University and Duke University Medical Center, Durham, NC, USA.

1806. Multi-Component Apparent Diffusion Coefficients in Human Brain: Grey/White Matter Differences and Spin-Lattice Relaxation Times.
R.V. Mulkern, H.P. Zengingonul, D. Holtzman, C.R.G. Guttmann, R.L. Robertson, W. Kyriakos, F.A. Jolesz and S.E. Maier.
Children's Hospital and Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA.

1807. Simple Mathematical Model of Apparent Diffusion Coefficient Decrease Following Brain Ischemia.
J. Hrabe, C. Nicholson, N.C. Huang and J.A. Helpern.
Nathan S. Kline Institute, Orangeburg, NY, USA; Albert Einstein College of Medicine, Bronx, NY, USA and New York University Medical School, New York, NY, USA.

1808. Separation of Two Diffusion Compartments in the Human Brain.
F. Kraemer, A. Darquie, C.A. Clark and D. Le Bihan.
Service Hospitalier Frederic Joliot, Orsay, France.

1809. Diffusion Tensor Imaging Without Diagonalization Using the Physical Properties of the Diffusion Ellipsoid.
A.M. Ulug and P.C.M. van Zijl.
Cornell University Medical College, New York, NY, USA and Johns Hopkins University School of Medicine, Baltimore, MD, USA.

1810. Quantitative Assessment of Injury in the Spinal Cord of a Rat *in vivo* using MRI of Water Diffusion Tensor.
A.T. Krzyzak, A. Jasinski, P. Kozlowski, D. Adamek, P. Sagnowski and J. Pindel.
Jagiellonian University, Krakow, Poland and National Research Council, Winnipeg, Manitoba, Canada.

1811. *In vitro* Measurements of Water Diffusion in Inflated Lung.
M.R. Estilaei and A. MacKay.
The University of British Columbia, Vancouver, BC, Canada.

1812. Development of Methods for MRI Measurement of Ischemic Mouse Brain Apparent Diffusion Coefficient (ADC).
G.B. Matson, Y. Kokubo, N. Derugin, A. Mancuso, T.C. Hill and P.R. Weinstein.
Department of Veterans Affairs Medical Center and University of California, San Francisco, CA, USA.

1813. Diffusional Anisotropy in Bovine Optic Nerve after Heating.
G.J. Stanisz, S.J. Graham, A. Kecojevic and R.M. Henkelman.
University of Toronto, Toronto, Ontario, Canada.

1814. Estimation of the Principal Diffusivities in the Spinal Cord.
C.A. Clark.
Service Hospitalier Frederic Joliot, Orsay, France.

1815. Sensitivity Encoding for Single-Shot Diffusion Imaging.
K.P. Pruessmann, M. Weiger, A.M.C. van Muiswinkel and P. Boesiger.
University and ETH, Zurich, Switzerland and Phillips Medical Systems, Best, The Netherlands.

1816. Diffusion-Weighted Imaging of the Cervical Spine with Single Shot Fast Spin Echo (SSFSE) Sequence.
H. Yamada, T. Okubo, O. Abe, M. Akahane, T. Masumoto, N. Hayashi, A. Abe, K. Ohtomo and H. Kabasawa.
University of Tokyo and GE Yokogawa Medical Systems, Tokyo, Japan.

1817. Optimising the Image Quality of Diffusion Sensitised Turbo Spin Echo Sequences.
H.G. Jenniskens, J. van den Brink, P.J.M. Folkers and G.H. van Yperen.
Philips Medical Systems, Best, The Netherlands.

1818. Correction of Image Shift and Distortion in Diffusion-Weighted Echo Planar Imaging.
X.J. Zhou, J.K. Maier, S.J. Huff and B.J. Mock.
General Electric Medical Systems, Milwaukee, WI, USA.

1819. Single-Shot 3D Diffusion Weighted FSE Imaging Using a Cubic Target Excitation.
H. Takai, H. Kanazawa, M. Miyazaki, Y. Kassai, Y. Machida and F. Kojima.
Toshiba Nasu Works and Toshiba Medical Engineering Laboratory, Tochigi, Japan.

1820. Sampling and Reconstruction Effects Due to Motion in Diffusion-Weighted Interleaved EPI.
D. Atkinson, D. Porter and D.L.G. Hill.
The Guy's, King's & St. Thomas' School of Medicine, Guy's Hospital and University College London Medical School, London, UK.

1821. Oscillating Field Gradient Measurements of Restricted Diffusion.
M. Schachter, R.P. Kennan, A.W. Anderson and J.C. Gore.
Yale University School of Medicine, New Haven, CT, USA.

1822. High Resolution Diffusion Imaging via a Radial Fast Spin-Echo Method.
R.J. Theilmann, T.P. Trouard, M.I. Altbach and A.F. Gmitro.
University of Arizona, Tucson, AZ, USA.

1823. High b-Value Diffusion Tensor Imaging Using a High Performance Whole-Body Gradient Coil.
B.J. Mock, K. Kuppusamy, L. Augustine, B. Collick and X.J. Zhou.
GE Medical Systems, Milwaukee, WI, USA.

1824. High-Resolution Diffusion-Weighted Imaging of Stroke using DIFRAD-FSE.
T.P. Trouard, R.J. Theilmann and A.F. Gmitro.
University of Arizona, Tucson, AZ, USA.

1825. Navigator Aided, Multishot EPI Diffusion Images of Brain with Complete Orientation and Anisotropy Information.
R. Muthupallai, C.A. Holder, A.W. Song and W.T. Dixon.
Philips Medical Systems, Houston. TX, USA and Emory University, Atlanta, GA, USA.

1826. Diffusion Trace Mapping in Normal Adult Brain Using Different Single-Shot Techniques.
Z.G. Chen, T.Q. Li, S. Skare, P. Skejo and T. Hindmarsh.
Karolinska Hospital/Karolinska Institute, Stockholm, Sweden and Stanford University School of Medicine, Stanford, CA, USA.

1827. Single-Scan Diffusion Trace ^{1}H NMR Spectroscopy.
R.A. de Graaf, K.P.J. Braun and K. Nicolay.
Utrecht University, Utrecht, The Netherlands.

1828. High-Speed Diffusion-Weighted Imaging Using a Single-Shot Line Scan Technique.
J. Finsterbusch and J. Frahm.
Biomedizinische NMR Forschungs GmbH, Gottingen, Germany.

1829. Diffusion Weighted MR Imaging of the Abdomen Using a Quantitative BURST Sequence.
J. Wolber, C. Wheeler-Kingshott, M.O. Leach and S.J. Doran.
The Royal Marsden NHS Trust, Sutton, Surrey, UK and University of Surrey, Guildford, Surrey, UK.

1830. Correction of Eddy Current Induced Artefacts in MR Diffusion Tensor Imaging using Iterative Cross-Correlation.
M.E. Bastin.
University of Edinburgh, Western General Hospital, Edinburgh, Scotland, UK.

1831. Modified Single-Shot Fast Spin-Echo Scanning Provides Brain Diffusion Imaging on an Open 0.2 Tesla Scanner.
F. Schick, D. Wildgruber, T. Nagele, J. Trubenbach and C.D. Claussen.
University of Tubingen, Germany.

1832. Eddy Current Compensation in Diffusion-Weighted, Stimluated Echo EPI.
S.C. Smart, D.A. Porter, F. Calamante, M.A. Hall-Craggs and A. Connelly.
University College London Hospitals NHS Trust and University College London Medical School, London, UK.

1833. The Ability of Line Scan Diffusion Imaging Method - Comparison with Echo Planar Diffusion Imaging.
M. Fukuzaki, A.L. Alexander, C. Goodrich, K. Hasan, H.R. Buswell, G.T. Gullberg and D.L. Parker.
Tokai University Junior College, Tokyo, Japan and University of Utah, Salt Lake City, UT, USA.

1834. Assessment of Isotropic Diffusion Weighted Multishot Imaging using Automatic Reacquisition.
Q. Nguyen, M. Clemence and R.J. Ordidge.
University College London, UK and University of Exeter, UK.

Perfusion: Arterial Spin Labeling

1835. New Approach of Non-invasive Perfusion Imaging Using Arterial Spin Labelling: Inflow Turbo-Sampling EPI-FAIR (ITS-FAIR).
M. Gunther, M. Bock and L.R. Schad.
Deutsches Krebsforschungszentrum (DKFZ), Heidelberg, Germany.

1836. Rapid Perfusion Measurement Using LL-EPI.
S.T. Francis, P.A. Gowland and R.W. Bowtell.
University of Nottingham, Nottingham, UK.

1837. A Novel Spin Labelling Perfusion Method by Progressive Saturation (ProSat).
M.R. Elliott, R.W. Bowtell and P.G. Morris.
Nottingham University, Nottingham, UK.

1838. Fast Three Dimensional Data Acquisition in Arterial Spin Tagging Perfusion Imaging.
F.Q. Ye, J.H. Duyn, J.A. Frank, D.R. Weinberger and A.C. McLaughlin.
National Institutes of Health, Bethesda, MD, USA.

1839. Perfusion Imaging Using FAIR with a Short Predelay.
J. Zhou and P.C.M. van Zijl.
Johns Hopkins University School of Medicine, Baltimore, MD, USA.

1840. Optimized Spatial Extent of Nonselective Inversion in Flow Sensitive Alternating Inversion Recovery (FAIR) Maximizes CBF Contrast.
M.L. Lipton, D.P. Lewis, C.A. Branch and J.A. Helpern.
Albert Einstein College of Medicine, Bronx, NY, USA; Nathan S. Kline Institute, Orangeburg, NY, USA and New York University School of Medicine, New York, NY, USA.

1841. Multi-Slice MR Perfusion Imaging in Human Brain using FOCI RF Pulses.
M.N. Yongbi, Y. Yang, J.A. Frank and J.H. Duyn.
National Institutes of Health, Bethesda, MD, USA and Cornell University Medical College, New York, NY, USA.

1842. MR Perfusion Imaging in Human Brain Using the UNFAIR Technique.
J.L. Tanabe, M. Yongbi, C. Branch, J. Hrabe, G. Johnson and J.A. Helpern.
The Nathan S. Kline Institute, Orangeburg, NY, USA; New York University Medical Center, New York, NY, USA and Albert Einstein College of Medicine, Bronx, NY, USA.

1843. Validation of Arterial Spin Tagging Perfusion MR Imaging: Correlation with Autoradiographic CBF Data.
M. Hoehn, K. Kruger, E. Busch and C. Franke.
Max-Planck-Institute for Neurological Research, Cologne, Germany.

1844. The Effect of Restricted Water Exchange on Cerebral Blood Flow Values Measured using Arterial Spin Tagging: A Theoretical Investigation.
K.S. St. Lawrence, J.A. Frank, D.R. Weinberger and A.C. McLaughlin.
National Institutes of Health, Bethesda, MD, USA.

1845. Assessment of Subtraction Errors of Perfusion Sequences in Human Brain.
M.N. Yongbi and J.H. Duyn.
National Institutes of Health, Bethesda, MD, USA.

1846. The Single-Coil Arterial Spin-Tagging Experiment for Estimating Cerebral Blood Flow as Viewed from the Capillary – What is the Effective T_1 of the Experiment?
J.R. Ewing and J.D. Fenstermacher.
Henry Ford Hospital and Health Science Center, Detroit, MI, USA.

1847. Comparison of White and Grey Matter Arterial Transit Times in Spin Tagging Experiments.
F.Q. Ye, V.S. Mattay, J.A. Frank, D.R. Weinberger and A.C. McLaughlin.
National Institutes of Health, Bethesda, MD, USA.

1848. On the Effect of Transit Times on the Quantificaiton of Blood Flow Using Absolute T_1 Differences in the FAIR Approach.
J. Zhou and P.C.M. van Zijl.
Johns Hopkins University School of Medicine, Baltimore, MD, USA.

1849. Quantitative Measurements of Perfusion and T_2* in Human Visual Cortex.
C. Preibisch and A. Haase.
Universitat Wurzburg, Wurzburg, Germany.

1850. NMR Perfusion Imaging of the Mouse Cortex: Response to Systemic Hypoxia is Gender Dependent.
R.D. Shonat, E.L. Barbier and A.P. Koretsky.
Worcester Polytechnic Institute, Worcester, MA, USA and Carnegie Mellon University, Pittsburgh, PA, USA.

1851. EPISTAR Under Continuous Positive Airway Pressure (CPAP) Ventilation.
M. Schocke, C. Kremser, C. Kolbitsch, I. Lorenz, F. Zschiegner, C. Hormann and S. Felber.
University of Innsbruck, Austria.

1852. MR Perfusion Imaging of Pulmonary Parenchyma Using Arterial Spin Labeling Techniques: FAIRER, FAIR, EST and Hybrid FAIRER.
V.M. Mai, J. Knight-Scott, Q. Chen, R.R. Edelman, K.D. Hagspiel and S.S. Berr.
University of Virginia Health Sciences Center, Charlottesville, VA, USA and Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

1853. Perfusion of the Kidney Using Extraslice Spin Tagging (EST) MRI.
S.S. Berr, K.D. Hagspiel, V.M. Mai, S. Keilholz-George, D.J. Spinosa, J.F. Angle and A.H. Matsumoto.
University of Virginia, Charlottesville, VA, USA.

1854. rCBF, rCBV or MTT? What do we Measure with Spin Labeling Techniques Based on the T_1 Perfusion Model?
C. Kremser, M. Schocke, R. Ellinger and S. Felber.
University of Innsbruck, Austria.

Perfusion: Contrast Agents

1855. Complex Analysis of the Arterial Input Function.
M.J.P. van Osch, E.P.A. Vonken, C.J.G. Bakker, K.L. Vincken and M.A. Viergever.
University Hospital, Utrecht, The Netherlands.

1856. Determination of the Arterial Input Function in 3D Quantitative Perfusion Imaging by Means of a Test Bolus.
M.J.P. van Osch, E.P.A. Vonken, C.J.G. Bakker and M.A. Viergever.
University Hospital, Utrecht, The Netherlands.

1857. Quantification of Renal Perfusion: Results of an Experimental Animal Study.
S. Aumann, S.O. Schoenberg, A. Just, K. Briley-Saebo, M. Knopp and G. Brix.
German Cancer Research Center (DKFZ) and University of Heidelberg, Heidelberg, Germany; Nycomed Imaging, Oslo, Norway and Institute of Radiation Hygiene, Neuherberg, Germany.

1858. Measurement of Cerebral Blood Flow by Dynamic MRI Bolus Tracking: Age-Related Increase of Hemodynamic Reserve in Healthy Adults.
H. Chabriat, S. Pappata, L. Ostergaard, P.F. Van De Moortele, A. Jobert, A. Darquie, C. Poupon, R. Rougetet, M. Pachot-Clouard, M.G. Bousser and D. Le Bihan.
Hopital Lariboisiere, Paris, France; SHFJ-CEA-DSV & Inserm, Orsay, France and Aarhus University Hospitals, Aarhus, Denmark.

1859. Simultaneous Quantitative Perfusion and Permeability Measurement by a *Posteriori* Blood-Brain-Barrier-Breakdown Correction.
E.P.A. Vonken, C.J.G. Bakker and M.A. Viergever.
University Hospital, Utrecht, The Netherlands.

1860. Reconstruction of Collateral Flow Map in MR Perfusion and its Application.
E.J. Kim, E.K. Jeong, K.S. Choi, S.K. Lee, H.S. Kim, T.S. Chung, D.I. Kim and S.A. Shin.
Yonsei University, Ehwa Women's University and Catholic Medical Center, Seoul, Korea.

1861. Quantitative Analysis of First-Pass Magnetic Resonance Perfusion Imaging of a Mouse Model of Hindlimb Ischemia.
S. Kaji, H.V. Ho, P.C. Yang, T. Quertermous, J.P. Cooke and B.S. Hu.
Stanford University, Stanford, CA, USA.

1862. Absolute Quantification of Cerebral Blood Flow from Contrast Enhanced Dynamic Echo-Planar Imaging.
S. Hunsche, W.G. Schreiber, J. Gawehn and P. Stoeter.
Johannes Gutenberg-University, Mainz, Germany.

1863. Cerebral Blood Flow Measurement Using Adaptive Threshold for Singular Value Decomposition Technique on Dynamic Contrast Agent MR Perfusion Imaging.
H.L. Liu, Y. Pu, T. Andrews, J. Mercier, P.T. Fox and J.H. Gao.
University of Texas Health Science Center, San Antonio, TX, USA.

1864. Quantification of Brain Perfusion Using Gd-DTPA and T_1 Measurements.
H.B.W. Larsson, S. Rosenbaum, E. Rostrup and T. Fritz-Hansen.
Hvidovre University Hospital, Copenhagen, Denmark.

1865. Quantitative Assessment of Regional Pulmonary Perfusion with Contrast Enhanced MRI using a FLASH Sequence.
Q. Chen, M. Zhang, D. Levin, R. Edelman and H. Hatabu.
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

1866. Tracer Kinetic Modeling in the Myocardium Using a Fast T_1-Mapping Method.
D. Bellamy, R.S. Pereira, C. McKenzie, F.S. Prato, R.T. Thompson and G. Wisenberg.
St. Joseph's Health Centre and University of Western Ontario, London, Ontario, Canada.

1867. Cerebral Perfusion Study with Short TE Gradient Echo MRI.
H. Uematsu, M. Maeda, Y. Koshimoto, H. Kimura, N. Sadato, H. Yamada, Y. Kawamura, N. Hayashi, Y. Yonekura and Y. Ishii.
Fukui Medical University, Fukui, Japan.

1868. Demonstration of Gravity Dependent Lung Perfusion with Contrast Enhanced Magnetic Resonance Imaging.
Q. Chen, K.L. Stock, D.L. Levin, H. Hatabu and R.R. Edelman.
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

1869. Compactly Sampled Time Resolved 3D MR Pulmonary Perfusion Under Free Breathing.
Y. Wang, R. Watts, N.M. Khilnani, P.A. Winchester and H.D. Sostman.
Weill Medical College of Cornell University, New York, NY, USA.

1870. Noise Reduction in Dynamic Contrast Enhanced MR Imaging.
X. Zhu, K-L. Li, N.T. Thacker and A. Jackson.
University of Manchester, Manchester, UK.

1871. The Effect of Chronic Exercise on Motor Cortical Blood Volume in the Rat.
A.B. Harris, E.C. Wiener, M.V. Dutka, W.T. Greenough and P.C. Lauterbur.
University of Illinois, Urbana, IL, USA.

1872. Regional Cerebral Blood Volume: The Effects of Imaging Parameters.
A. Celik and W. Lin.
Washington University, St. Louis, MO, USA.

1873. The Utility of the Sequential Contrast Agent Protocol in Assessing Changes in Relative Cerebral Blood Volume.
A.P. Pathak, K.M. Donahue, R. Risinger, R. Hoffman and E. Stein.
Marquette University and Medical College of Wisconsin, Milwaukee, WI, USA.

1874. ABSTRACT WITHDRAWN.

1875. 3D Pulmonary Perfusion Imaging in Patients with Tumours in the Mediastinum.
L.O.M. Johansson, M. Kouwenhoven, J. Kvaerness, G. Wegenius and H. Ahlstrom.
Uppsala University Hospital, Uppsala, Sweden and Philips Medical Systems, Best, The Netherlands.

1876. Detection of Areas with Viable Bone Tumor in Dynamic Contrast-Enhanced MR-Images of Patients with Ewing's Sarcoma using Pharmacokinetic Modeling.
M. Egmont-Petersen, R.J. van der Geest, H.A. Vrooman, P.C.W. Hogendoorn, H.J. van der Woude, J.P. Janssen, J.L. Bloem and J.H.C. Reiber.
Leiden University Medical Center, Leiden, the Netherlands.

1877. Dynamic Contrast Susceptibility Imaging Demonstrates Regional Abnormalities of Time-to-Peak Contrast Concentration in Alzheimer's Disease.
A. Kassner, A. Jackson, A. Hofmann, A. Varma, D. Burrows, D. Neary and H. Testa.
Philips Medical Systems, Leeds, UK and University of Manchester and Central Manchester Healthcare Trust, Manchester, UK.

1878. MR Dynamic Contrast Imaging in Metastatic Cervical Lymph Nodes.
R.G. Henry, N.J. Fischbein, M.J. Kaplan, W.P. Dillon and S.J. Nelson.
University of California, San Francisco, CA, USA.

1879. Diffusion Anisotropy and Cerebral Perfusion Changes in Patients with Probable Alzheimer's Disease.
S.E. Rose, F.O. Zelaya, D. Wang, J.B. Chalk, G.I. de Zubicaray, W. Strugnell, D.M. Doddrell and J. Semple.
University of Queensland and Princess Alexandra Hospital, Brisbane, Australia; Maudsley Hospital, London, UK and SmithKline Beecham Pharmaceuticals, Cambridge, UK.

1880. Multi-Organ Bolus Tracking in a Mouse Model of Acute Normovolemic Hemodilution.
M.J. Quast, D. Deyo, J. Wei and M. Mathru.
The University of Texas Medical Branch, Galveston, TX, USA.

1881. Dynamic MR Perfusion Imaging to Assess Altered Hemodynamics in Lung Parenchymal Diseases: Experimental and Clinical Studies.
N. Ogasawara, K. Suga, K. Honjo, K. Takano, S. Koike, H. Awaya and N. Matsunaga.
Yamaguchi University School of Medicine, Ube, Japan.

1882. Magnetization Prepared True FISP Myocardial Perfusion Imaging.
M. Jerosch-Herold, H. Huang and N. Wilke.
University of Minnesota, Minneapolis, MN, USA.

1883. Permeability Surface Area Product of Cerebral Capillaries to Water Measured by MRI: Comparison with PET and Preliminary fMRI Results.
L. Ostergaard, C.Z. Simonsen, P. Vestergaard-Poulsen, A. Bjosrnerud, A. Gee, S.B. Hansen, A. Gjedde and C. Gyldensted.
Arhus University Hospitals, Arhus, Denmark and Nycomed Imaging AS, Oslo, Norway.

MR Angiography: Contrast-Enhanced Methods

1884. A Method for Rapid Reconstruction of a Single Image Volume from a Time-Resolved CE-MRA Exam.
T.J. Carroll, F.R. Korosec, J.S. Swan, T.M. Grist, R. Frayne and C.A. Mistretta.
University of Wisconsin, Madison, WI, USA.

1885. MRA with Intra-Arterial Administration of Contrast.
R. Frayne, R.A. Omary, O. Unal, T.M. Grist and C.M. Strother.
University of Wisconsin, Madison, WI, USA.

1886. Theoretical Limits on Spatial Resolution in Contrast-Enhanced 3D MRA.
S.B. Fain, S.J. Riederer and J. Huston III.
Mayo Clinic, Rochester, MN, USA.

1887. Real-Time Contrast-Bolus-Synchronized k-Space Sampling with Flip Angle Modulation.
S.B. Fain, S.J. Riederer, R.C. Grimm and J. Huston III.
Mayo Clinic, Rochester, MN, USA.

1888. Optimization of Scantiming in Abdominal Breathhold Gadolinium Enhanced Turbo-MRA: an Empiric Guideline.
W.J. Boeve, R.A. Prinsze and R.L. Kamman.
University Hospital Groningen, Groningen, The Netherlands, and Siemens Netherlands.

1889. Contrast-Enhanced 3D MR Angiography of Vascular Stents: Experimental Studies.
R. Vosshenrich, F. Baum, E. Castillo, L. Kopka, J. Graessner and E. Grabbe.
Georg-August-University, Gottingen, Germany and Siemens Medical Engineering Group, Hamburg, Germany.

1890. Different Bolus Transit Time According to Injected Volume in Test Bolus Imaging for CEMRA.
K-W. Chung, T-S. Chung, D. Chien and G. Laub.
Yonsei University College of Medicine, Seoul, Korea and Siemens AG, Erlangen, Germany.

1891. Contrast Enhanced MR Angiography of the Iliaca and Peripheral Arteries: A Dynamic Measurement on Three Levels.
A. Huber, A. Heuck, R. Petsch, T. Helmberger, T. Waggershauser, A. Billing, B. Heiss, J. Heiss and M. Reiser.
Klinikum Grosshardern, Munich, Germany.

1892. Magnetic Resonance Imaging of Vascular Stents.
D.J. Taylor and G. Brown.
Royal Adelaide Hospital, Adelaide, Australia.

1893. Catheter Injection of Contrast Agent: Application in MR-Guided Endovascular Interventions.
C. Bos, C.J.G. Bakker, H.F.M. Smits and M.A. Viergever.
University Hospital Utrecht, Utrecht, The Netherlands.

1894. In Situ Administration of Contrast Agent in MR Angiography.
C. Bos, C.J.G. Bakker and M.A. Viergever.
University Hospital Utrecht, Utrecht, The Netherlands.

1895. Contrast Bolus Timing at Multiple Locations for Bolus-Chase Peripheral MRA using Ultrasound Bubbles.
M.R. Prince, J.M. Rubin and M. Neimatallah.
University of Michigan, Ann Arbor, MI, USA.

1896. Quantitative Evaluation of Centric View Orders for 3D Contrast Enhanced MR Angiography: Value of the Elliptical Centric Order.
T.C.H. Yep and A.H. Wilman.
University of Alberta, Edmonton, Alberta, Canada.

1897. Spatial Resolution Improvement in Time-Resolved Contrast-Enhanced MRA.
Y. Mazaheri, D.C. Peters, F.R. Korosec, T.J. Carroll, W. Block, T.M. Grist and C.A. Mistretta.
University of Wisconsin, Madison, WI, USA.

1898. Fast Fat Suppression for 3D Angiographic Imaging.
M.T. Alley, S.G. Heiss, N.J. Pelc and R.J. Herfkens.
Stanford University, Stanford, CA, USA.

1899. Undersampled Projection Imaging for Time-Resolved Contrast-Enhanced 3D MR Angiography (PR-TRICKS).
K.K. Vigen, D.C. Peters, T.M. Grist, W.F. Block and C.A. Mistretta.
University of Wisconsin, Madison, WI, USA.

1900. Time-Resolved Projection Magnetic Resonance Angiography of the Cerebral Vasculature after Bolus Injection of Contrast Agent.
S. Wetzel, D. Bilecen, R. Haselhorst, E.W. Radu, G. Bongartz and K. Scheffler.
University of Basel, Switzerland.

1901. Signal and Noise Characteristics in k-Space and Image-Space and Sampling Strategies for Contrast Enhanced MR Angiography.
R. Watts, Y. Wang, P.A. Winchester, N.M. Khilnani and L. Yu.
Weill Medical College of Cornell University, New York, NY, USA.

1902. A Double Half-Fourier Technique for 3D Contrast-Enhanced MR Carotid Angiography.
W.H. Perman.
Saint Louis University School of Medicine, St. Louis, MO, USA.

1903. Rapid Generation of Preview Images for 3D MR DSA.
O. Wieben, T.J. Carroll and R. Frayne.
University of Wisconsin, Madison, WI, USA.

1904. Carbondioxide Magnetic Resonance Angiography: First Results.
R.M. Maes, N.A.A. Matheijssen, P. Pattynama and G.P. Krestin.
Dijkzigt University Hospital, Rotterdam, The Netherlands.

1905. Blood Pool MR Contrast Agent for Detection of Pulmonary Embolism: Initial Clinical Experience with Ultrasmall Superparamagnetic Iron Oxide NC100150.
W. Schima, U. Hoffmann, C. Bernhard, M. Cejna, H. Ringl, S. Fuchssteiner-Helle and C.J. Herold.
University of Vienna, Austria and Nycomed Amersham.

1906. **3D Turbo MRA with a New Blood Pool Contrast Agent, NC100150 - A Single Diagnostic Method for Deep Venous Thrombosis and Pulmonary Embolism.**
P. Sunden, E.M. Larsson, U. Albrechtsson and C.G. Olsson.
University Hospital, Lund, Sweden.

Non-Contrast MR Angiography Techniques

1907. **Variation In Navigator Measurements Used in SLINKY Reconstruction.**
J.A. Roberts, D.L. Parker, H.R. Buswell, A.L. Alexander and J. Tsuruda.
University of Utah, Salt Lake City, UT, USA.

1908. **SLINKY: More Understanding, Optimization and Application for High Resolution MRA.**
K. Liu.
Picker International Inc., Highland Heights, OH, USA.

1909. **Analysis of N/2 Ghosts in Single-Shot Half-Fourier FSE Flow Imaging.**
Y. Machida, T. Hoshino, H. Kanazawa and S. Nozaki.
Toshiba, Tochigi, Japan.

1910. **Velocity Independent Phase-Shift Stabilization (VIPS) Technique in FSE Flow Imaging.**
Y. Machida and Y. Kassai.
Toshiba Corp., Tochigi, Japan.

1911. **Improved Time-Of-Flight Non-Contrast Peripheral Angiography by Individual Flow Curve Based Gating.**
O. Vendelbo, A.D. Blankholm, F. Taagehoj, E. Lundorf and E.M. Pedersen.
Aarhus University Hospital, Aarhus, Denmark.

1912. **Functional Cerebral Time-Of-Flight Angiography: Selective Saturation of Single Arteries with a Small Surface Coil.**
D. Bilecen, S. Wetzel and K. Scheffler.
University of Basel, Switzerland.

1913. **SLINKY MRA with Time-Varying Gradients and Flow-Independent Contrast.**
J.H. Brittain, J.M. Pauly, A.B. Kerr and D.G. Nishimura.
Stanford University, Stanford, CA, USA.

1914. **Three-Dimensional Transport Effects in Contrast-Enhanced MRA.**
L-D. Jou and D. Saloner.
University of California at San Francisco, CA, USA.

1915. **Specimen-Based Flow Models for TOF and CE-MRA.**
D. Saloner, L.D. Jou, M. Bock and J. Rapp.
VA Medical Center, San Francisco, CA, USA and German Cancer Research Institute, Heidelberg, Germany.

1916. **Accuracy of Contrast-Enhanced MR Angiography in the Model of Carotid Artery Stenosis.**
R.H. Wu, D.F. Kallmes, M. Spellman and W. Marx.
University of Virginia, Charlottesville, VA, USA.

Contrast Mechanisms

1917. Quantitative Magnetization Transfer Imaging in Human Brain by Means of a PACE Technique.
S. Ropele, R. Stollberger, H.P. Hartung, K. Toyka and F. Fazekas.
University of Graz, Austria and University of Wurzburg, Germany.

1918. Quantitative Interpretation of Magnetization Transfer in Spoiled Gradient Echo MRI Sequences.
J.G. Sled and G.B. Pike.
Montreal Neurological Institute, Montreal, Quebec, Canada.

1919. Detection of Human Kidney Metabolites Using Saturation Transfer at 1.5 Tesla.
A.P. Dagher, A.H. Aletras, P. Choyke and R.S. Balaban.
National Institutes of Health, Bethesda, MD, USA.

1920. Brain MRI Correlates of Magnetization Transfer Imaging Metrics in Patients with Multiple Sclerosis.
M. Rovaris, M. Bozzali, M. Rodegher, C. Tortorella, G. Comi and M. Filippi.
H San Raffaele, Milan, Italy.

1921. Changes in the Normal-Appearing Brain Tissue and Cognitive Impairment in Multiple Sclerosis: A Study with MT Histogram Analysis.
M. Rovaris, C. Tortorella, M. Bozzali, F. Possa, M.P. Sormani, G. Iannucci, G. Comi and M. Filippi.
H San Raffaele, Milan, Italy.

1922. Magnetization Transfer Parameter Mapping.
S.A. Roll, W. Dreher and D. Leibfritz.
University of Bremen, Bremen, Germany and Siemens AG, Erlangen, Germany.

1923. Quantitative Analysis of Magnetization Transfer Images of White Matter of the Brain: The Effect of Closed Head Injury.
P.A.M. Hofman, G.J. Kemerink, J. Jolles and J.T. Wilmink.
University Hospital, Maastricht, The Netherlands.

1924. The Effect of Proton Exchange on the Measurement of Proton-Proton Residual Dipolar Interaction in Tendon.
U. Eliav and G. Navon.
Tel Aviv University, Tel Aviv, Israel.

1925. Dipolar Contrast for Dense Tissues Imaging.
D. Grenier and A. Briguet.
Universite LYON I-CPE, Villeurbanne, France.

1926. Dipolar Order in Magnetization Transfer Procedures.
R.G. Bryant and A. Danek.
University of Virginia, Charlottesville, VA, USA.

1927. Brain Contrast Using Frequency-Domain Physiological Fluctuation Data.
B.B. Biswal and J.S. Hyde.
Medical College of Wisconsin, Milwaukee, WI, USA.

1928. The Effect of Fixative Solution in Magnetic Resonance Imaging.
E.L. Bossart, B.A. Inglis, X.S. Silver and T.H. Mareci.
University of Florida, Gainesville, FL, USA and the National High Magnetic Field Laboratory, Tallahassee, FL, USA.

Interventional MRI: Thermal Methods

1929. Evaluation of Reduced Encoded Magnetic Resonance Imaging for Efficient Thermal Mapping.
B. Behnia and A.G. Webb.
University of Illinois at Urbana-Champaign, IL, USA.

1930. Internally-Referenced Temperature Mapping Using Echo Planar Spectroscopic Imaging Method for High Water Content Tissues.
K. Kuroda, K. Oshio, R.V. Mulkern, L.P. Panych, T. Nakai, T. Moriya, A. Matsumura, S. Okuda, K. Hynynen and F.A. Jolesz.
Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA; Osaka City University, Osaka, Japan; Children's Hospital, Harvard Medical School, Boston, MA, USA and MITI and University of Tsukuba, Tsukuba, Japan.

1931. Proton-Resonance Frequency Shift MR Thermometry is Affected by Changes in the Electrical Conductivity of Tissue.
R.D. Peters and R.M. Henkelman.
University of Toronto, Toronto, Ontario, Canada.

1932. MRI Temperature Measurement for Hot Saline Injection Therapy.
S. Okuda, K. Kuroda, K. Oshio, R.V. Mulkern and F.A. Jolesz.
Brigham and Womens' Hospital and Children's Hospital, Harvard Medical School, Boston, MA, USA.

1933. Contrast-Enhanced MR Thermometry.
Y. Zhou and R. Frayne.
University of Wisconsin, Madison, WI, USA.

1934. The Relationship of R_2* and Temperature in Frozen Aqueous Tissues.
B.L. Daniel, K. Butts and J. Sinclair.
Stanford University, Stanford, CA, USA.

1935. Temperature Distributions in RF Thermal Ablation: Field Boundary Conditions in an Analytic Approach.
Y.C.N. Cheng and R.W. Brown.
Case Western Reserve University, Cleveland, OH, USA and Washington University, St. Louis, MO, USA.

1936. The Usefulness of Temperature Sensitive MRI-Derived Thermal Dose for Determining the Threshold for Tissue Damage.
N. McDannold, R.L. King, F.A. Jolesz and K. Hynynen.
Tufts University, Medford, MA, USA and Brigham and Women's Hospital, Boston, MA, USA.

1937. 3D Correlation of MR, Tissue, and Histology Thermal Ablation Images.
L. Zheng, T.L. Lancaster, E. Merkle, J.S. Lewin, J.L. Duerk and D.L. Wilson.
Case Western Reserve University and University Hospitals of Cleveland, Cleveland, OH, USA.

1938. Assessing Thermal Damage of Heating Devices for MR-Guided Thermal Therapy Interventional Procedures: A Phantom Experiment.
L.S. Bouchard and M.J. Bronskill.
University of Toronto, Toronto, Ontario, Canada.

1939. Effect of Light Penetration in Interstitial Laser Thermotherapy: Simulations and MRI Thermometry.
J. Olsrud, R. Wirestam, B.R.R. Persson and K.G. Tranberg.
Lund University Hospital, Lund, Sweden.

1940. *In-Vivo* Laser Ablation of a Porcine Model: Real-Time Temperature Monitoring and Tissue Damage Modeling.
S. Sinha, T. Oshiro, K. Ong, U. Sinha, A.L. Daniell, D.S. Lu and R. Lufkin.
University of California, Los Angeles, CA, USA.

1941. Effects of Superparamagnetic Iron Containing Contrast Medium on Radiofrequency Induced Temperature Distribution: *in Vitro* Measurements of Polyacrylamide Phantoms and in Vivo Results in a Rabbit Liver Model.
E.M. Merkle, S.N. Goldberg, D.T. Boll, A. Shankaranarayanan, T. Boaz, G.H. Jacobs, M. Wendt and J.S. Lewin.
University Hospitals of Cleveland/Case Western Reserve University, Cleveland, OH, USA and Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, USA.

1942. MR Appearance of Focused Ultrasound Tissue Damage in Rabbit Brain.
L. Chen, E. Yuh, H. D'Arceuil and K. Butts.
Stanford University, Stanford, CA, USA.

1943. The Feasibility of MRI Control of Ultrasound Surgery of Large Tumors.
K. Hynynen, N. McDannold and F. Jolesz.
Brigham and Women's Hospital and Harvard Medical School, Boston, MA, USA.

1944. MR-Guided Laser-Induced Thermotherapy (LITT) of Liver Metastases: Indications, Complications, Imaging Criteria and Local Tumor Control Rate: Experience after 2138 Laser Applications in 822 Metastases.
M.G. Mack, R. Straub, K. Eichler, K. Engelmann, A. Roggan and T.J. Vogl.
University of Frankfurt, Frankfurt, Germany and LMTB, Berlin, Germany.

1945. Liver Tumour Ablation under Interventional MR Guidance.
W.R. Lees, S. Smart and A.R. Gillams.
The Middlesex Hospital, University College London, London, UK.

Interventional MRI: Endovascular Techniques

1946. Angular Projection MR Technique for Passive Catheter Tracking.
O. Unal, D.C. Peters, F.R. Korosec, R. Frayne, W.F. Block, C.A. Mistretta, T.M. Grist and C.M. Strother.
University of Wisconsin, Madison, WI, USA.

1947. Improved Visualization of Endovascular Devices in Susceptibility Based Tracking Using Complex Subtraction.
C. Bos, C.J.G. Bakker and M.A. Viergever.
University Hospital Utrecht, Utrecht, The Netherlands.

1948. Real-Time Interactive Catheter Tracking by MRI.
L.P. Panych, L. Zhao, S-S. Yoo and R.V. Mulkern.
Brigham and Women's Hospital and Children's Hospital, Boston, MA, USA.

1949. Catheter Visualization with Projection Dephaser Gradients.
D. Skuldt, O. Unal and R. Frayne.
University of Wisconsin, Madison, WI, USA.

1950. Dynamic Catheter Visualization for MR Guided Selective Procedures Using Real Time Projection Contrast Enhanced MRA.
G.G. Zimmermann-Paul, R. Strecker, K. Scheffler, M. Hering, P. Uhrmeister, M. Langer and J. Hennig.
University of Freiburg, Germany.

1951. Active Catheter Visualization Using Field-Inhomogeneity Catheters Combined with Radial Data Acquisition.
A. Glowinski, T. Schaffter, G. Adam, A. Bucker, V. Rasche, J.J. van Vaals and R.W. Gunther.
Aachen University of Technology, Aachen, Germany; Philips Research Laboratories, Hamburg, Germany and Philips Medical Systems, Best, The Netherlands.

1952. Catheter RF-Coil Profile Reconstruction from 2D-Projections.
T.J. Vaara, J.I. Tanttu, S. Taivalkoski and L. Jyrkinen.
Picker Nordstar, Inc., Vantaa, Finland and University of Oulu, Oulu, Finland.

1953. Split View Intravascular MR Fluoroscopy.
E. Atalar.
Johns Hopkins University School of Medicine, Baltimore, MD, USA.

1954. Catheter Localization using a Resonant Fiducial Marker during Interactive MR Fluoroscopy.
S. Weiss, T. Schaeffter, K.M. Luedeke, C. Leussler, D. Holz, K. Nehrke, V. Rasche and R. Sinkus.
Philips Research, Hamburg, Germany.

1955. Contrast-Enhancing Signal-Intensity Correction for Intravascular Magnetic-Resonance Imaging.
D. Nanz, H.H. Quick and G.K. von Schulthess.
University Hospital, Zurich, Switzerland.

1956. Intravascular MR-Imaging: Optimization of Sequence-Parameters.
H.H. Quick, M.A. Patak and J.F. Debatin.
University Hospital, Zurich, Switzerland.

1957. MR-guided Balloon Angioplasty: Initial *in vitro* and *in vivo* Demonstration using a Passive Technique of Tracking.
F. Godart, L. Nicol, G. Sergent, J.P. Beregi, V. Daanen, C. Rey and J. Rousseau.
University Hospital and Siemens Medical Systems, Lille, France.

1958. Stent Placement Under Real-Time MR Control Exploiting Radial k-Space Filling: *In vivo* Animal Experiments.
A. Buecker, J. Neuerburg, G. Adam, D. Hunter, A. Glowinski, V. Rasche, T. Schaeffter, J.J. van Vaals, A. Molgaard-Nielsen and R.W. Guenther.
University of Aachen, Aachen, Germany.

1959. Interactive Real-Time MR-Guided Catheter Interventions with Continuous Radial Scanning.
A. Glowinski, A. Bucker, G. Adam, T. Schaffter, V. Rasche, J.J. van Vaals and R.W. Gunther.
Aachen University of Technology, Aachen, Germany; Philips Research Laboratories, Hamburg, Germany and Philips Medical Systems, Best, The Netherlands.

Interventional MRI: Needle Tracking, Pulse Sequences, and Miscellaneous

1960. A Passive Optical Localization System for MR Guidance of Interventional Procedures.
Q. Zhang, K. Kaczynski, R. Schulz, T. Vetter, A. Oppelt, M. Wendt, J.S. Lewin and J.L. Duerk.
Case Western Reserve University/University Hospitals of Cleveland, Cleveland, OH, USA and Siemens, Iselin, NJ, USA and Erlangen, Germany.

1961. Automatic Scan Plane Definition for Frameless MR-Stereotaxy on a Clinical Scanner Using an Active Surgical Device Holder.
T. Schaeffter, C. Leussler, G. Mens and M. Kuhn.
Philips Research, Hamburg, Germany and Philips Medical Systems, Best, The Netherlands.

1962. A New Interventional MRI Passive Tip Tracking Method Utilizing Properties of the Radon Transform.
A. Shankaranarayanan, M. Wendt, J.S. Lewin and J.L. Duerk.
Case Western Reserve University and University Hospitals of Cleveland, Cleveland, OH, USA.

1963. Chemical Shift Selective Visualization of Instruments in Interactive MR Fluoroscopy.
T. Schaeffter, S. Weiss and V. Rasche.
Philips Research, Hamburg, Germany.

1964. Improved Device Definition Using a Rotated Stripes Keyhole Acquisition in Interventional MRI (I-MRI).
K.P. Hwang, J. Lim, M. Wendt, E.M. Merkle, J.S. Lewin and J.L. Duerk.
Case Western Reserve University and University Hospitals of Cleveland, Cleveland, OH, USA.

1965. Design and Development of Two Alternate Projection Reconstruction Fluoroscopic Acquisition Strategies for Low Field Interventional MRI.
A. Shankaranarayanan, M. Wendt, J.S. Lewin and J.L. Duerk.
Case Western Reserve University and University Hospitals of Cleveland, Cleveland, OH, USA.

1966. Insight into the Needle Tip Artifact in MRI at High Magnetic Field.
H. Liu, A.J. Martin, W.A. Hall and C.L. Truwit.
University of Minnesota, Minneapolis, MN, USA.

1967. Problems with RF Coil Performance During Surgical Intervention.
N.B. Konyer, W. Kucharczyk, M. Bernstein, G. Sela and M.J. Bronskill.
University of Toronto, Toronto, Ontario, Canada.

1968. HASTE Imaging in MR-Guided Neurosurgical Procedures.
H. Liu, A.J. Martin, W.A. Hall and C.L. Truwit.
University of Minnesota, Minneapolis, MN, USA.

1969. MR-Guided Percutaneous Nephrostomy of the Non Dilated Upper Urinary Tract in a Porcine Model.
E.M. Merkle, M. Hashim, M. Wendt and J.S. Lewin.
University Hospitals of Cleveland/Case Western Reserve University, Cleveland, OH, USA.

1970. Real-Time MR-Fluoroscopic Guidance of Interventional Procedures Using a Short Closed Bore System.
K.U. Wentz, C. Bader, M.B. Scheidegger, F. Seeber, C.A. von Weymarn, J. Froehlich, P. Kamm and C.L. Zollikofer.
Cantonal Hospital, Winterthur, Switzerland and Philips Medical Systems, Zuerich, Switzerland.

1971. Correction of Image Distortion for Interventional MRI.
V. Daanen, L. Nicol, F. Godart, G. Sergent, C. Vasseur, J. Clarisse and J. Rousseau.
General Hospital, Sciences University and Siemens Medical Systems, Lille, France.

1972. Evaluation of Interventional MRI (0.5T) of the Prostate Gland Compared to Endorectal Coil MRI (1.5T) in Men Undergoing MR Guided Prostate Brachytherapy.
J.D. McTavish, A.V. D'Amico, R. Cormack, F.A. Jolesz and C.M.C. Tempany.
Brigham and Women's Hospital, Boston, MA, USA.

Motion and Artifacts: Field Issues

1973. Optimization of the 2D RF Pulse Performance on a Clinical Scanner.
K. Nehrke, P. Bornert, J.C. Bock, D. Holz, T. Schaeffter, R. Sinkus and S. Weiss.
Medical Faculty Charite, Berlin, Germany and Philips Research, Hamburg, Germany.

1974. Analysis of Dielectric Resonances at 8.0 Tesla.
A. Kangarlu, L. Yang, B. Baertlein, A.M. Abduljalil, X. Zhang, T. Ibrahim, Y. Yu, R. Lee and P.M.L. Robitaille.
The Ohio State University, Columbus, OH, USA.

1975. Off-resonance Correction Using a Linear Estimation of the Time Map.
P. Irarrazaval and M. Rosenblitt.
Pontificia Universidad Catolica de Chile, Santiago, Chile.

1976. B_1 Inhomogeneity Compensation by Active Transmit Power Modulation.
S. Clare, M. Alecci and P. Jezzard.
University of Oxford, John Radcliffe Hospital, Headington, Oxford, UK.

1977. Using EPI to Calibrate Long Term Eddy Current Compensation Hardware.
M.R. Thompson, W.R. Dannels, M.J. Loncar and H.A. Schlitt.
Picker International Inc., Highland Heights, OH, USA.

1978. Eddy Current Induced Scaling Artifacts in Echo Planar Imaging.
J. Bodurka, X. Zhao, A. Jesmanowicz and S.J. Li.
Medical College of Wisconsin, Milwaukee, WI, USA and University School of Medical Sciences, Bydgoszcz, Poland.

1979. Efficient Spiral Imaging: Sensitivity to Static Field Inhomogeneity.
S.K. Patch, C.J. Hardy and H. Cline.
GE Corporate Research & Development, Schenectady, NY, USA.

1980. Theory of the Shading Artifact in Fast Spin Echo Imaging.
S. Kohno.
Shimadzu Corporation, Kyoto, Japan.

1981. Signal Dropout Caused by Spatial Susceptibility Variations in 3D Phase Encoded EPI.
J.J. Wang, A. Howseman, O. Josephs, D. Porter, R. Turner and R. Ordidge.
University College, London, UK and ChangGung University, Taiwan.

1982. Intravoxel Rephasing of Spin Dephased by Susceptiblity Effect for EPI Sequences.
J. Mao and A.W. Song.
University of Florida, Gainesville, FL, USA and Duke University, Durham, NC, USA.

1983. Sub-Slice Averaging Imaging (SSAVE): A Simple Method of Reducing Dephasing Artifacts.
Y. Zaim Wadghiri, G. Johnson and D.H. Turnbull.
New York University School of Medicine, New York, NY, USA.

1984. Assessment of Susceptibility Artefacts for Intra-Luminal GI Tract Imaging with Gaseous Contrast Media.
R.R. Sood, M.J. Graves and D.J. Lomas.
University of Cambridge and Addenbrooke's Hospital, Cambridge, UK.

1985. Clinical Application of View Angle Tilting for Metal Artifact Reduction of Knee MR Imaging.
J-S. Suh, E-K. Jeong, K-H. Shin, J-M. Cho and S.H. Cha.
Yonsei University College of Medicine, Seoul, Korea.

1986. BURST Imaging: Rotation Artefacts and How to Correct Them.
C.A. Wheeler-Kingshott, Y. Cremillieux and S.J. Doran.
University of Surrey, Guildford, England and UCB, Lyon, France.

1987. Fat Suppression Causes Artifactual Signal Loss in the Aortic Arch and Great Vessels.
A.H. Stolpen, R. Charafeddine, E.S. Siegelman and L. Axel.
University of Pennsylvania, Philadelphia, PA, USA.

Motion and Artifacts: Cardiac, Respiratory, Flow and General Motion

1988. Velocity Shifting Reconstruction for Flow Artifact Reduction.
P. Irarrazaval and J.M. Santos.
Pontificia Universidad Catolica de Chile, Santiago, Chile.

1989. Evaluation of SLINKY: Reduced Misregistration and Ghosting Artifact.
K. Liu.
Picker International Inc., Highland Heights, OH, USA.

1990. Quality Control of the Accuracy of MR Localization in Stereotactic Surgery.
E.M. Moore and A. Simmons.
King's College Hospital and Institute of Psychiatry, London, UK.

1991. Constrained Motion Artifacts in Wavelet Encoded MRI.
R. Khadem and G.H. Glover.
Stanford University, Stanford, CA, USA.

1992. Variance Components of Two-Dimensional Strain Parameters in the Left-Ventricular Heart Wall Obtained by MR Tagging.
J.P.A. Kuijer, J.T. Marcus, M.J.W. Gotte, A.C. van Rossum and R.M. Heethaar.
Vrije Universiteit, Amsterdam, The Netherlands.

1993. Cardiac Imaging at 3 Tesla: B_0 Inhomogeneity and T_2* Measurements.
R. Noeske, F. Seifert, K.H. Rhein and H. Rinneberg.
Fachbereich Medizinische Messtechnik, Berlin, Germany.

1994. High Resolution Cardiac Imaging of the Rabbit at 4.0 Tesla.
A.S. Blom, J.J. Pilla, R.L. Greenman, V.A. Ferrari, L. Dougherty, M.D. Taylor, H.L. Zhu and L. Axel.
University of Pennsylvania Medical Center, Philadelphia, PA, USA.

1995. Improved ECG Triggering with the *T-Wave Terminator*.
D.C. Bloomgarden, G.R. Morris, J. Valentine, A.J. Powell and T. Chung.
Beth Israel Deaconess Medical Center, Boston, MA, USA; Magnetic Resonance Equipment Corporation, Bay Shore, NY, USA and Children's Hospital, Boston, MA, USA.

1996. Improved Evaluation of Motion Statistics for Real-Time Respiratory Gating.
K. Nehrke, P. Bornert, J.C. Bock, D. Holz, T. Schaeffter, R. Sinkus and S. Weiss.
Medical Faculty Charite, Berlin, Germany and Philips Research, Hamburg, Germany.

1997. Slice Dependent Correction (SDC): An Extension to Motion Adapted Real Time Navigator Correction.
A. Bornstedt, E. Nagel, B. Schnackenburg, H. Oswald and E. Fleck.
Humboldt University, German Heart Institute and Philips Medical Systems, Berlin, Germany.

Motion and Artifacts: Other

1998. Ghost Artifact Suppression for Interleaved Echo Planar Imaging using Image-Based Phase Correction.
M.H. Buonocore, D.C. Zhu and J.M. Bronstein.
UC Davis Medical Center, Sacramento, CA, USA.

1999. Improved Ghost Suppression by Two-Parameter Gradient Energy Minimization.
S. Chavez and Q-S. Xiang.
University of British Columbia, Vancouver, BC, Canada.

2000. Retrospective Correction for Physiological Noise on Real Space Images from Multi-Slice Single-Shot EPI Data.
A. Piringer, A.B.A. Wennerberg and T. Brismar.
Karolinska Institutet, Stockholm, Sweden.

2001. A Generalized Artifact Correction Method for MRI.
S. Bao, W. Wang and D. Zu.
Peking University and The PLA General Hospital, Beijing, China.

2002. The Fourier Conjugate of the Ahn Algorithm with Applications for Real-Time Signal Processing for MRI.
J.A. Derbyshire, Y.P. Du and M. Saranathan.
GE Medical Systems, Waukesha, WI, USA.

2003. The Correlation Coefficient Technique for Pattern Matching.
M.S. Sussman and G.A. Wright.
Sunnybrook and Women's College Health Science Centre, Toronto, Ontario, Canada.

2004. Magnetic Resonance Imaging of the Pre and Post-Mortem Spine in the Sheep.
D.J. Taylor, G. Brown, R. Moore and J. Hutchinson.
Royal Adelaide Hospital, Adelaide, Australia.

Flow Quantification

2005. Fast Dynamic NMR Microscopy – Model-Free Quantitation of Flow and Diffusion.
T.W.J. Scheenen, D. van Dusschoten, P.A. de Jager and H. Van As.
Wageningen Agricultural University, Wageningen, Germany.

2006. Fully Automated MRA Flow Detection.
U. Kohler.
The University of Edinburgh, Western General Hospital, Edinburgh, Scotland, UK.

2007. Real Time Interactive 2D Flow Quantitation.
O. Heid.
Siemens AG, Erlangen, Germany.

2008. On the Nature of Spiral Flow Sequences When Using Very High and Moderate Field MRI.
M. Pedersen, B. Geilman, S. Ringgaard and H. Stodkilde-Jorgensen.
Aarhus University Hospital, Aarhus, Denmark and Odense University Hospital, Odense, Denmark.

2009. Flow Relaxivity.
J-H. Lee, X. Li, M.K. Sammi and C.S. Springer.
Brookhaven National Laboratory, Upton, NY, USA and State University of New York, Stony Brook, NY, USA.

2010. Stable Periodic Vortex Shedding Studied by MRI, Computational Fluid Dynamics and Laser Flow Visualisation.
I. Marzouqa, M.N.J. Paley, I.D. Wilkinson, D.R. Hose, J.W. Fenner, Y. Noguchi and P.D. Griffiths.
University of Sheffield, Sheffield, England.

2011. Does CSF Flow Dynamics Characterize the Mechanical State of the Craniospinal System?
N. Alperin, C. Stelzig, W. Betz, F. Charbel and T. Lichtor.
University of Illinois at Chicago, IL, USA.

2012. Phase Contrast Cine MR Velocity Analysis of the Cerebrospinal Fluid Flow Waveforms Through the Craniospinal Axis.
M.C. Henry-Feugeas, I. Idy-Peretti, O. Baledent, A.P. Didon, P. Cornu, G. Zannoli, J. Bittoun and E. Schouman-Claeys.
Bichat Claude Bernard Hospital, Paris, France; Faculte de Medecine, Amiens, France; Salpetriere Hospital, Paris, France; General Electric Medical Systems, Buc, France and Universite Paris sud, le Kremlin-Bicetre, Fr.

2013. Can Flow-void Phenomena on Turbo Spin-Echo MR Images be Used to Indicate CSF Hydrodynamics?
M-Y. Chen, C-Y. Chen and H-W. Chung.
Yuan-Pei Institute of Medical Technology, Hsin-Chu, Taiwan, ROC and Tri-Service General Hospital and National Taiwan University, Taipei, Taiwan, ROC.

2014. Quantitated Flow Mapping with MRI of Total Cerebral Blood Flow: What Causes Variation?
A. Spilt, F.M.A. Box, R.J. van der Geest, J.H.C. Reiber and M.A. van Buchem.
Leiden University Medical Center, Leiden, The Netherlands.

2015. Does Magnetic Resonance Phase Velocity Mapping Provide Repeatable Blood Flow Measurements?
G.P. Chatzimavroudis, J.N. Oshinski, P.G. Walker, R.H. Franch, A.P. Yoganathan and R.I. Pettigrew.
Emory University School of Medicine, Atlanta, GA, USA; Leeds University, Leeds, UK and Georgia Institute of Technology, Atlanta, GA, USA.

2016. Direct Acceleration Measurement with a Modern Whole Body Unit.
J. Forster, F. Schick, L. Sieverding, J. Breuer, J. Apitz, C.D. Claussen and O. Lutz.
Universitat Tubingen, Tubingen, Germany.

2017. Precision of the MR Velocity and Acceleration Measurements: Theoretical Issues and Phantom Experiments.
E. Durand, O. Jolivet, E. Itti and J. Bittoun.
Centre Hospitalier Universitaire Bicetre, Le Kremlin-Bicetre, France and Centre Hospitalier Universitaire Pitie Salpetriere, Paris, France.

2018. A Demonstration of Errors in Relative Pressure Calculations from MR Velocity Data.
D.H. Laidlaw and J.M. Tyszka.
Brown University, Providence, RI, USA and City of Hope National Medical Center, Duarte, CA, USA.

2019. Determination of Peak Velocity Using Fast Fourier Velocity Encoding.
D. Galea, M.L. Lauzon, B.K. Rutt and M. Drangova.
University of Western Ontario, London, ON, Canada.

2020. Accuracy of Pulse Wave Velocity Estimation using Multislice Phase Contrast Flow Measurements.
J.M. Boese, M. Bock and L.R. Schad.
Deutsches Krebsforschungszentrum (DKFZ), Heidelberg, Germany.

2021. User Independent MRI Determination of Subpixel Vessel Wall Position and Wall Shear Stress Throughout the Cardiovascular System by the Automatic Multiple Sectored 3D-Paraboloid Method.
S. Oyre, P. Bonvin and E.M. Pedersen.
Aarhus University Hospital, Aarhus, Denmark.

2022. *In-vivo* Measurement of Wall Shear Stresses in the Human Carotid Bifurcation Using High Resolution MRI-Phase Contrast, Variable Velocity Encoding and Three-Dimensional Paraboloid Fitting.
E.M. Pedersen, S. Ringgaard, R. Stockholm, H. Flaagoy and S. Oyre.
Aarhus University Hospital, Aarhus, Denmark.

2023. Simulations of Cine Phase-Contrast Flow Imaging.
I. Marshall.
University of Edinburgh, UK.

2024. Velocity Quantitation in Arteries Using Individualized and Automated Variable Velocity Encoding (VENC) for Each Heart Phase.
S. Ringgaard, S. Oyre, H. Flaagoy, R. Stockholm and E.M. Pedersen.
Aarhus University Hospital, Aarhus, Denmark.

2025. Particle Trace Visualization of Cardiac Flow Patterns using 3D Phase Contrast MRI: An *in vitro* Comparison with Streamlines Created using Dye.
T. Ebbers, L. Wigstrom, A. Fyrenius, A.F. Bolger and M. Karlsson.
Linkoping University, Linkoping, Sweden and University of California, San Francisco, CA, USA.

2026. Particle Trace Visualization of Flow Patterns Downstream of a Prosthetic Aortic Valve in Patients.
S. Kozerke, J.M. Hasenkam, E.M. Pedersen and P. Boesiger.
University and ETH, Zurich, Switzerland and Aarhus University Hospital, Aarhus, Denmark.

2027. Transient Streamlines: A New Way of Visualising Flow with MR Phase Velocity Mapping.
G.Z. Yang, P.J. Kilner, R.H. Mohiaddin and D.N. Firmin.
Royal Brompton Hospital, London, UK.

2028. Measurement of Flow in Presence of Simulated Cardiac Motion Using Segmented Velocity Mapping: A Phantom Study.
F. Stahlberg, L. Sandhall, E. Tornqvist and H. Arheden.
Lund University Hospital, Lund, Sweden.

2029. 3D Measurements of Velocity Patterns in the Left Ventricle with Navigator Gating – *In Vitro* Evaluation and *in vivo* Application.
S. Donstrup, S. Kozerke, W.Y. Kim, P. Boesiger and E.M. Pedersen.
Aarhus University Hospital, Aarhus, Denmark and University of Zurich and Swiss Federal Institute of Technology, Zurich, Switzerland.

2030. Comparing a Computational Model of the Blood Flow in the Left Ventricle with in Vivo Magnetic Resonance Velocity Mapping.
P. Thorup, J.M. Jacobsen, K. Houlind, W.Y. Kim, E.M. Pedersen and J. Larsen.
Math-Tech, Copenhagen, Denmark; Technical University of Denmark, Lyngby, Denmark; Roskilde University, Roskilde, Denmark and Aarhus University Hospital, Aarhus, Denmark.

2031. Measuring Flow Reattachment Downstream of a Stenosis using RUFIS.
H.M. Gach and I.J. Lowe.
University of Pittsburgh and Carnegie Mellon University, Pittsburgh, PA, USA.

2032. 4-D MR Velocity Mapping in Patients with Aortic Grafts.
H.G. Bogren, M.H. Buonocore and D.M. Follette.
University of California, Davis, California, USA.

2033. 4-D Magnetic Resonance Velocity Mapping of Blood Flow Patterns in the Aorta in Young and Elderly Normal Subjects.
H.G. Bogren and M.H. Buonocore.
University of California, Davis, CA, USA.

2034. Regularization of the Three-Point Phase-Contrast Method for Aortic Velocity Mapping.
A. Herment, O. Jolivet, E. Mousseaux, F. Frouin and J. Bittoun.
INSERM, Paris, France and Hopital de Bicetre, Orsay, France.

MR Systems Hardware

2035. Development of an MR Microscope using a 1.0 T Permanent Magnet.
T. Haishi, Y. Matsuda and K. Kose.
University of Tsukuba, Tsukuba, Japan.

2036. Development of an MR Microscope using a Portable MRI Unit and a Clinical Whole Body Magnet.
K. Kose, T. Haishi, N. Adachi, T. Uematsu, H. Yoshioka and I. Anno.
Univerity of Tsukuba, Tsukuba, Japan.

2037. A Real-Time, Low-Cost MR Image Reconstruction Device: Applications to Interventional MRI.
A. Daniell, S. Sinha and U. Sinha.
University of California, Los Angeles, CA, USA.

2038. A Quantum Leap in Human Magnetic Resonances: Imaging at 8.0 Tesla.
A.M. Abduljalil, A. Kangarlu, X. Zhang, Y. Yu, L. Yang, T.S. Ibrahim, B. Baertlein, R. Lee, R. Burgess, S. Bair and P.M.L. Robitaille.
The Ohio State University, Columbus, OH, USA.

2039. MR Imaging of the Wrist with a Portable Extremity Scanner.
G. Gold, D. Theodorou, T. Blair, G. Garcia, C. Crowley, F. Rose, D. Trudell and D. Resnick.
University of California, San Diego, CA, USA and MagneVu Corporation, Carlsbad, CA, USA.

2040. Initial Experience of Active Shield 3.0T Magnet for a Whole-Body MRI.
H-K. Lee, K.S. Choi, K-H. Lee, J-I. Park, Y-S. Kim, C-B. Ahn, K-J. Chung, B-Y. Choe and K-S. Shinn.
HanMe System, Kwang-Woon University, Catholic University of Korea and Medison Co., Seoul, Korea.

2041. Application of Minimum Inductance Method to Designing Biplanar Gradient Coils.
T. Skorka and A. Jasinski.
H. Niewodniczanski Institute of Physics, Krakow, Poland.

2042. Fast Optimization of a Biplanar Gradient Coil Set.
D. Tomasi, E.C. Caparelli and H. Panepucci.
Universidad Nacional de General San Martin, Buenos Aires, Argentina and Sao Carlos Universidade de Sao Paulo, Sao Paulo, Brasil.

2043. A Simple Design for a Surface Gradient Coil.
P. van Gelderen and J.H. Duyn.
National Institutes of Health, Bethesda, MD, USA.

2044. Gradient Coil Design: Evaluation of Gradient Coil Performance by Using Simulation for the Slice Selection.
J-Y. Chiou, K.D. Sezen and O. Nalcioglu.
University of California, Irvine, CA, USA.

2045. A New "Supershielding" Method Applied to the Design of Gradient Coils.
S. Shvartsman, R. Brown, M. Morich, L. Petropoulos and J. Willig.
Case Western Reserve University and Picker International Inc., Cleveland, OH, USA.

2046. Measurement of Eddy Current with Short Time Constant by Use of STEAM.
S.K. Kim, S.H. Park, J.Y. Chung and K.J. Jung.
Medison Co., Taejon, Korea.

RF Coils and Loading

2047. Numerical Evaluation of the Signal-to-Noise Ratio of MR Surface Coils Using FDTD and Reciprocity.
M. Kowalski, J. Chen, J.M. Jin and L.L. Latour.
University of Illinois, Urbana, IL, USA and Medical Advances Inc., Milwaukee, WI, USA.

2048. High-Resolution Modeling of Current and Field Distribution in Planar RF Coils.
S.M. Wright, J.A. Bankson and D.K. Spence.
Texas A&M University, College Station, TX, USA.

2049. RF Noise Current Patterns in MRI.
M.J. Hennessy.
Intermagnetics General Corporation, Latham, NY, USA.

2050. 3D Simulation of Electromagnetic Fields Inside the Human Body for Applications of MR and EPR: Effects of Object Size and Frequency on RF Field Homogeneity.
C. Leussler and P. Roschmann.
Philips Research, Hamburg, Germany.

2051. FDTD Grid Resolution and Accuracy in SAR Calculations for MRI.
C.M. Collins and M.B. Smith.
The Pennsylvania State University College of Medicine, Hershey, PA, USA and The University of Pennsylvania, Philadelphia, PA, USA.

2052. Simultaneous Image Acquisition Utilizing Hybrid Body and Torso Phased Array Receiver Coils.
A. Kocharian, J.P. Felmlee and S.J. Riederer.
Mayo Clinic and Foundation, Rochester, MN, USA.

2053. Optimization of a Quadrature Whole Body Resonator for 2T.
S. Junge and U. Haeberlen.
MPI for Medical Research, Heidelberg, Germany.

2054. A Compact Double Tuned Birdcage Coil.
D. Herlihy and J.V. Hajnal.
Imperial College School of Medicine, Hammersmith Hospital, London, UK.

2055. Confocal Elliptical Birdcage Shielding: Calculation of Mode Sensitivities.
N. De Zanche and P.S. Allen.
University of Alberta, Edmonton, Alberta, Canada.

2056. Spherical Model with Analytic Solutions for Estimating the High Frequency Performance of Loaded Birdcage and Similar Coils.
J.F. Schenck.
General Electric Corporate Research and Development Center, Schenectady, NY, USA.

2057. Tuning of the Quadrature Elliptic Birdcage Coil. Part I: Mesh Inductance Equalization.
J.S. Keller, J. LoVetri, E.A. Barberi and B.K. Rutt.
University of Western Ontario and Robarts Research Institute, London, ON, Canada.

2058. On the Physical Feasibility of Achieving Linear Polarization at High Field: A Study of the Birdcage Coil.
T.S. Ibrahim, R. Lee, B.A. Baertlein, A. Kangarlu and P.M.L. Robitaille.
The Ohio State University, Columbus, OH, USA.

2059. Tuning of the Quadrature Elliptic Birdcage Coil Part II: An Optimization Approach.
J.S. Keller, J. LoVetri, E.A. Barberi and B.K. Rutt.
University of Western Ontario and Robarts Research Institute, London, ON, Canada.

2060. RF Field Mapping of a High Field (3T) Birdcage Coil.
M. Alecci, D.A. Homfray and P. Jezzard.
Functional Magnetic Resonance Imaging of the Brain Centre and Radcliffe Hospital, University of Oxford, Headington, Oxford, England.

2061. 3-Dimensional Full Wave Analysis for MRI RF Coils.
T.S. Ibrahim, R. Lee, B.A. Baertlein, A. Kangarlu and P.M.L. Robitaille.
The Ohio State University, Columbus, OH, USA.

2062. Development of TEM Head-Size Resonator for 3.0T MRI Head Coil.
S-H. Ha, B-Y. Choe, K-S. Shinn, Y-S. Kim, K.S. Choi and H-K. Lee.
The Catholic University of Korea and Hanme System, Seoul, Korea.

2063. A Lumped Element TEM Resonator for Head at 3.0 Tesla.
J. Tropp, D.A.C. Kelley, E. Boskamp and N. Sailasuta.
GE Medical Systems, Fremont, CA, USA and GE Medical Systems, Waukesha, WI, USA.

2064. Optimization of RF Coil for Vertical Magnetic Field MRI.
B. Tang, S. Bao, D. Zu, Y. Deng and Y. Ji.
Peking University, Beijing, China.

2065. *In Vivo* ^{31}P Spectroscopy of Spinal Cord Metabolism Using a Novel Inductively Coupled Chronically Implanted RF Coil.
X. Silver, W.X. Ni, E.D. Wirth, B. Inglis and T.H. Mareci.
University of Florida, Gainesville, FL, USA and National High Magnetic Field Laboratory, Tallahassee, FL, USA.

2066. Radiofrequency and Microwave Properties of a YBaCuO Superconducting Receiver Coil for Surface Imaging.
J.C. Ginefri, L. Darrasse and P. Crozat.
CNRS and IEF, Orsay, France.

2067. A Comparison of Magnetic Field Intensity Profiles of Three Breast MR Coils Used for Quantitative MRS.
P. Davenport, M. Banks, P. Gilligan, D. Fegan and J.T. Ennis.
University College Dublin, Dublin, Ireland.

2068. Multiple-Loop Single-Turn-Solenoid Surface Coil for MR Imaging.
S.H. Choi, D.H. Kim, E.K. Jeong, J.S. Suh and S.H. Lee.
Yonsei University, Seoul, Korea.

2069. Optimized Probe-Design for Localized *in vivo* Mouse Brain ^{31}P NMR Spectroscopy.
D.W.J. Klomp, H.J.A. in 't Zandt, H.J. van den Boogert, F. Oerlemans, B. Wieringa and A. Heerschap.
University Hospital Nijmegen and Nijmegen University, Nijmegen, the Netherlands.

2070. Coaxial Stub Matching Strategies for Intravascular Coils.
G.C. Scott, P.A. Rivas and B.S. Hu.
Stanford University, Stanford, CA, USA.

2071. The Effect of Blocking Network Impedance on the B_1 Field Distortion in the Phased-Array Coils.
C.C. Guclu, S. Venkatraman, A. Hornblad and J. Maier.
General Electric Medical Systems, Milwaukee, WI, USA.

2072. Signal to Noise Effects of Noise Correlation and Preamp Decoupling on Elements with Large Mutual Inductance within a Phased Array System.
G.R. Duensing, D.A. Molyneaux and S.M. Varosi.
Applied Resonance Technology, Gainesville, FL, USA and MRI Devices Corporation, Waukesha, WI, USA.

2073. New Strategy: Independently Tuning and Matching for RF Probe.
G.X. Shen.
University of Pittsburgh, Pittsburgh, PA, USA.

2074. Multiple-Tuned Narrow Band Preamplifier.
G.X. Shen.
University of Pittsburgh, Pittsburgh, PA, USA.

2075. Low Temperature, Low Noise, High Magnetic Field Preamplifier for High Temperature Superconducting Coils.
F. Fidler, F. Odoj, M.v. Kienlin and A. Haase.
Universitat Wurzburg, Germany.

2076. A RF High Temperature Superconducting Two Coil Array.
M.J. Hennessy, I.L. Pykett, T.W. Skloss, X. Yuan, D. Kountz and D. Laubacher.
Intermagnetics General Corporation, Latham, NY, USA and DuPont Superconductivity Experimental Station, Wilmington, DE, USA.

RF Pulses

2077. Elimination of Odd Magnetization Lobes in Spectral Spatial Pulses.
Y. Zur.
GEMS MR Israel, Tirat Hacarmel, Israel.

2078. Calibration Pre-Scan for Spectral Spatial Pulses.
Y. Zur.
GEMS MR Israel, Tirat Hacarmel, Israel.

2079. Pre-saturation of Irregular Bounded Regions Using Two-Dimensional Waveforms.
C. Kiefer and U. Klose.
University of Tubingen, Germany.

2080. Simulated Multi-Dimensional RF Excitation for Reduction of Susceptiblility Artifacts in fMRI Acquisition at 3 Tesla.
V.A. Stenger, R. Santos, F.E. Boada and D.C. Noll.
University of Pittsburgh, Pittsburgh, PA, USA and University of Michigan, Ann Arbor, MI, USA.

2081. Implementation of Double-VUSE Radiofrequency Pulses for 3D Pulmonary MRA.
S.S. Halliburton and C.B. Paschal.
Vanderbilt University, Nashville, TN, USA.

2082. Over-Prefocused Pulses.
J. Shen.
The Nathan S. Kline Institute for Psychiatric Research, Orangeburg, NY, USA and New York University School of Medicine, New York, NY, USA.

2083. Velocity Selective RF Pulse Trains.
D.G. Norris and C. Schwarzbauer.
Max-Planck-Institute of Cognitive Neuroscience, Leipzig, Germany.

2084. A k-space Analysis of MR Tagging.
W.S. Kerwin and J.L. Prince.
The Johns Hopkins University, Baltimore, MD, USA.

2085. Adapted Half-Gaussian RF Excitation for Selection of Narrow Frequency Bands.
F. Schick, J. Machann, S.H. Duda and C.D. Claussen.
University of Tubingen, Germany.

2086. FOCI Pulses Re-Visited as Re-Mapped Hyperbolic Secant Pulses.
G.B. Matson.
University of California, San Francisco, CA, USA.

2087. Improved MRA using Fat-Suppressed MTC Pulse.
A. Ishikawa, K. Takeo, T. Sakai, K. Sonoki, N. Iijima, A. Kasai and A. Fujita.
Shimadzu Corporation, Kyoto, Japan.

2088. BURST Microscopic Imaging Using Asymmetrically Amplitude-Modulated RF Pulses.
Y. Taniguchi, H. Ochi and K. Tsukada.
Hitachi, Ltd., Tokyo, Japan.

Non-Proton MRI, EPR, and ESR

2089. Low Field MR Imaging of Laser-Polarized Noble Gas.
G.P. Wong, C.H. Tseng, V.R. Pomeroy, R.W. Mair, D.P. Hinton, D. Hoffmann, R.E. Stoner, F.W. Hersman, D.G. Cory and R.L. Walsworth.
Harvard-Smithsonian Center for Astrophysics and Massachusetts Institute of Technology, Cambridge, MA, USA; University of New Hampshire, Durham, NH, USA and Massachusetts General Hospital, Charlestown, MA, USA.

2090. *In Vivo* Comparison of ^{3}He and ^{129}Xe for Imaging Purposes.
T.M. Munger, J. Knight-Scott, T.A. Altes, J.P. Mugler III, K.D. Hagspiel and J.R. Brookeman.
Northwestern University, Chicago, IL, USA and University of Virginia, Charlottesville, VA, USA.

2091. Flip Angle Estimation in Hyperpolarized 3Helium-MRI with Correction by Endexpiratory Oxygen Concentration Measurement.
K. Markstaller, W.G. Schreiber, B. Eberle, N. Weiler, H.U. Kauczor, A. Deninger, R. Surkau and M. Thelen.
Johannes Gutenberg-University Mainz, Germany.

2092. Considerations in Using the Variable-Flip-Angle Method in Laser-Polarized Magnetic Resonance Gas Imaging and Spectroscopy Experiments.
J. Knight-Scott, V.M. Mai, J.P. Mugler III and J.R. Brookeman.
UVA Health Sciences Center, Charlottesville, VA, USA.

2093. Hyperpolarized ^{129}Xe Dog Lung Imaging Using a Multi-Shot Gradient-Echo Sequence and ^{1}H Phase Referencing.
J.R. MacFall, H.C. Charles, J. Poulsen, J. Smith, B. Driehuys and P. Cella.
Duke University Medical Center and Magnetic Imaging Technologies, Inc., Durham, NC, USA.

2094. Rapid ^{3}He MRI of Lung Ventilation Using EPI: Preliminary Results from an Emphysema Patient.
B. Saam, D.A. Yablonskiy, D.S. Gierada, M.S. Conradi and J.D. Cooper.
Washington University, St. Louis, MO, USA.

2095. Pulmonary Studies with Hyperpolarized 3He: Investigation of Spin-Lattice Relaxation and Correlation with Pulmonary Function.
H.E. Moller, L.W. Hedlund, X.J. Chen, M.R. Carey, M.S. Chawla and G.A. Johnson.
University of Munster, Munster, Germany and Duke University Medical Center, Durham, NC, USA.

2096. Ultrafast Imaging of 3D-Distribution of Helium-3 Diffusion Coefficient in the Lung.
W.G. Schreiber, K. Markstaller, H.U. Kauczor, B. Eberle, R. Surkau, G. Hanisch, A. Deninger, T. Grossmann, N. Weiler, E. Otten and M. Thelen.
Johannes Gutenberg-University, Mainz, Germany.

2097. Dynamically Adaptive Hyperpolarized Noble Gas MRI Using Multi-Resolution Line Scan Encoding.
L. Zhao, A.K. Venkatesh, M.S. Albert and L.P. Panych.
Brigham & Women's Hospital, Harvard Medical School and Boston University, Boston, MA, USA.

2098. Pulmonary Studies with Hyperpolarized 3He: Methods for Delivering Mixtures of O_2 and ^{3}He for Small-Animal Imaging and Spectroscopy.
L.W. Hedlund, H.E. Moller, X.J. Chen, M.S. Chawla, G.P. Cofer and G.A. Johnson.
Duke University Medical Center, Durham, NC, USA.

2099. Hyperpolarized Noble Gas Imaging using a Simple Programmable Gas Delivery System.
A.K. Venkatesh, T. Pausak, C.F. Ward, F.A. Jolesz and M.S. Albert.
Brigham & Women's Hospital, Harvard Medical School and Boston University, Boston, MA, USA; McGill University, Montreal, Quebec, Canada and C. W. E. Inc, Ardmore, PA, USA.

2100. Intravenous Delivery of Hyperpolarized ^{129}Xe: A Compartmental Model.
C. Lavini, G.S. Payne, M.O. Leach and A. Bifone.
The Royal Marsden NHS Trust, Sutton, Surrey, UK.

2101. Using Carrier-Agents in Live Rats to Deliver Hyperpolarized ^{129}Xe.
A.K. Venkatesh, L. Zhao, D. Balamore, F.A. Jolesz and M.S. Albert.
Brigham & Women's Hospital, Harvard Medical School and Boston University, Boston, MA, USA and Nassau Community College, Garden City, NY, USA.

2102. T_2 of ^{129}Xe in Rat Tissue Homogenates and Blood at 9.4 T.
G.J. Wilson, G.E. Santyr, M.E. Anderson and P.M. DeLuca Jr.
University of Wisconsin, Madison, WI, USA and Carleton University, Ottawa, Ontario, Canada.

2103. Rubidium Absolute Polarisation Imaging at High Temperatures.
S. Appelt, T. Unlu, S. Baer-Lang, N.J. Shah, K. Zilles and H. Halling.
Research Centre Julich, Julich, Germany.

2104. Magnetic Resonance Imaging Using Oxygen as a T_1 Contrast Agent.
Q. Chen, D. Levin, V. Mai, R. Edelman and H. Hatabu.
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

2105. Time Course of the Signal Intensity in the Lungs of Patients and Healthy Volunteers During Breathing 100% Oxygen.
C.J. Muller, M. Schwaiblmair, J. Scheidler, M. Deimling, C. Vogelmeier, R. Loffler and M. Reiser.
Ludwig-Maximilians-Universitat, Munich, Germany and Siemens Medizintechnik, Erlangen, Germany.

2106. Dynamic ^{17}O Imaging with Fast T_1[rho] Dispersion MRI.
S.R. Charagundla, U. Duvvuri, R. Rizi, H. Poptani, A.H. Stolpen, J.S. Leigh and R. Reddy.
University of Pennsylvania, Philadelphia, PA, USA.

2107. Imaging Obstructed Ventilation with Inert Fluorinated Gases.
D.O. Kuethe, A. Caprihan, H.M. Gach, I.J. Lowe, N. Staub and E. Fukushima.
Lovelace Respiratory Research Institute and New Mexico Resonance, Albuquerque, NM, USA; GE Medical Systems, Milwaukee, WI, USA; University of Pittsburgh, Pittsburgh, PA, USA and University of California, San Francisco, CA, USA.

2108. Rapid Imaging of Free Radicals *In Vivo* using Snapshot Field-Cycled PEDRI.
P. Puwanich, D.J. Lurie and M.A. Foster.
University of Aberdeen, Aberdeen, UK.

2109. Pharmacological Modifications of the Partial Pressure of Oxygen in Murine Tumors: Evaluation Using *in vivo* EPR Oximetry.
B. Gallez, B.F. Jordan and C. Baudelet.
Catholic University of Louvain, Brussels, Belgium.

2110. EPR Oximetry Mapping (EPROM) of Cartilage Formed in a Hollow Fiber Bioreactor.
S. Velan, P. Kuppusamy, E. Petersen, J. Zwier, K. Fishbein and R.G.S. Spencer.
National Institutes of Health and Johns Hopkins University School of Medicine, Baltimore, MD, USA.

2111. Low-Field ESR-based Techniques in the *in vivo* Detection and *in vitro* study of pH-sensitive Imidazolidine Nitroxide Spin Probes.
M. Foster, I. Grigorev, D. Lurie, V. Khramtsov, S. McCallum, I. Panagiotelis, J. Hutchison, A. Koptioug and I. Nicholson.
University of Aberdeen, Aberdeen, UK and Institutes of Organic and Kinetic Chemistry, Novosibirsk, Russia.

2112. A Prototype Field-Cycling Overhauser MRI Scanner.
J. Overweg, C. Leussler, P. Roschmann, K. Luedeke, D. Riekmann, D. Holz, U. Katscher, P. Bornert, J.H. Ardenkjaer-Larsen and J.S. Petersson.
Philips Research, Hamburg, Germany and Nycomed Innovation AB, Malmo, Sweden.

2113. Sensitivity-Enhanced ^{13}C EPI.
N. Chhina, R. Mann, M. Heidenreich, W. Kockenberger, N. Chandrakumar, A. Peters, R. Bowtell and P. Morris.
University of Nottingham, Nottingham, UK; Universitat Ulm, Germany and Central Leather Research Institute CSIR, Tamil Nadu, India.

2114. Quantitative Bone Mineral Density Measurement using 3D ^{31}P Solid State NMR Projection Imaging.
D.P. Hinton, B.A. Concannon and J.L. Ackerman.
Massachusetts General Hospital and Harvard Medical School, Charlestown, MA, USA.

2115. Application of HTS RF Coil for Sodium Imaging on a High Field System.
E.X. Wu, E. Gao, E.K. Chan, Q.Y. Ma, E.S. Yang, R.L. DeLaPaz and P.O. Alderson.
Columbia University, New York, NY, USA and University of Hong Kong, China.

2116. Restoration of Metabolic Images with *A Priori* Anatomic Information.
C.D. Constantinides, P.A. Bottomley, R.F. Lee and R.G. Weiss.
Johns Hopkins University, Baltimore, MD, USA.

2117. Triple Quantum Filtered Sodium Imaging of Muscle at 3.0T.
U. Duvvuri, I. Hancu, F. Boada, A. Borthakur, E. Shapiro, G. Shen, J.S. Leigh and R. Reddy.
University of Pennsylvania, Philadelphia, PA, USA and University of Pittsburgh Medical Center, Pittsburgh, PA, USA.

2118. ^{23}Na MR Spectroscopy and Imaging of Human Bronchial Epithelial Cell Xenograft in an Athymic Mouse.
N. Bansal, R. Bals, J.M. Wilson and J.D. Glickson.
University of Pennsylvania, Philadelphia, PA, USA.

MR Microscopy

2119. 2D and 3D Microscopic Imaging for Biological Tissues *in vitro* using a MR Microscope with an Independent Console System (MRMICS).
H. Yoshioka, K. Kose, T. Haishi, N. Adachi, I. Anno and Y. Itai.
University of Tsukuba, Tsukuba, Japan.

2120. Comparison of Different Motion Correction Schemes for in Vivo Microimaging.
H.K. Song and F.W. Wehrli.
University of Pennsylvania Medical Center, Philadelphia, PA, USA.

2121. Dual Observation of Histological Samples with Magnetic Resonance and Optical Microscopy.
P.L. Gor'kov, A.B. Harris, J. Tsao, S. Konda, H.D. Morris, E.C. Wiener and P.C. Lauterbur.
University of Illinois at Urbana-Champaign, IL, USA.

2122. 11.7 Tesla T_1 and T_2 Estimates in Mouse Embryos. Implication for Optimizing Contrast in Spin Echo Images.
M. Dhenain and R.E. Jacobs.
California Institute of Technology, Pasadena, CA, USA.

2123. MR Microscopy of Drosophila Embryos at 7T.
S.J. Dodd, R. Namba, J. Mergliano, J.S. Minden and C. Ho.
Carnegie Mellon University, Pittsburgh, PA, USA.

2124. *In Vivo* MR Microscopy of the Rat Cervical Spine at 7 Tesla with the Use of a Quadrature Surface Coil.
J.A. Pikkemaat, D.W.J. Klomp, H.P. Bijl, A.J. van der Kogel and A. Heerschap.
University Hospital, Nijmegen, The Netherlands.

2125. Magnetic Resonance Microangiography ([mu]-MRA) of the Mouse Brain Without Contrast Agents.
N. Beckmann and D. Bochelen.
Novartis Pharma Inc., Basel, Switzerland.

2126. MR Imaging of Electron Microscopy Samples Labeled with Iron-Oxide Particles.
S.J. Dodd, M. Williams, J.P. Suhan, D.S. Williams, A.P. Koretsky and C. Ho.
Carnegie Mellon University, Pittsburgh, PA, USA.

2127. Three Dimensional MR Microscopy for Detection of Iron-Induced Susceptibility Effects.
P. van Gelderen, J.W.M. Bulte and J.A. Frank.
National Institutes of Health, Bethesda, MD, USA.

2128. Spatial Mapping of Collagen and Proteoglycan in Cartilage by NMR and FTIR Microscopy.
K. Potter, L.H. Kidder, E.N. Lewis and R.G.S. Spencer.
National Institute on Aging, Baltimore, MD, USA and National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD, USA.

2129. *In-Vivo* Human Skin Microscopy using a Superconducting Receiver Coil.
J.C. Ginefri, L. Darrasse and P. Crozat.
CNRS and IEF, Orsay, France.

2130. MRI Characterisation of Skin by MTC Microimaging: Correlation with Skin Function.
F. Mirrashed, W. Vennart, P. Collier and I.R. Summers.
National Research Council Canada, Winnipeg, Canada and University of Exeter and Royal Devon & Exeter Hospital, Exeter, UK.

2131. T_2-Selective NMR-Microscopy on Polymer-Gels for Dosimetry at High Spatial Resolutions.
A. Berg, A. Ertl and E. Moser.
University of Vienna, Austria.

Quantitative MR Imaging

2132. MRI Measurement of Cell Volume Fraction in the Perfused Rat Hippocampal Slice.
D.L. Buckley, J.D. Bui, M.I. Phillips and S.J. Blackband.
University of Florida, Gainesville, FL, USA.

2133. Volumetric Analysis of Temporal Lobe Resections.
N.F. Moran, L. Lemieux, N.D. Kitchen, D.R. Fish and S.D. Shorvon.
National Society for Epilepsy, Chalfont St. Peter, Bucks, UK and University College London, UK.

2134. Automated Measurement of Regional Brain Volumes using a 3D Stereotactic Approach Based on the Talairach Grid.
M. Quarantelli, E. Tedeschi, M. Larobina, A. Ciarmiello, A. Brunetti, B. Alfano and M. Salvatore.
University "Federico II", Naples, Italy.

2135. *In Vivo* Quantitative Tissue Volume Fraction Analysis in the Brain using IR-SE-EPI.
F.G.C. Hoogenraad, M.B.M. Hofman, P.J.W. Pouwels, M. Sprenger and E.M. Haacke.
Vrije Universiteit, Amsterdam, The Netherlands and Mallinckrodt Institute of Radiology, St. Louis, MO, USA.

2136. Statistical Morphometrics Applied to Cerebral Cortical Shape.
D.D. Maudgil, S.L. Free, L. Lemieux, P.O. Higgins, I. Dryden, N. Jones, D. Fish and S. Shorvon.
National Society for Epilepsy, Chalfont St. Peter, UK; University College London, UK and University of Leeds, UK.

2137. Comparison of Tumor Volume Measurements and Partial Volume Effects.
D.J. Peck, E.M. Spickler, D.D. Cody, L. Marian and E. Monsell.
Henry Ford Health System, Detroit, MI, USA.

2138. A Non-Invasive MRI Measure of Subtle Longitudinal Volume Changes in Brain.
W.E. Reddick, J.O. Glass and J.W. Langston.
St. Jude Children's Research Hospital, Memphis, TN, USA.

2139. Fast Frequency Selective Keyhole MRI.
J. Medic, S. Tomazic, I. Sersa and F. Demsar.
University of Ljubljana, Ljubljana, Slovenia.

2140. Quantitative Experimental Validation of an Analytic Model for Intensity Non-uniformity in MRI.
J.G. Sled and G.B. Pike.
Montreal Neurological Institute, Montreal, Quebec, Canada.

2141. Mapping of Static Magnetic Field Gradient at 4.7 T Using Spatial Phase Differences with Multi-Slice GESFID Sequence.
J.M. Bonny, W. Laurent and J.P. Renou.
INRA-Theix, Saint-Genes-Champanelle, France.

2142. T_1 Fast Acquisition Relaxation Mapping (T_1 FARM): Optimized Data Acquisition.
C.A. McKenzie, R.E. Thornhill, F.S. Prato and D.J. Drost.
St. Joseph's Health Centre and University of Western Ontario, London, Ontario, Canada.

2143. 3D T_1 Mapping by Means of Fast Field Echo Technique.
X. Zhu, K.L. Li, J.C. Waterton, J.J.L. Tessier, D. Checkley, A. Jones, I.D. Kamaly-Asl and A. Jackson.
University of Manchester, UK; Zeneca Pharmaceuticals, Macclesfield, UK; Christy Hospital and Manchester Royal Infirmary, Manchester, UK.

2144. Accurate Multislice T_1 Measurement in the Presence of Non-Ideal RF Pulse Profiles and RF Field Inhomogeneity.
G.J.M. Parker, G.J. Barker and P.S. Tofts.
University College London, London, UK.

2145. Accurate Calculation of T_1 Relaxation Times from Multiple-Echo Sequences with Imperfect Pulses.
P.B. Kingsley.
North Shore University Hospital, Manhasset, NY, USA and New York University School of Medicine, New York, NY, USA.

2146. Precision Improves with Decreasing Number of Inversion Times for T_1 Measurements with the Modified Fast Inversion Recovery Method.
R.J. Ogg and P.B. Kingsley.
St. Jude Children's Research Hospital and University of Tennessee, Memphis, TN, USA; North Shore University Hospital, Manhasset, NY, USA and New York University Medical College, New York, NY, USA.

2147. Effect of Background Gradients on Apparent R_2* Derived from 2D and 3D Multiple Gradient Echo Sequences.
M.A. Fernandez-Seara, H.K. Song and F.W. Wehrli.
University of Pennsylvania Medical Center, Philadelphia, PA, USA.

2148. Biexponential T_2 Analysis of Human Liver in the Fasted and Postparndial States: Potential for Monitoring Tissue Microcirculatory Changes.
M.D. Noseworthy, J.K. Kim, J.A. Stainsby and G.A. Wright.
University of Toronto, Toronto, Ontario, Canada.

2149. Quantitative MRI of Water and Fat Using a Quadruple-Field-Echo Sequence.
W. Zhang.
Toshiba America MRI, Inc., South San Francisco, CA, USA.

2150. Post-Acquisition Methods for Generating Water Fat Separated MR Images with Variable T_2/ T_2* Contrasts.
W. Zhang.
Toshiba America MRI, Inc., South San Francisco, CA, USA.

2151. Absolute Quantitation of Skeletal Muscle Lipid Content with MRI.
F.E. Boada, R. Ross, V.A. Stenger, D.C. Noll, B. Goodpaster and D. Kelley.
University of Pittsburgh Medical Center, Pittsburgh, PA, USA and Queen's University, Kingston, Ontario, Canada.

2152. R_2* Dependence on Structural Anisotropy in Trabecular Bone of the Radius.
B.R. Gomberg, F.W. Wehrli, P.K. Saha, M. Takahashi and S.N. Hwang.
University of Pennsylvania, Philadelphia, PA, USA.

2153. Can MR-Derived Topological Parameters Help Predict Osteoporotic Fractures?
B.R. Gomberg, P.K. Saha, H.K. Song, S.N. Hwang and F.W. Wehrli.
University of Pennsylvania, Philadelphia, PA, USA.

2154. Quantitative Analysis of Temporal Bone Geometry.
R. Holtman, S.M. Lee, B.D. Clymer and P. Schmalbrock.
The Ohio State University, Columbus, OH, USA.

2155. Quantitative Measurements of the Effect of Dissolved Oxygen on Gel Samples, as Used in MRI Radiation Dosimetry.
S. Hepworth, M. Leach and S. Doran.
University of Surrey, Guildford, England and Institute of Cancer Research, Sutton, England.

2156. The Stability of Polyacrylamide Gels for MRI Measurements of Radiation Dosimetry.
M. McJury, M. Oldham, P.S. Murphy, S. Webb and M.O. Leach.
The Institute of Cancer Research and The Royal Marsden NHS Trust, Sutton, Surrey, UK.

2157. Investigation of the Nature of Water in Hydrogels and in Fluff-Pulp with NMR.
G.S. Pell, M. Landeryou, A. Cottenden and R.J. Ordidge.
University College London, UK.

2158. Non-Invasive Measurement of the Arterial Input Function for Quantitative Dynamic Contrast-Enhanced MR Imaging of Cancerous Lesions in the Rat.
G.O. Cron, J.C. Wallace, T. Fortin, W.D. Stevens, B.A. Pappas, F. Kelcz and G.E. Santyr.
University of Wisconsin, Madison, WI, USA and Carleton University, Ottawa, ON, Canada.

2159. Template Fitting: A Robust and Reliable Deconvolution Technique to Determine Pharmacokinetic Tumor Parameters.
M. Pedevilla, R. Stollberger, P. Wach and F. Ebner.
University of Graz and Graz University of Technology, Graz, Austria.

2160. *In Vitro* Measurements of Drug Release Concentrations Using MR Imaging.
N. Alikacem, T. Yoshizawa, C. Wilson and K. Nelson.
University of Texas Southwestern Medical Center at Dallas, TX, USA; University of Texas, Arlington, TX, USA and Niigata University, Niigata, Japan.

2161. Hybrid Relaxometric-Spectroscopy: A Novel Technique for Tissue Compartment Mapping.
C.V. Bowen and B.K. Rutt.
University of Western Ontario and John P. Robarts Research Institute, London, Ontario, Canada.

2162. Enhancement of BOLD-Contrast Sensitivity of fMRI by Single-Shot Spectroscopic Imaging.
S. Posse, S. Wiese, D. Gembris, K. Mathiak, C. Kessler, M.L. Grosse-Ruyken, B. Elghawaghi, T. Richards, S.R. Dager and V.G. Kiselev.
Research Center Julich GmbH, Julich, Germany; University of Dusseldorf, Germany and University of Washington, Seattle, WA, USA.

2163. Contact Reference Method for Measuring Venous Blood Oxygenation with MR Phase Imaging.
L. Li, Z.J. Wang and J.S. Leigh.
University of Pennsylvania and The Children's Hospital of Philadelphia, Philadelphia, PA, USA.

2164. Pressure/Modulus Inversion for MR Elastography.
J. Bishop, A. Samani and D.B. Plewes.
University of Toronto, Toronto, Ontario, Canada.

2165. Multiplanar Combined Scalar and Vector Display for Diffusion Tensor Information.
G.J.M. Parker, D.J. Werring, G.J. Barker and P.S. Tofts.
University College, London, UK.

2166. Fractal Analysis of Pulmonary Magnetic Resonance Angiograms.
R.D. Adams, C.B. Paschal and K.A. Overholser.
Vanderbilt University, Nashville, TN, USA.

2167. Visualization of *In Vivo* 3-D Thermal Mapping using MRI.
A.M. Alyassin and H.E. Cline.
General Electric Corporate Research & Development, Niskayuna, NY, USA.

Image Processing of Dynamic Studies

2168. Comparison of Rigid and Non-Rigid Registration of Breast MR Images.
D. Rueckert, E.R.E. Denton, L.I. Sonoda, C. Hayes, S.C. Rankin, D.L.G. Hill, M.O. Leach and D.J. Hawkes.
Guy's, King's and St. Thomas' School of Medicine, Guy's Hospital and King's College Hospital, London, UK and Royal Marsden Hospital, Sutton, UK.

2169. The Three-Time-Point (3TP) Contrast-Enhanced Method for Improved Specificity of Breast MRI; Clinical Assessment.
E. Furman-Haran, D. Grobgeld, H. Degani and F. Kelcz.
The Weizmann Institute of Science, Rehovot, Israel and University of Wisconsin Hospital, Madison, WI, USA.

2170. Validation of a Semi-Automated Breast MRI Analysis Technique for Tumor Diagnosis and Evaluation of Response to Therapy.
S. Partridge, L. Esserman, E. Heumann, D. Tripathy and N. Hylton.
University of California, San Francisco, CA, USA.

2171. Synthesis of Gd-DTPA Enhanced Dynamic Breast MRI Data with High Resolution Imaging.
A.T. Agoston, B.L. Daniel, D.M. Ikeda, R.L. Birdwell, S. Heiss, A.M. Sawyer-Glover and R.J. Herfkens.
Stanford University, Stanford, CA, USA.

2172. Analysis Software for Breast Imaging Studies.
M.H. Buonocore, D.C. Zhu and R.A. Zulim.
UC Davis Medical Center, Sacramento, CA, USA.

2173. Automated Analysis of Dynamic MRI Contrast Bolus Passage: Measurement of MTT, CBV, rCBF, and Tissue Flow.
J. Mattiello and J.R. Alger.
UCLA Medical Center, Los Angeles, CA, USA.

2174. A New Method for Automatic Detection of Diaphragm in Dynamic MRI of Lung.
G. Torheim, G. Sebastiani, T. Amundsen and O. Haraldseth.
Norwegian University of Technology and Science, Trondheim, Norway and Istituto per le Applicazioni del Calcolo, C.N.R., Rome, Italy.

2175. Development of a Real-Time 3D NMR Imaging System.
T. Haishi and K. Kose.
University of Tsukuba, Tsukuba, Japan.

2176. Study of Cerebrospinal Fluid (CSF) Dynamics from Phase Contrast Cine Magnetic Resonance Imaging (MRI).
O. Baledent, A. Didon-Poncelet, M.C. Henry-Feugeas and I. Idy-Peretti.
CHU Nord, Amiens, France and Hopital Bichat, Paris, France.

Cardiac and MR Angiography Image Processing

2177. The Application of Subvoxel Coregistration in Subtraction Venography: A Comparison with Non-Registered Data.
D. Brennan, D.M. Hadley and B.R. Condon.
Southern General Hospital, Glasgow, UK.

2178. An Automatic Registration Algorithm for Cardiac MR Perfusion Analysis.
S.N. Gupta, T.K.F. Foo, F. Epstein and A.E. Arai.
GE Medical Systems, Waukesha, WI, USA and National Institutes of Health, Bethesda, MD, USA.

2179. Intensity Correction of Phased-Array Coils Modulations for Cardiac Perfusion MR Analysis.
J.E. Siebert, M.C. DeLano, J.D. Eisenberg and J.A. Gift.
Michigan State University, East Lansing, MI, USA.

2180. Analysis of Multiscale Line Enhancement Filter Differentiation of Vessel and Background Voxels in Time-of-Flight MRA.
B.E. Chapman and D.L. Parker.
University of Utah, Salt Lake City, UT, USA.

2181. Vessel Segmentation of 3D MR Angiography Using Time Resolved Acquisition Curves.
Y. Mazaheri, T.J. Carroll, C.A. Mistretta, F.R. Korosec and T.M. Grist.
University of Wisconsin, Madison, WI, USA.

2182. A Novel Method for Method for MR Arterial and Venous Discrimination Using Gated Phase Contrast and VENC Selection.
T.K.F. Foo, V.B. Ho, M.N. Hood, J.M. Czum, S.D. Wolff, Y. Zhang and P.L. Choyke.
GE Medical Systems, Milwaukee, WI, USA; Uniformed Services University of the Health Sciences, Bethesda, MD, USA; Integrated Cardiovascular Therapeutics, LLC, Woodbury, NY, USA and National Institutes of Health, Bethesda, MD, USA.

2183. Feasibility of Automated Separation of Arteries and Veins Using a Graph Searching Technique.
M. Sonka, R. Stefancik and S. Tadikonda.
The University of Iowa, Iowa City, IA, USA and EPIX Medical Inc, Cambridge, MA, USA.

2184. Visualization of 4-Dimensional Blood Flow with Cardiovascular Magnetic Resonance Imaging.
C.Y. Hong, M.E. Brummer, A. Ensley, G.P. Chatzimavroudis, S. Sharma, T.M. Healy, A.P. Yoganathan and R.I. Pettigrew.
Emory University School of Medicine, Georgia Institute of Technology and Henrietta Egleston Children's Hospital, Atlanta, GA, USA.

2185. Semi-Automatic Assessment of Renal Artery Stenosis.
M. Zhang, Q. Chen, P.V. Prasad and R.R. Edelman.
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

Segmentation and Registration in Brain

2186. Brain Image Segmentation by Multiscale Analysis and Template Matching.
X. Ji, S. Wang, M. Skouson and Z-P. Liang.
University of Illinois at Urbana-Champaign, Urbana, IL, USA.

2187. Automatic Segmentation of Grey and White Matter in Serial T_1-Weighted Volume MRI Data and the Effect of Scan Matching on Repeatibility.
L. Lemieux.
University College, London, UK.

2188. Segmentation of Corpus Callosum Using a Deformable Model.
A. Lundervold, N. Duta, T. Taxt and A.K. Jain.
University of Bergen, Bergen, Norway and Michigan State University, East Lansing, MI, USA.

2189. Neural Network Segmentation and Classification of Quantitative T_1 Images.
J.O. Glass, W.E. Reddick, V.S. Yo and R.G. Steen.
St. Jude Children's Research Hospital, Memphis, TN, USA.

2190. Cerebellum Segmentation Employing Texture Analysis and Knowledge Based Image Processing.
N. Saeed, E. Le Strange, M. Rutherford and B.K. Puri.
Hammersmith Hospital, London, UK.

2191. Automated Cerebral Hemisphere Parcellation.
S.L. Free and F.G. Woermann.
National Society for Epilepsy, Chalfont St. Peter, UK and University College, London, UK.

2192. Application of Kalman Filtering to fMRI 4D Image Registration.
B.D. Ward and R.W. Cox.
Medical College of Wisconsin, Milwaukee, WI, USA.

2193. A Regional-Based Mutual Information Method for Image Registration.
X. Ji, H. Pan and Z-P. Liang.
University of Illinois at Urbana-Champaign, Urbana, IL, USA.

2194. Constraining Non-Rigid Registration of EPI to Conventional MRI using an MR Distortion Model.
C. Studholme, R. Todd Constable and J.S. Duncan.
Yale University, New Haven, CT, USA.

2195. Efficient Interpolation for Clustering-Based Multimodality Image Registration.
J. Tsao.
University of Illinois at Urbana-Champaign, IL, USA.

2196. The Intimate Combination of Low- and High-Resolution Image Data: Real-Space PET and $^{1}H_2O$ MRI (PETAMRI).
M.K. Sammi, C.A. Felder, J.S. Fowler, J-H. Lee, A.V. Levy, X. Li, J. Logan, I. Palyka, W.D. Rooney, N.D. Volkow, G-J. Wang and C.S. Springer Jr.
Brookhaven National Laboratory, Upton, NY, USA and State University of New York, Stony Brook, NY, USA.

2197. Modular Model for Spatial Registration of Brain Images.
K. Xin and J. Zhong.
University of Rochester, Rochester, NY, USA.

Segmentation and Registration in the Body

2198. 3-Dimensional Interactive Registration of MR Images and Histological Data.
D. Artemov, M. Solaiyappan and Z.M. Bhujwalla.
The Johns Hopkins University School of Medicine, Baltimore, MD, USA.

2199. Active Contour Segmentation of MR Images for Quantitative Cartilage Measurments: Computational Method, Interobserver Reproducibility and Comparison to Manual Delineation.
T. Stammberger, F. Eckstein, K.H. Englmeier and M. Reiser.
Institut fur Radiologische Diagnostik, GSF-Institut fur Medizinische Informatik and Anatomische Anstalt, Munich, Germany.

2200. Body Composition Segmentation with Overlapping Mosaics.
G.Z. Yang, S. Myerson, F. Chabat, D.J. Pennell and D.N. Firmin.
Royal Brompton Hospital, London, UK.

2201. Clinical Evaluation of an Elastic Matching Algorithm for the Correction of Dynamic MR Mammographic Images.
R. Lucht, M.V. Knopp and G. Brix.
Federal Office for Radiation Protection, Neuherberg, Germany and German Cancer Research Center, Heidelberg, Germany.

2202. Comparison of Automated and Visual Analysis in MRI: Characterization of Normal and Diseased Skeletal Muscle.
S. Herlidou, Y. Rolland, J.Y. Bansard, E. Le Rumeur and J.D. de Certaines.
Rennes Medical School, Rennes, France.

2203. MR Imaging and Segmentation of the Colon for Virtual Colonoscopy.
D. Chen, T.M. Button, H. Li, W. Huang and Z. Liang.
State University of New York, Stony Brook, NY, USA.

2204. Feasibility Studies on Extracting Bladder Wall from MR Images for Virutal Cystoscopy.
Z. Liang, D. Chen, T.M. Button, H. Li and W. Huang.
State University of New York, Stony Brook, NY, USA.

2205. 2D Analysis of FSE Prostate Images Using Principal Component Analysis Hybrid Neural Network.
A. Knowles, P. Gibbs and L.W. Turnbull.
Hull Royal Infirmary, Hull, UK.

Image Filtering, Artifact Characterization and Correction

2206. Image Contrast Enhancement Using Principal Component Analysis.
Y. Zhang, P. Choyke, A. Goldszal and R.N. Bryan.
National Institutes of Health, Bethesda, MD, USA.

2207. Next Neighbor Regridding: Comparison with Standard Spiral Reconstruction Methods.
F.M. Kraemer, C. Oesterle, M. Markl, R. Strecker and J. Hennig.
University of Freiburg, Germany.

2208. Simultaneous Correction for Interscan Patient Motion and Geometric Distortions in Echo Planar Imaging.
T. Ernst, O. Speck, L. Itti and L. Chang.
Harbor-UCLA Medical Center, Torrance, CA, USA.

2209. Evaluation of MR Imaging Resolution Based on Shannon Information Theory.
D. Xu, J-N. Hwang and C. Yuan.
University of Washington, Seattle, WA, USA.

2210. MR Image Compression and De-Noising by Wavelet Transform with Soft-Thresholding.
Y. Deng, S. Bao, B. Tang and D. Zu.
Peking University, Beijing, China.

2211. A New Compression Strategy for Magnetic Resonance Images.
R. Kalyanaraman, R.K. Gupta, Mahesh, S.B. Rao, V.S.N. Kaliprasad, P.V.K. Reddy and R.K.S. Rathore.
IIT Kanpur, India and SGPGI, Lucknow, India.

2212. Comparison of Commutator Images with Phase Images for the Depiction of Susceptibility Effects.
D. Morvan, A.M. Georget, J.C. Madelmont and A. Veyre.
Inserm, Clermont-Ferrand, France.

2213. Heterogeneous Brain Tissue Mimicking Phantom for the Assessment of MRI Spatial Distortion in Stereotactic Target Localization.
J. Novotny Jr, J. Vymazal, J. Novotny and W.Z. Luo.
Hospital Na Homolce, Prague, The Czech Republic.

2214. Phantom Development for Virutal Endoscopy of Bowel using Fluid and Gas Contrast Media.
R.R. Sood, M.J. Graves and D.J. Lomas.
University of Cambridge and Addenbrooke's Hospital, Cambridge, UK.

2215. Overcoming Partial Volume Effects in MR Tissue Analyses.
M.S. Atkins and Z. Tauber.
Simon Fraser University, Burnaby, British Columbia, Canada.

2216. Automatic Electrode Grid Extraction from Distorted Post-Op MR Scans.
O.M. Skrinjar and J.S. Duncan.
Yale University, New Haven, CT, USA.

Education

2217. Curriculum for Advanced Technical Education in MRI.
M.H. Buonocore, M.J. McCarthy, R.L. Powell and G. Belleau.
University of California, Davis, CA, USA.

Using the ISMRM '99 CD-ROM

Format

- In **Start.pdf,** the abstract title is in blue, the authors and their affiliations are in black.

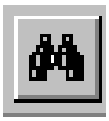
Navigation

- Click on the **Display Bookmarks** icon in the toolbar (second from the left). Each of the five days as well as the Poster Walking Tours and Poster Sessions will be displayed.

- Click on the triangle ▷ next to an item and the sessions associated with that item are listed. Click on a session name and the session and its abstracts are displayed.
- To see a specific abstract from Start.pdf, click on the Program Number or title.

Searching

- The **Find** button (binocular button) searches within a single PDF document. In Start.pdf you can find program numbers, titles, authors, and affiliations. Within a specific abstract, you can find what you are looking for with the **Find** button.



- The **Search** button (just right of the binocular button with smaller binoculars) searches the content of all abstracts. Type in any word or phrase in the search window "Find Results Containing Text" and click on **Search**.

- To search all the abstracts by title, author, Old Category (**Subject** field) and/or New Categories (**Keywords** field), use the **Document Info** fields (see box below to activate). Complete Subject and Keywords listings are available from the last bookmark of Start.pdf.

Before using **Search** for the first time:

- ✓ go to File>Preferences>Search
- ✓ check the **Show Fields** box, then Okay.

This will show the **Document Info** fields in the **Search** dialogue box.

Search Legend

Superscript and Subscript

When using **Search** with Document Info Fields for words that include a superscript or subscript, no extra spaces are necessary between the superscript or subscript letter and the normal text. For example:

^{13}C = 13C O_2 = O2 H_20 = H2O $H_2{}^{15}O$ = H215O

When using **Find** in Start.pdf for superscript text, a space is needed between the superscript text and normal text. When using **Find** for subscript text, there is no need for a space between the subscript text and normal text. For example:

^{13}C = 13 C O_2 = O2 H_20 = H2O $H_2{}^{15}O$ = H2 15 O

Greek Letter Substitutions

The following words and brackets are substituted for the Greek letters in the Start.pdf and in the Document Info Fields of the abstracts. Please type in these substitutions when using **Search** or **Find**. For example: ΔR_2 = [delta]R2

α = [alpha]
β = [beta]
Δ = [delta]
ϕ = [phi]
γ = [gamma]
μ = [mu]
ρ = [rho]
ω = [omega]

Accents

When looking for an author's name that includes letters not found on the U.S. keyboard, use the character without the accent. The substitution for ß is ss. The following are a few examples of the substitutions:

Álvarez = Alvarez
Großmann = Grossman

à, á, â, ã, ä, å = a
æ = ae
ç = c
ñ = n
ÿ = y
ß = ss

Old Category in the Subject Field

It is now possible to **Search** for abstracts by Old Category. The Old Category is listed in the **Subject** field of every abstract document. There is only 1 category per abstract. Using the **Document Info** fields in the **Search** dialogue box, either the Old Category number or name may be used in the **Subject** field to search for matching abstracts. For example, you may use the following in the **Subject** field:

16 Cardiovascular 210, RF Coil Safety/Bioeffects 101

IMAGING

0	Not specified
1	Brain - Animal Models
2	Brain - White Matter
3	Brain - Vascular
4	Brain - Functional
5	Brain - Other
6	Head, Neck, Spine and Other CNS
7	Heart - Coronary Heart Disease
8	Heart - Dynamics & Flow
9	Heart - Other
10	Vascular - Non-Neuro
11	Breast/Chest
12	Abdomen
13	Genitourinary - Pelvis
14	Musculoskeletal
15	Interventional Applications
16	Pediatrics
17	Outcomes - Economics

SPECTROSCOPY

101	Human Brain – White Matter & Degenerative
102	Human Brain – Stroke & Seizure
103	Human Brain – Tumors and Other
104	Animal Brain
105	Cardiovascular
106	Abdomen and Pelvis
107	Musculoskeletal
108	Pediatrics
109	Tumors – Animal Models
110	Cell, Body Fluids, and Other
111	Spectroscopic Quantitation

METHODOLOGY

201	Angiography
202	Flow Quantification
203	Perfusion
204	Diffusion
205	Functional Neuro - Acquisition and Analysis
206	Functional Neuro - Models and Mechanisms
207	Microscopy
208	Non-Proton MRI, and ESR
209	Gradients and Hardware
210	RF Coils
211	RF Pulses
212	Rapid Imaging
213	Motion and Artifacts
214	Other MRI Sequences/Reconstruction
215	Quantitative MRI
216	Image Processing and Display
217	Contrast Mechanisms/MTC
218	Paramagnetic Contrast Agents
219	Other Contrast Agents
220	Safety/Bioeffect/Patient Monitoring
221	Interventional MRI
222	Spectroscopic Localization and Imaging
223	Spectroscopy - Other

New Categories in the Keywords Field

It is now possible to **Search** for abstracts by New Categories. The New Categories are listed in the **Keywords** field of every abstract document. Using the **Document Info** fields in the **Search** dialogue box, either the New Category numbers or names may be used in the **Keywords** field to **search** for matching abstracts. A **search** can be done in one or more topics (A-E). For example:

A1 Vascular Diseases A2 B3 C15 D1 E23 A3, D12

A TYPE OF STUDY

0 Not specified
1 Methodological Development
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 Tumors
9 Degeneration
10 Seizures
11 White Mater Disease
12 Trauma
13 Psychiatric
14 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
20 RF-Coils
21 Microscopy
22 Non-Proton MRI
23 ESR