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 T₂ 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.**
   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.
University of Rochester, Rochester, NY, USA.

10. Fast 3D Quantitative T\textsubscript{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.
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.

New York University, New York, NY, USA.

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.

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.
University Hospital, Zurich, Switzerland.
20. **In vitro Evaluation of Ligating Clips at 1.5 T.**
University Hospital, Zurich, Switzerland.

21. **Superior Diagnostic Strength of Gadolinium Enhanced MR-Angiography Compared to Intra-Arterial DSA in Orthotopic Liver Transplantation Candidates.**
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.**
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.**
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.**
University of Wuerzburg, Wuerzburg, Germany.

28. **Effect of ACE-Inhibition on Left Ventricular Contractility Following Myocardial Infarction in Rats.**
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.**
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.**
University of California, San Francisco, CA, USA.
31. **Manganese Dipyridoxyl Diphosphate (MnDPDP) - A Functional Contrast Agent for the Ischemic Myocardium?**
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.**
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.**
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.**
University of Texas Southwestern Medical Center, Dallas, TX, USA.

37. **Hydrogen Turnover in Hepatic Metabolites as Detected by $^{13}$C NMR.**
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.**
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.**
Faculte de Medecine and Centre Hospitalo-Universitaire de la Timone, Marseille, France.
41. 31P 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 T1 Hypointense Multiple Sclerosis Lesions Demonstrated In Vivo Using 1H-MRS.
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.
Karolinska Institutet, Stockholm, Sweden.

44. 3D 1H MRS of "Normal Appearing White Matter" in Patients with Relapsing-Remitting Multiple Sclerosis.
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 1H MRS Study.
State University of New York, Stony Brook, NY, USA and National Institute on Aging, Bethesda, MD, USA.

X. Yu, M.F. Danish, K.R.R. Krishnan and H.C. Charles.
Duke University Medical Center, Durham, NC, USA.

47. 1H 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: 1H MR Spectroscopy.
Chonnam National University, Kwang-Ju, Korea.

49. Metabolic, Structural and Neuropsychological Deficits in Mitochondrial Encephalopathies Assessed by 1H MRSI, MRI and Neuropsychological Testing.
Columbia University, New York, NY, USA.
50. **Clinical Outcome and Immune Response to Neurotransplantation.**
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.**
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 in Water Apparent Diffusion Coefficient Following Transient Middle Cerebral Artery Occlusion in Rats.**
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.**
Max-Planck-Institute for Neurological Research, Cologne, Germany.

54. **Concomitant Alterations in T1 and Water Diffusion in Acute Cerebral Ischaemia and Reperfusion in Rats.**
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.**
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.**
National Research Council, Winnipeg, MB, Canada.

58. **Efficacy and Risk of rt-PA Intervention of Embolic Stroke in Rat Evaluated by MRI.**
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.**
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.**
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?**
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.**
Westfalian Wilhelms-University, Munster, Germany.

64. **Double Contrast MRI for the Detection and Characterisation of Hepatocellular Carcinoma in the Cirrhotic Liver.**
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.**
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.**
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.**
University Hospital, Nottingham, UK.

72. **Combined Diffusion and Perfusion MRI in Acute Ischemic Stroke: Correlation to Clinical Outcome.**
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.**
Washington University School of Medicine, St. Louis, MO, USA.

74. **Extension of MRI-Based Predictive Models of Infarction in Hyperacute Human Cerebral Ischemia.**
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.**
Hôpital Laiboisière, Paris, France; SHFJ-CEA-DSV, Orsay, France and Faculté de Médecine 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.**
University of Tokushima, Tokushima, Japan and GE-YMS, Tokyo, Japan.

77. **Multislice Continuous Arterial Spin Labeled Perfusion MRI in Patients with Acute Stroke.**
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.**
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.**
Johns Hopkins University, Baltimore, MD, USA.

---

**Vessel Wall Imaging**

80. **In Vivo MR Characterization of Human Aortic Atherosclerotic Plaques.**
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.**
University Hospital, Zurich, Switzerland and Laboratoire Guerbet, Paris, France.

82. **Real-Time Intravascular Magnetic Resonance Receiver Probe: In Vivo Observations in the Rabbit Aorta.**
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 T2 Classification for the Discrimination of Atheromatous Primary and Restenotic Coronary Plaques at 1.5T by High-Resolution MRI.**
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.**
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.**
SmithKline Beecham Pharmaceuticals, King of Prussia, PA, USA.

89. **Estimation of Compliance in Aortic Aneurysms Using Pulse Wave Velocity Measurements.**
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.**
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.**
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.
99. **Measurement of Peripheral Nerve Stimulation Caused by Fast Magnetic Field Gradients by Means of Electromyography.**  
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.**  
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.**  
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 B1 Field Homogeneity Study at High-Field MRI: 3T-9T.**  
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 T2.**
The Children's Hospital of Philadelphia and University of Pennsylvania, Philadelphia, PA, USA and
Siemens Medical Systems, Iselin, NJ, USA.

110. **13C Magnetic Resonance Spectroscopy Study of Hepatic Glycogen Metabolism in Children and Adolescents with IDDM Compared to Normals.**
Inselspital Bern, Switzerland.

111. **Hepatic Glycogenolysis is Suppressed by Intravenous Lipid Infusion in Fasting Humans: A 13C NMR Spectroscopy Study.**
M. Krssak, H. Stingl, M. Bischof, M. Krebs, E. Moser, W. Waldhaeusl 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.**
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 1H MR Spectroscopy.**
Massachusetts General Hospital and Harvard Medical School, Boston, MA, USA.

115. **Monitoring Effects of Prostate Cancer Brachytherapy Using Combined MRI/MRSI.**
University of California, San Francisco, CA, USA.

116. **Prostate MRI and MRS at 3 Tesla using a Transceive Phased-Array Pelvic Coil.**
University of Florida, Gainesville, FL, USA and National High Magnetic Field Laboratory, Tallahassee,
FL, USA.

117. **Evaluation of Local Prostate Recurrence after Radical Prostatectomy using Magnetic Resonance Spectroscopic Imaging.**
University of California, San Francisco, CA, USA.

118. **Differential 31P Spectral Patterns of Human Spleen in Health and Disease Using 3D-Localized 1H-Decoupled 31P MR Spectroscopy.**
Fox Chase Cancer Center, Philadelphia, PA, USA.
119. **Evaluation of MR Segmentation Algorithms.**
Utrecht University/University Hospital, Utrecht, The Netherlands.

120. **Fast Tissue Segmentation Based on a 4D Feature Map in Characterization of Intracranial Lesions.**
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.**
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.**
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.**
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.
129. **Ultrafast Imaging of Lung Ventilation Using Hyperpolarized Helium-3.**
Johannes Gutenberg-University, Mainz, Germany.

130. **Detection of Elastase-Induced Emphysema in Rat Lungs by Measuring Diffusion of Hyperpolarized 3He.**
Duke University Medical Center, Durham, NC, USA and Westfalische Wilhelms-Universitat, Munster, Germany.

131. **Comparison of Different Sequences for Imaging Human Lungs with Hyperpolarised 3He at 0.1 T.**
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.**
Duke University Medical Center, Durham, NC, USA and Universite LYON I-CPE, Villeurbanne, France.

133. **Determination of Regional Intrapulmonary Oxygen Concentrations by 3He-MRI.**
University of Mainz, Germany.

134. **A Compact Compressor for Application of Metastability-Exchange Optical Pumping of 3He to Human Lung Imaging.**
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.**
University of Pennsylvania, Philadelphia, PA, USA and NIST, Gaithersburg, MD, USA.

136. **Measurements of 3He 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.**
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 -.
Kagawa Medical University, Kagawa, Japan.
<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
<th>Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>139</td>
<td><strong>Angiogenesis: Principles and Importance in Cancer and Ischemic Heart Disease</strong></td>
<td>Judah Folkman.</td>
<td>Harvard University Medical School, Boston, MA, USA.</td>
</tr>
<tr>
<td>140</td>
<td><strong>MR Evaluation of Angiogenesis in Oncology.</strong></td>
<td>Michal Neeman.</td>
<td>Weizmann Institute of Science, Rehovot, Israel.</td>
</tr>
<tr>
<td>141</td>
<td><strong>Angiogenic Therapy in Ischemic Heart Disease.</strong></td>
<td>Stephen E. Epstein.</td>
<td>Cardiovascular Research Foundation at Washington Hospital Center, Washington, D.C., USA.</td>
</tr>
<tr>
<td>143</td>
<td><strong>What is the Effect of Tumoral VEGF Overproduction on MR Imaging?</strong></td>
<td>M. Lewin, S. Bredow, N. Sergeyev, E. Marecos, A. Bogdanov Jr and R. Weissleder.</td>
<td>Massachusetts General Hospital, Charlestown, MA, USA.</td>
</tr>
<tr>
<td>146</td>
<td><strong>Comparison of Vascular Volume and Permeability for Tumors Derived from Metastatic Human Breast Cancer Cells With and Without the Metastasis Suppressor Gene nm23.</strong></td>
<td>Z.M. Bhujwalla, D. Artemov, M. Solaiyappan, D. Mao and J.P. Backer.</td>
<td>The Johns Hopkins University School of Medicine, Baltimore, MD, USA and New York Medical College, Valhalla, NY, USA.</td>
</tr>
</tbody>
</table>
147. Gd-DTPA Uptake Rates are Linearly Related to the Perfused Microvessel Density and Surface-Area in 9L-Glioma Rat Models.
Academic Hospital, Nijmegen, The Netherlands and Delft University of Technology, Delft, The Netherlands.

St. Joseph's Health Centre, The University of Western Ontario and Robarts Research Institute, London, ON, Canada and Schering Research Laboratories, Berlin, Germany.

Medical College of Wisconsin, Milwaukee, WI, USA.

150. Quantitative CBF Mapping on Brain Tumor Patients Using Multislice Perfusion Imaging with Pulsed Arterial Spin-Labeling.
National Institutes of Health, Bethesda, MD, USA.

Philips Medical Systems, London, UK; University of Manchester, and Central Manchester Healthcare Trust, Manchester, UK.

152. SMASH Contrast-Enhanced 3D MR Angiography.
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

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.

S.B. Fain, B.F. King and S.J. Riederer.
Mayo Clinic, Rochester, MN, USA.
156. **Phase Contrast with Interleaved Undersampled Projections.**  
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).**  
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.**  
University and ETH, Zurich, Switzerland and Philips Research, Hamburg, Germany.

163. **A Phased Array Coil Optimized for Carotid Artery Imaging.**  
Integrated Cardiovascular Therapeutics, Woodbury, NY, USA and GE Medical Systems, Milwaukee, WI, USA.

164. **A Three Coil Comparison for MR Angiography.**  
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\textsubscript{2} Dielectric-Filled Toroidal Resonator.**  
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.**  
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 Fluoroscopy.**  
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.**  
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.**  
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.**  
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.**
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.**
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 Radiocast Nephropathy.**
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.**
Univeriste 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.**
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.**
McLean Hospital, Belmont, MA, USA.

190. **Dynamic EPI Monitoring the Intragastric Secretion, Mixing and Emptying of Viscous Meals in Man: Influence on Satiety.**
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.**
University of Technology, Aachen, Germany and Philips Research Laboratories, Hamburg, Germany.

---

### Musculoskeletal MR Spectroscopy

192. **Noninvasive Measurement of Gene Expression in Skeletal Muscle.**
University of Pennsylvania, Philadelphia, PA, USA.

193. **Dipolar Coupling of Creatine and Taurine in Proton MRS of Mouse Skeletal Muscle.**
University Hospital Nijmegen and Nijmegen University, Nijmegen, the Netherlands.

194. **31P MRS Studies of Skeletal Muscle Energetics and Ionic Balance in a New Mouse Model of Duchenne Muscular Dystrophy.**
University of Oxford, Oxford, UK.

195. **Carnosine Compartmentation in Muscle: pH Determinations in Fast and Slow Fibers.**
University of Illinois at Urbana-Champaign, IL, USA.

196. **Unraveling the Magnetization Transfer Effect on the 1H-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.**
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 $^1H$ MRS.**
University of Bonn, Germany.

201. **Age- and Gender-Specific Differences in the $^1H$ 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.**
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.**
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.**
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.**
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.**
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.**  
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.**  
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.**  
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.**  
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.**  
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.

University Hospital, Zurich, Switzerland.

218. **Complementary Utility of Dobutamine Tagged and Contrast Enhanced MRI for Assessment of Viability after Myocardial Infarction.**  
Allegheny General Hospital, Pittsburgh, PA, USA.
Tuesday

219. **Stress Magnetic Resonance Imaging for the Evaluation of Hibernating Myocardium: A One-Stop Assessment of Regional Left Ventricular Function and Perfusion.**
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.**
University of Leicester, UK and Bracco SpA, Milan, Italy.

221. **Fast High Resolution $^{23}$Na MRI with Twisted Projections: Imaging Myocardial Infarction in 3D.**
Johns Hopkins University, Baltimore, MD, USA and University of Pittsburgh, Pittsburgh, PA, USA.

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.**
University of California, San Francisco, CA, USA.

224. **Neuronal Injury Demonstrated by Early Quantitative Magnetic Resonance Spectroscopy Following Acute Brain Injury.**
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.**
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.**
Singapore General Hospital, Singapore.

227. **Spectroscopy as an Endpoint in Multisite Clinical Trials: Dichloroacetate Reduces Cerebral Lactate After Stroke.**
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.

---

**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.**
University of California, San Francisco, CA, USA.

**224. Neuronal Injury Demonstrated by Early Quantitative Magnetic Resonance Spectroscopy Following Acute Brain Injury.**
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.**
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.**
Singapore General Hospital, Singapore.

**227. Spectroscopy as an Endpoint in Multisite Clinical Trials: Dichloroacetate Reduces Cerebral Lactate After Stroke.**
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.
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.
University of Oxford and Radcliffe Infirmary, Oxford, UK.

---

**Coronary Artery Imaging**

230. Young Investigator Awards Finalist: Coronary Venous Oximetry using MRI.
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.
Royal Brompton Hospital and Imperial College, London, UK.

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.
Royal Brompton and Harefield NHS Hospital Trust, London, UK.

Leiden University Medical Center, Leiden, The Netherlands and Interuniversity Cardiology Institute of the Netherlands, Utrecht, The Netherlands.

Johannes Gutenberg-University, Mainz, Germany.
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.**
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.**
University of California, San Francisco, CA, USA and General Electric Medical Systems, Fremont, CA, USA.
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.
DVA Medical Center and University of California, San Francisco, CA, USA; Lawrence Berkeley Laboratory, Berkeley, CA, USA and University of California, Davis, CA, USA.

University and ETH, Zurich, Switzerland.

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.
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.

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

---

**Measuring the Previously Unmeasured**

Mayo Clinic, Rochester, MN, USA.

259. MR-Elastography Applied to In-Vivo MR-Mammography.
Philips Research Laboratories and Universitats-Krankenhaus Eppendorf, Hamburg, Germany.
260. MRI Elastography Reconstruction Using A Harmonic Elastodynamic Model.
Dartmouth College, Hanover, NH, USA.

University of Arizona, Tucson, AZ, USA.

262. 3D Radiation Dose Mapping Using Echo-Planar MR Imaging of a Superheated Emulsion Chamber at 3T.
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.
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.
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.
National Research Council Canada, Winnipeg, Manitoba, Canada.

270. Real-Time Prospective Correction of Complex Multiplanar Motion in fMRI.
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.**
University of Texas Health Science Center, San Antonio, TX, USA.

272. **Real-Time 3D Image Registration for fMRI.**
Medical College of Wisconsin, Milwaukee, WI, USA.

273. **Low Frequency Haemodynamic and Metabolic ~0.1 Hz Oscillations in Brain Tissue.**
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.**
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.**
Johns Hopkins University, Baltimore, MD, USA and GE, CRD Center, Schenectady, NY, USA.

279. **Fast Low-Angle \(^{31}\text{P}\) MRSI of the Human Heart at 4.1 Tesla.**
University of Alabama at Birmingham, AL, USA.

280. **Acquisition-Weighted \(^{31}\text{P}\)-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.**
University of Florida and the Veterans Affairs Medical Center, Gainesville, FL, USA and University of Alabama, Birmingham, AL, USA.
282. **"31P-MRS Shows Reduced Cardiac PCr[gamma]-ATP in Patients with Friedreich's Ataxia in the Absence of Left Ventricular Dysfunction."**  
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 31P NMR Spectroscopy."**  
Heinrich-Heine-Universitat, Dusseldorf, Germany.

285. **"Paradoxical Increases in Intensities of 87Rb 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."**  
University of Texas Southwestern Medical Center, Dallas, TX, USA.

287. **"Myocardial Carbon Metabolism and Substrate Selection as Observed Non-Invasively by in vivo 13C-NMR Spectroscopy of Intact Rats."**  
A. Ziegler, P.T. Buser, J. Seelig and B. Kunnecke.  
Biocenter of the University and University Hospital, Basel, Switzerland.
**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 CMRO₂: The Deoxyhemoglobin Dilution Model.**  
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 CMRO₂ during Visual Stimulation.**  
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.**  
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.**  
University of Minnesota, Minneapolis, MN, USA.

296. **Spectroscopic Imaging of Glutamate C4 Turnover in Human Brain in Photic Stimulation.**  
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.**
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.**
McGill University, Montreal, Quebec, Canada.

---

**Myocardial Perfusion**

300. **Simultaneous Detection of Myocardial Perfusion and Function by Contrast Agent Enhanced Perfusion MRI.**
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.**
University of California, San Francisco, CA, USA.

302. **Quantitative Assessment of Myocardial Flow Reserve in a Porcine Model of LAD Stenosis.**
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.**
Geneva University Hospital, Geneva, Switzerland.

304. **Dipyridamole Stress MRI Perfusion: Clinical Evaluation using High Contrast Dose, Multislice Imaging, and a Novel Read Technique.**
National Institutes of Health, Bethesda, MD, USA.

305. **Assessment of First-Pass Myocardial Perfusion Imaging during Rest and Adenosine Stress: Comparison with Cardiac Catheterization.**
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 Hypokineti**c, **A**kineti**c** and Infarcted Myocardial Sectors.


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?**


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.**


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.**


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.**


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.
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 T1 Values of $^{129}$Xe in Blood.
Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA.

K. Ruppert, J.R. Brookeman, M.J. Spellman, K.D. Hagspie, 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.

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.

Massachusetts General Hospital, Charlestown, MA, USA.

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.
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.
University of Utah, Salt Lake City, UT, USA.

Jagiellonian University, Krakow, Poland and National Research Council, Winnipeg, Manitoba, Canada.
328. **Multiple Component Diffusion Tensor Imaging in Excised Fixed CNS Tissue.**
University of Florida, Gainesville, FL, USA and the National High Magnetic Field Laboratory.
Tallahassee, FL, USA.

329. **Cerebral Blood Flow, T2, Relaxation Time and the Trace of the Diffusion Tensor in Graded Ischaemia in the Rat.**
University of Kuopio, Finland and Johns Hopkins University Medical School, Baltimore, MD, USA.

---

**Pediatric MR Spectroscopy**

330. **Reversible Loss of Brain Creatine Detected by 1H MRS: A New Inborn Error of Metabolism.**
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 1H Magnetic Resonance Spectroscopy.**
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.**
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.**
Loma Linda University Medical Center, Loma Linda, CA, USA.

335. **Sources of the Dilution of the 4-13C Glutamate Label in the Human Brain after Intravenous 1-13C 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 1H MR Spectroscopy.**
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.**
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.**
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.**
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.**
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.**
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.**
University Hospitals KUL, Leuven, Belgium and Institut fur Diagnostikforschung GmbH, Berlin, Germany.

347. **Interstitial MR Lymphography with Gd-DOTA: Assessment in Rabbits and Human Volunteers.**
University Hospital, Zurich, Switzerland and Laboratoire Guerbet, Paris, France.

348. **Improved Mapping of Pharmacologically Induced Neuronal Activation using Superparamagnetic Iron Blood Pool Agents.**
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).
Meiji University of Oriental Medicine and Kyoto Prefectural University of Medicine, Kyoto, Japan.

Peripheral MR Angiography

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.
Weill Medical College of Cornell University, New York, NY, USA.

352. 3D Contrast-Enhanced MRA of the Runoff Vessels: Value of Image Subtraction.
University Hospital, Zurich, Switzerland.

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.
University Hospital, Zurich, Switzerland.

355. Dual-Phase Injection for Automated Bolus Pursuit Gadolinium-Enhanced Peripheral 3D MRA.
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.
University Hospital, Zurich, Switzerland and Nycomed Amersham COMET, Ismaning Munich, Germany.

357. Assessment of Reactive Hyperaemia using Zonal Echo Planer Imaging.
Royal Brompton and Harefield NHS Trust, London, UK.
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.**
University of Pennsylvania, Philadelphia, PA, USA.

361. **Functional MRI to Monitor Response During Neoadjuvant Chemotherapy. Assessment in Breast Cancer Patients.**
German Cancer Research Center and University Hospitals, Heidelberg, Germany.

362. **MRI Directed Interstitial Thermal Ablation of Breast Fibroadenomas.**
University of Arkansas for Medical Sciences, Little Rock, AR, USA.

363. **Utero-Placental Blood Movement *In vivo Using IVIM Echo-Planar MRI.**
University of Nottingham, Nottingham, UK.

364. **The Effect of Magnetic Resonance Imaging on Fetal Heart Rate.**
University of Nottingham, Nottingham, UK.

365. **Transcatheter Uterine Artery Embolization: Assessment by Magnetic Resonance Imaging.**
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.**
Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA.
MR Imaging of Epilepsy and Other Intracranial Disease

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.
National Society for Epilepsy, Bucks, UK; Institute of Neurology, London, UK and Heinrich-Heine-University, Duesseldorf, Germany.

370. Tissue Segmentation Analysis in 3D 31P 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.
University of Pennsylvania, Philadelphia, PA, USA.

372. Ictal Diffusion and Perfusion Weighted MRI in Focal Epilepsy.
University of Heidelberg, Germany.

373. Quantitation of Brain and Ventricular Size in Pregnancy and Pre-Eclampsia.
Imperial College School of Medicine, Hammersmith Hospital, London, UK.

374. MR Microscopy of Senile Plaques in Alzheimer's Disease by T2* Contrast.
Duke University Medical Center, Durham, NC, USA.

375. Intensity Changes in Brain After Oxygen Inhalation Using MRI in Patients with Sickle Cell Disease.
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.**
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.**
McGill University, Montreal, Quebec, Canada.

380. **Linear Aspects of the BOLD Response in Object Related Visual Areas: An fMRI Study.**
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.**
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.**
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.**
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.**
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.**
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.**
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.

389. **Spiral Cardiac Imaging with High-Performance Gradients.**
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.**
Stanford University School of Medicine, Stanford, CA, USA.

Leiden University Medical Center, Leiden, The Netherlands and Philips Medical Systems, Best, The Netherlands.

393. **Imaging Valvular Regurgitation with Real-Time Color Flow MRI.**
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.**
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.**
University Hospitals of Cleveland/Case Western Reserve University, Cleveland, OH, USA.

397. **Temperature Quantitation and Mapping of Frozen Tissue.**
Stanford University, Stanford, CA, USA.

398. **Experimental MR-Guided Cryoablation of the Bone.**
University of Technology, Aachen, Germany.
399. Simultaneous Measurements of Temperature and pH Changes using Two Non-Equivalent Protons in TmDOTP\textsuperscript{5}.
Beth Israel Deaconess Medical Center, Brigham & 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.
University of Graz, Austria.

Université 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.
University of Bordeaux, Bordeaux, France.

403. MR Elastography of Focused Ultrasound Induced Thermal Lesions.
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

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.
Centre Hospitalier Universitaire de Quebec and Laval University, Quebec, Canada.

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.
University of California, San Francisco, CA, USA.
409. Dynamic MRI and Principal Component Analysis of Finger Joints in Rheumatoid Arthritis, Polyarthritis, and Healthy Controls.  
Hvidovre Hospital, Copenhagen, Denmark.

410. Dynamic Gd-DTPA Enhanced MRI as Pharmacological Tool: Application to Treatment Progress Monitoring in RA.  
University of Leeds, UK.

T.B. Brismar.  
Karolinska Hospital, Stockholm, Sweden.

412. Cross-Sectional Study of Osteopenia by Quantitative Magnetic Resonance and Bone Densitometry.  
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.  
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.  
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.  
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, 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.**
    Duke University Center for In Vivo Microscopy, Durham, NC, USA.

420. **Visualization of RF Heating Using a Na$_4$HTm(DOTP) Doped Agarose Phantom.**
    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 (23Na, 7Li, 31P, 1H) 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.**
    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.**
    University of Frankfurt, Frankfurt, Germany.

426. **Classification of Human Brain Tumors with Quantitative Short Echo 1H MRS.**
    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.**
    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.**
University of California, Los Angeles, CA, USA.

430. **Choline in Proton MR Spectroscopy Correlates with MIB-1 Proliferation Index in Gliomas.**
Helsinki University Central Hospital, Helsinki, Finland.

431. **The Potential of Using MRS to Guide Brain Tumor Biopsy.**
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.**
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.**
German Cancer Research Center, Heidelberg, Germany.

434. **Proton MRS Measurement of p-Boronophenylalanine (BPA): A Potential MRS Application for Boron Neutron Capture Therapy (BNCT).**
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.
Hemodynamic and Metabolic Responses to Neuronal Activity

Pierre Magistretti.
Universite de Lausanne, Lausanne, Switzerland.

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

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.
University of Pittsburgh Medical Center, Pittsburgh, PA, USA.

B.G. Goodyear and R.S. Menon.
University of Western Ontario and The John P. Robarts Research Institute, London, Ontario, Canada.

W. Chen and X-H. Zhu.
University of Minnesota Medical School, Minneapolis, MN, USA.

441. Somatotopic Mapping of the Human Postcentral Gyrus.
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.
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.
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.
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.

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.
Duke University Medical Center, Durham, NC, USA.

450. MR Microscopy of Contrast-Structure in a Rat Model of Parkinson's Disease.
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.
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.
Genentech Inc., South San Francisco, CA, USA.

453. Time Evolution of Cerebral Perfusion and Diffusion in a Porcine Stroke Model.
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.

457. Low Signal Intensity Gray Matter on T2* 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 1H Chemical Shift Imaging Detected Differences in Brain Metabolite Levels Between Elderly Women and Men.

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 31P MRS Study.
J.A. Stanley, M.S. Keshavan, K. Panchalingam and J.W. Pettegrew. University of Pittsburgh, Pittsburgh, PA, USA.

461. 1H-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.**
Yale University, New Haven, CT, USA.

464. **Normalization of Neurochemical Abnormalities in the Unoperated Temporal Lobe Following Neurosurgery for Unilateral Temporal Lobe Epilepsy.**
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.**
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.**
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.**
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.**  
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.**  
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.**  
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.**  
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. Hatuskami, 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.**  
   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.**  
   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.**  
   University of Kuopio, Kuopio, Finland.

490. **The Anti-Inflammatory Agent Indomethacin Reduces the Malignant Phospholipid Phenotype of Metastatic Human Breast Cancer Cells.**  
   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.**  
   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.
    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.
    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.
    University of Chicago, Chicago, IL, USA.

497. Delineation of Tumor and Normal Tissue Using Responses to Vasoactive Challenge.
    Henry Ford Health System, Detroit, MI, USA.

Clinical fMRI

498. Functional MRI of the Brain with Vascular Malformation.
    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).
    Columbia University, New York, NY, USA.

500. Cocaine Dose Dependent Activation of Brain Reward Circuitry in Humans Revealed by 3T fMRI.
    Massachusetts General Hospital, Charlestown, MA, USA.

501. Spreading BOLD Deactivation During Spontaneous Migraine Aura.
    Massachusetts General Hospital, Boston, MA, USA.

    John P. Robarts Research Institute and London Health Sciences Center-University Campus, London, Ontario, Canada.

    Wake Forest University School of Medicine, Winston-Salem, NC, USA.
504. **Expanding Cortical Language Networks during Recovery from Aphasia.**
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.**
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.**
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.**
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.**
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.**
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.**
University of Frankfurt, Frankfurt, Germany and LMTB GmbH, Berlin, Germany.

514. **Fast T2 Weighted Imaging by PSIF at 0.2T for Interventional MRI.**
University Hospitals of Cleveland/Case Western Reserve University, Cleveland, OH, USA.
**515. Direct iMRI-Guided Large Gauge Core Needle Breast Biopsy.**
Stanford University, Stanford, CA, USA.

**516. Interventional MR Guided Prostate Brachytherapy: Feasibility and Early Clinical Experience.**
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.**
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 T2-Weighted Pelvic MR Imaging: Comparison of Fast Spin Echo, Single-Shot 2D and 3D-RARE.**
Miyazaki Medical College, Miyazaki, Japan and Toshiba Nasu Works, Tochigi, Japan.

**519. Improved Visualization of the Lung in 1H MR Imaging using Inversion Recovery and Multiple Inversion Recovery by Simultaneously Suppressing Fat and Muscle.**
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.**
University of Virginia Health Sciences Center, Charlottesville, VA, USA.

**521. MR Small Bowel Enteroclysis with a Combined Half-Fourier RARE Technique.**
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.**
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.**  
Mayo Clinic, Rochester, MN, USA.

526. **MR Elastography of the Prostate.**  
Mayo Clinic, Rochester, MN, USA.

**Neonatal CNS Imaging**

527. **Hippocampal Volume and Everyday Memory in Adolescents Born Preterm.**  
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.**  
University of Leeds, Leeds, UK.

529. **Timing of Changes on Diffusion Tensor Imaging Following Brain Injury in Full-Term Infants.**  
Washington University School of Medicine, St. Louis, MO, USA.

530. **Profound Impairment of Episodic Memory after Early Hypoxic-Ischaemic Injury.**  
University College London Medical School, London, UK and National Institute of Mental Health, Bethesda, MD, USA.

531. **T₁ and T₂ Measurements of the Preterm Brain.**  
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.**  
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.**  
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).**
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 T₂* 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.**
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.**
Massachusetts General Hospital and Beth Israel Deaconess Medical Center, Boston, MA, USA.

543. **Reduction of Gradient-Induced EEG Artifacts.**
Deutsches Krebsforschungszentrum, Heidelberg, Germany and Schwarzler, NeuroKard, Butzbach, Germany.

544. **Evidence of Interictal Epileptic Activity Detection Using Simultaneous BOLD fMRI and EEG.**
University of Pittsburgh Medical Center, Pittsburgh, PA, USA.
**MR Imaging of Articular Cartilage**

545. **MR Imaging of Articular Cartilage using Driven Equilibrium.**
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.**
Dartmouth Hitchcock Medical Center, Hanover, NH, USA.

547. **Quantitative Changes of Articular Cartilage Microstructure During Compression of an Intact Joint.**
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.**
University of Pennsylvania, Philadelphia, PA, USA.

549. **In Vivo Triple Quantum Filtered Sodium MRI of Human Articular Cartilage.**
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.**
Kuopio University Hospital and University of Kuopio, Kuopio, Finland.

552. **Sensitivity of Quantitative NMR Imaging to Matrix Composition in Engineered Cartilage Tissue.**
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.**
Beth Israel Deaconess Medical Center, Boston, MA, USA.
Y. Assaf and Y. Cohen.
Tel-Aviv University, Tel-Aviv, Israel.

556. Biexponential Diffusion Observed in Myocardial Tissue Slices.
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.
Massachusetts General Hospital, Boston, MA, USA.

559. Isotropic Diffusion-Weighted Multishot Imaging using Automatic Reacquisition.

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

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.
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 ¹H 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).**
Stanford University, Stanford, CA, USA.

567. **Heart Motion Adapted MR Velocity Mapping of Blood Velocity Distribution Downstream of a Prosthetic Aortic Valve.**
University and ETH, Zurich, Switzerland and Aarhus University Hospital, Aarhus, Denmark.

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.**
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.**
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.

University Hospital, Utrecht, The Netherlands.

573. **Accurate Measurement of Arterial Input Function (AIF) Using a 3D T1 Gradient Echo Imaging Method.**
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.**
Aarhus University Hospital, Aarhus, Denmark.
Interventional MR Angiography and Device Tracking

University of Aachen, Aachen, Germany.

University of Wisconsin, Madison, WI, USA.

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.

X. Yang and E. Atalar.
Johns Hopkins University School of Medicine, Baltimore, MD, USA and Kuopio University Hospital, Kuopio, Finland.

University of Wisconsin, Madison, WI, USA and SurModics, Eden Prairie, MN, USA.

University Hospital Zurich, Switzerland.

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.

Case Western Reserve University and University Hospitals of Cleveland, Cleveland, OH, USA.

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

M.A. McLean and G.J. Barker.
National Society for Epilepsy, Chalfont St. Peter, Bucks, UK and University College London, UK.

University of Bern, Switzerland.

587. The Response of Coupled Spins to the STEAM Sequence – Improving Quantification.
University of Alberta, Edmonton, Alberta, Canada.

588. $^1$H MRS Quantitation Using FIR Filters for Solvent Suppression.
Uppsala University, Uppsala, Sweden and Katholieke Universiteit, Leuven, Belgium.

589. Time-Domain Quantification of Multiple-Quantum-Filtered $^{23}$Na Signal by Wavelet-Transform Analysis.
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.
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.
Institute of Physics and University Hospital of Wurzburg, Wurzburg, Germany.

592. Magnetic Coupling Between Water and Metabolites in Human Tissues.

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.
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.**
National Institutes of Health, Bethesda, MD, USA.

599. **Validation of the FAIR Technique of Perfusion Quantification with Hydrogen Clearance.**
University College London, UK.

600. **Multislice Perfusion and Perfusion Territory Imaging in Humans at 3 T with Separate Label and Image Coils.**
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 Measurement 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.**
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?**
Aarhus University Hospitals, Arhus, Denmark.

607. **Intrasubject Comparison of Relative Cerebral Blood Flow Measured by Dynamic Contrast Agent MR Perfusion Imaging and H$_2$15O PET.**
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.**
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.**
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.**
St. Jude Children's Research Hospital and University of Tennessee, Memphis, TN, USA.

612. **Characterizing White Matter with MT and T$_2$.**
University of Toronto, Toronto, Ontario, Canada.

613. **T$_2$ in Amyotrophic Lateral Sclerosis: A Marker of Disease Activity.**
University of New Mexico Health Sciences Center, Albuquerque, NM, USA.

614. **Multiparametric Brain MRI Study of Frontal Lobe Dementia in Multiple Sclerosis.**
H San Raffaele, Milan, Italy.
615. **Brain Volumetry: Correlation with Neurocognitive Deficits in Medulloblastoma Survivors.**
St. Jude Children's Research Hospital, Memphis, TN, USA.

616. **Quantitation of Cerebral and Ventricular Volume Changes on Serially Registered MRI Following Glucose Loading.**
Hammersmith Hospital and Charing Cross Hospital, London, UK.

617. **Quantitative Assessment of Brain Maturation Based on Magnetization Transfer Imaging.**
Leiden University Medical Center, Leiden, The Netherlands and Heinrich Heine University, Dusseldorf, Germany.

---

**MR Spectroscopy of Brain: Animal Models**

618. **13C NMR Spectroscopy Investigation of the Relationship between Brain Glucose Metabolism and Glutamatergic Neuronal Activity under Pharmacologically Stimulated Condition.**
Yale University School of Medicine, New Haven, CT, USA.

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.**
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 1H 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.**
Massachusetts General Hospital, Charlestown, MA, USA.
624. **Serial $^1$H-MRS Study of Metabolic Impairment in a Chronic Primate Model of Huntington's Disease.**
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.**
Harvard Medical School, Boston, MA, USA.

626. **Single-Scan Diffusion Trace $^1$H MRS and MRI in Experimental Hydrocephalus; Compartmentation of Metabolites.**
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.**
University College London, London, UK.

629. **Whole-Brain Diffusion Trace Histograms in Multiple Sclerosis.**
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.**
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.**
John P. Robarts Research Institute and London Health Sciences Center-University Campus, London, Ontario, Canada.

632. **Longitudinal Quantitative Analysis of Brain Atrophy in Relapsing-Remitting and Secondary-Progressive Multiple Sclerosis.**
Hospital of the University of Pennsylvania, Philadelphia, PA, USA.

633. **Magnetization Tranfer Ratio of White Matter Hyperintensities in Subcortical Ischemic Vascular Dementia.**
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.
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.
University of Oxford and Radcliffe Infirmary, Oxford, UK.

636. Differential MRI Pattern in CADASIL and Hypertensive Leukoencephalopathy.
Max Planck Institute of Psychiatry and Ludwig-Maximilians-University, Munich, Germany.

Mount Sinai Medical Center, New York, NY, USA; University of California, Irvine, CA, USA and Stanford University, Stanford, CA, USA.

---

Spectroscopy Methods

L. DelaBarre and M. Garwood.
University of Minnesota, Minneapolis, MN, USA.

639. Krebs Cycle Kinetics in Rat Hearts by 1H-13C HMQC-TOCSY.
University of Coimbra, Portugal; University of Texas Southwestern Medical Center, Dallas, TX, USA and University of Texas at Dallas, Richardson, TX, USA.

P. Vermathen, A.A. Capizzano, K.D. Laxer, G.B. Matson and A.A. Maudsley.
University of California, San Francisco, CA, USA.

641. TmDOTP 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 1H-31P 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.

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

UBC Hospital, Vancouver, BC, Canada.

649. Optimising Binomial Pulses for In-Vivo Magnetization Transfer Contrast Measurements.
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.
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.
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.
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 Susceptibility 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.
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.**
University of Wisconsin, Madison, WI, USA.

660. **Interactive Reduced Field of View Imaging for Radial MR Fluoroscopy.**

661. **A Flexible View Ordering Technique for Fast High-Quality MR Fluoroscopy.**
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.**
Medical College of Wisconsin, Milwaukee, WI, USA.

663. **Simple Equation for Optimal Gridding Parameters.**

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.**
University of Ghent, Ghent, Belgium and University of Arizona, Tucson, AZ, USA.

667. **An Analytical Transform for SMASH Imaging in MRI.**
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.
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.
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.
Stanford University, Stanford, CA, USA.

University Hospitals of Cleveland/Case Western Reserve University, Cleveland, OH, USA.

675. Clinical Trials of MR Temperature Imaging for Laser Ablation of Brain Tumor.
Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA and Osaka City University, Osaka, Japan.

Centre Hospitalier Universitaire de Quebec, Quebec, Canada.

677. MRI-Monitoring of Cerebral Cryotherapy with an Interactive Fluoroscopic Radial Gradient Echo Sequence.
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.
Centre Hospitalier Universitaire de Quebec, Quebec, Canada.
Spectroscopy Localization and Imaging

679. **Scan Time Reduction in Spectroscopic Imaging using SENSE.**
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 B₀ 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 Spectroscopic Imaging.**
Humboldt Universitat zu Berlin, Germany and Universitat Bremen, Bremen, Germany.

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

685. **Chemical Shift Selected ¹⁹F-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 ¹⁵N and ¹H-¹⁵N 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.**
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.**
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.**
University of Wuerzburg, Germany.

691. **Delineation of Induced Collateral Circulation in a Pig Model of Chronic Ischemia Based on Assessment of Functional Contractile Reserve.**
Washington University Medical Center, St. Louis, MO, USA.

692. **Coronary Reserve in a Porcine Stenosis Model: Noninvasive Assessment using BOLD MRI at 3T.**
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.**
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.**
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.**
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.**
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.**
University Hospital Nijmegen and Nijmegen University, Nijmegen, the Netherlands.
699. **31P-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.**
Yale University School of Medicine, New Haven, CT, USA.

701. **ATP Synthesis and Proton Handling in Short Periods of Exercise and Subsequent Recovery.**
University of Liverpool, Liverpool, UK and Faculte de Medecine, Marseille, France.

702. **1H 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.**
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.**
Toho University School of Medicine, Tokyo, Japan.

707. **MRI and PET Assessment of Neoadjuvant Therapy for Pancreatic Cancer.**
Wayne State University, Detroit, MI, USA.

708. **Diffusion-Weighted Single-Shot Echo-Planar MR Imaging for Liver Disease.**
Osaka University Medical School, Osaka, Japan.

709. **Dynamic High-Resolution Isotropic Breathhold T1-Weighted 3D Volumetric Imaging of the Abdomen: Validation and Clinical Application.**
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 T₁-Weighted Imaging of Liver.**
Kumamoto University School of Medicine, Kumamoto, Japan.

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?**
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.**
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.**
Thomas Jefferson University Hospital, Philadelphia, PA, USA.

715. **Non-Tumorous Small Arterial-Portal Venous Shunts in Liver: Consideration of MR Imaging Findings.**
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.**
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.**
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.**
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.**
University of California, San Francisco, CA, USA.

723. **In vitro Characterization of MS-325 by Multinuclear Relaxometry.**
University of Mons-Hainaut, Mons, Belgium and Schering AG, Berlin, Germany.

724. **T_1 and T_2 NMRD Studies of Angiomark™ (MS-325).**
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.**
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 Susceptibility-Contrast Imaging.**
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 1H-MRS.**
National Taiwan University and Academia Sinica, Taipei, Taiwan.

729. **3D-Localized in vivo 13C 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.**  
Yale University School of Medicine, New Haven, CT, USA.

731. **Metabolic Changes in Quinolinic Acid – Lesioned Rat Striatum Studied by in vivo ¹H NMR Spectroscopy.**  
University of Minnesota, Minneapolis, MN, USA.

732. **The Application of ¹⁹F Magnetic Resonance Spectroscopy Techniques to the Study of Pharmacokinetics.**  
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 ¹H Echo Planar Spectroscopic Imaging.**  
S. Morikawa, T. Inubushi and H. Ishii.  
Shiga University of Medical Science, Shiga, Japan.

734. **Preclinical ³¹P-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. **³¹P-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.**  
GE Medical Systems, Milwaukee, WI, USA and GE Corporate R and D, Schenectady, NY, USA.

737. **High-Performance Coil System for ¹H-Observed ¹³C-MRS.**  
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.**
Stanford University, Stanford, CA, USA.

744. **Correction for Oscillatory B₀ 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.**
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.**
Stanford University, Stanford, CA, USA.
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.

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

B.G. Goodyear, G.K. Humphrey and R.S. Menon.
University of Western Ontario and The John P. Robarts Research Institute, London, Ontario, Canada.

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.
Institute of Neurological Sciences, Glasgow, UK.

755. Verification of Another Vision Related Acupoint GB37 by Using Functional MRI.
University of California, Irvine, CA, USA; KIIST, 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.
University of Freiburg, Germany.
757. **fMRI of Visual Encoding: Reproducibility of Activation.**
Vrije Universiteit, Amsterdam, The Netherlands.

758. **Neural Substrates for Perception of Other's Gaze Direction using a Functional MRI.**
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.**
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.**
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.**
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.**
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.**
Dalhousie University, Halifax, NS, Canada and University of Helsinki, Finland.

764. **Monitoring Cerebral Pain Processing with Event-Related FLASH.**
Deutsches Krebsforschungszentrum (DKFZ), Heidelberg, Germany and Universitat Mannheim, Germany.

765. **Histogram Analysis of Effects of Increasing Rate and Forces in fMRI.**
University of Nottingham, Nottingham, England.

766. **Cortical Representation of Elementary and Complex Orofacial Movements.**
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.**
University of Maryland, Baltimore, MD, USA.
768. **Functional Magnetic Resonance Imaging of the Human Sensorimotor Cortex during Whole-Hand Afferent Electrical Stimulation.**
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.**
University of Nottingham, Nottingham, England.

770. **Hemispheric Asymmetry in Simple, Complex, Overt, and Imagined Finger Movements.**
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 Transcription of Ideographic Characters.**
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.**
German Cancer Research Center and University of Heidelberg, Heidelberg, Germany.

773. **Time-Resolved fMRI of Sequential Activation in SMA and M1.**
Technische Universitat, Munchen, Germany.

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.**
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.**

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.**

783. **Right Prefrontal Cortex fMRI Activation During Recognition of Written Words and Nonverbalizable Images.**

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.**

786. **Dynamic Brain Activation during Processing of Affective Speech Prosody: Influence of Acoustic Parameters, Emotional Valence, Accuracy and Sex.**

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. Schmidtorst, 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.**

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.**
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.**
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.**
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.**
Kyoto University, Kyoto, Japan.

797. **Stereotactic fMRI.**
Brigham and Women's Hospital and Harvard Medical School, Boston, MA, USA.

798. **fMRI of Mozart Effect Using Auditory Stimuli.**
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.**
Drexel University, Thomas Jefferson University and Dupont Children's Hospital, Philadelphia, PA, USA.

801. **Gender Differences in CNS Activation Following Noxious Heat Stimulus.**
Massachusetts General Hospital, Boston, MA, USA.
<table>
<thead>
<tr>
<th>Poster Session</th>
<th>Title</th>
<th>Authors</th>
<th>Institution(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>802.</td>
<td>Localization of Alpha Attenuation using 64 Channel Electroencephalogram and 3Tesla Functional MRI Recordings.</td>
<td>K. Anami, G. Bonmassar, J.R. Ives and J.W. Belliveau.</td>
<td>Massachusetts General Hospital and Beth Israel Deaconess Medical Center, Boston, MA, USA.</td>
</tr>
<tr>
<td><strong>fMRI in Animal Models</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>808.</td>
<td>Detection of Dopaminergic Cell Loss and Neural Transplantation using Pharmacologic MRI, PET, and Behavior.</td>
<td>Y.I. Chen, A.L. Brownell, W. Galpern, O. Isacson, B.R. Rosen and B.G. Jenkins.</td>
<td>Massachusetts General Hospital, Charlestown, MA, USA and McLean Hospital, Belmont, MA, USA.</td>
</tr>
<tr>
<td>809.</td>
<td>Distinguishing fMRI Signals Between Heroin-Induced Respiratory Suppression and Brain Activities in Rats.</td>
<td>H. Xu, J. Bodurka, Z. Xi, E.A. Stein and S.J. Li.</td>
<td>Medical College of Wisconsin, Milwaukee, WI, USA.</td>
</tr>
</tbody>
</table>
812. **Functional Imaging of Rats After Recovery from Cerebral Hypoxia-Ischemia.**
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.**
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.**
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.**
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.**
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.**
University College London School of Great Ormond Street Hospital for Children, London, UK.

824. **Study of Irritable Bowel Syndrome Using Functional MRI.**
Vanderbilt University Medical Center, Nashville, TN, USA.

825. **fMRI Study of Visceral Pain Response Differences Between Irritable Bowel Syndrome Patients and Controls.**
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.**
University of Zurich, Zurich, Switzerland.

827. **Functional Imaging of Visceral Sensation and Pain in Patients with Gastrointestinal Disorders.**
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.**
University Hospital Purpan and INSERM, Toulouse, France.

831. **Detection of Dopamine Receptor Supersensitivity using Pharmacological MRI and Correlations with PET and Behavioral Measurements.**
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.**
Vanderbilt University Medical Center, Nashville, TN, USA.

833. **fMRI Neural Correlation of Phantom Limb Experience.**
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.**
Central Institute of Mental Health, Mannheim, Germany.

835. **Integration of Functional MRI Data in Navigated Neurosurgery.**
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.**
McLean Hospital, Harvard Medical School, Belmont, MA, USA.

839. **Anatomical Segmentation of Activation by Temporal Response After Cocaine.**
Massachusetts General Hospital, Charlestown, MA, USA.

840. **Acute Cocaine's Effects on a Test of Inhibitory Control: An Event-Related fMRI Study.**
Medical College of Wisconsin, Milwaukee, WI, USA.

841. **Acute Cocaine Administration Alters Functional Connectivity in Human Primary Visual Cortex Detected by fMRI.**
Medical College of Wisconsin, Milwaukee, WI, USA.

842. **Delineation of the Functional Neuroanatomy of Induced Anxiety: A fMRI Study Using the Intravenous Caffeine Model.**
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.**
Yonsei University College of Medicine, Seoul, Korea.

845. **Diffusion-weighted MRI in Patients with Improving Neurological Cerebral Complaints.**
University Hospital, Utrecht, The Netherlands.

846. **Tissue Patterns Characterized with Perfusion- and Diffusion-weighted MRI in Acute Stroke.**
Hvidore Hospital, Copenhagen, Denmark.

847. **Quantitative Study of T2 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.**
Fukui Medical University, Fukui, Japan.

849. **Age-Related Changes in Cerebral MR Angiography.**
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.**
PLA General Hospital and GE Medical Systems China, Beijing, China.

853. **High-Resolution MR Venography at 3 Tesla.**
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 $^{99}$mTc-HMPAO SPECT.**
Yonsei University College of Medicine, Seoul, Korea.

856. **Perfusion MR Imaging of Moyamoya Disease: Preliminary Results.**
Seoul National University, Seoul, Korea.

857. **Is Magnetic Resonance Venography Required to Exclude Dural Sinus Thrombosis in the Presence of a Normal MRI Study.**
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.**
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.**
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?**
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.**
Henry Ford Hospital, Detroit, MI, USA.
865. **The Use of Quantitative Diffusion Weighted Imaging in Childhood Stroke.**
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.**
University of Rome "La Sapienza", Rome, Italy.

867. **MRI Adjusted Spetzler Ranking System for Preoperative Assessment of Intracranial AVM.**
Imaging Diagnostic Center, Sremska Kamenica, Yugoslavia.

868. **Cerebral Perfusion MR Imaging with Arterial Spin Labeling Technique at 0.5 T.**
Kyorin University, Toshiba Corporation and Toshiba Medical Systems, Tokyo, Japan.

869. **Visualization of Carotid and Vertebral Origins: Comparison of Enhanced and Unenhanced MR Angiography.**
Long Beach Memorial Medical Center, Long Beach, CA, USA and Siemens, Iselin, NJ, USA.

870. **T1-Shortening Contrast Agent Improves High Resolution BOLD Venography.**
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.**
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.**
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 \(pO_2\).**
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.**
Max-Planck-Institute for Neurological Research, Cologne, Germany.

879. **Unilateral Leptomeningeal Enhancement Resulting from Carotid Angioplasty/Stenting.**
University of Sheffield, Northern General Hospital and CSUH Trust, Sheffield, England.

---

880. **Duration and Severity of Cerebral Hypoxia-Ischemia Determine the Time-Course of ADC Changes and Histological Outcome.**
Tokyo Medical and Dental University, Tokyo, Japan.

881. **MR Detection of Therapeutic Possibility for Ischemic Brain Damage in Cats.**
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.
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.
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.

888. Apparent Diffusion Coefficient Images in Subacute Stroke Detects DNA Fragmentation.
The University of Texas Medical Branch, Galveston, TX, USA.

889. Longitudinal Sodium MRI Study of Focal Cerebral Ischemia.
Washington University, St. Louis, MO, USA.

890. Unsupervised Segmentation of Multiparameter MRI in Experimental Cerebral Ischemia in Rat with Histopathological Validation.
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?
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.
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.
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.**
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.**
University of Pittsburgh and Carnegie Mellon University, Pittsburgh, PA, USA.

897. **Assessment of Neurotoxicity in Rat Brain by Magnetic Resonance Microscopy.**
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 T₂ and Diffusion Weighted MRI of Traumatic Brain Injury in Mice.**
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.**
The University of Edinburgh, Western General Hospital, Edinburgh, Scotland, UK.

903. **Evaluation of Brain Tumor Response to Intracarotid Chemotherapy Using ¹H 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.**
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.**
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.**
Bracco S.p.A., Milan, Italy and Leicester Royal Infirmary, Leicester, UK.

907. **MRI of Central Nervous System Paracoccidioidomycosis (PCM).**
University of Sao Paul Medical School, Sao Paulo, Brazil.

908. **Subtle Signal Changes in Epileptogenic Mass Brain Lesions: Quantification, Clinical and Histological Correlations.**
University College London, London, UK.

909. **Noninvasive Perfusion Imaging of Meningioma with FAIR.**
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 - T1-Weighted FLAIR and Two Contrast FLAIR.**
Ehime University School of Medicine, Ehime, Japan.

912. **The Rapid Progression of Pituitary Hyperplasia in Primary Hypothyroidism Demonstrated by MR Imaging.**
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.

University College London, London, UK.

916. Age-Related Variation of Putamenal and Nigral R₂ and R₂' at 3 Tesla.
Henry Ford Hospital and Health Sciences Center, Detroit, MI, USA.

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.
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.
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.
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. Hareniki 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.
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. **1H 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 T2-Weighted Sequence: Value of Combined MRA and Various Postprocessing.**
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.**
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.**
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.**
University of Milan, Italy.

932. **Low White Matter Anisotropy in Chronic Alcoholism Revealed with Diffusion Tensor Imaging.**
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.**
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.**
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.**
H San Raffaele, Milan, Italy.

937. **Inflammatory Activity Revealed in Magnetic Resonance Imaging of Multiple Sclerosis without Contrast Agent.**
University of Leicester, UK and Ospedale S. Raffaele, Milano, Italy.

938. **Negative Binomial Model Describing the Distribution of Enhancing MRI Lesions in MS.**
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.**
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.**
UBC Hospital, Vancouver, BC, Canada.

942. **Extensive Brain Activation Following Recovery from Optic Neuritis: A Pilot Study Using Functional Magnetic Resonance Imaging (fMRI).**
University College and Institute of Psychiatry, London, UK.

943. **Improved Contrast in "Multi-Spectral Phase" Images Derived from MR Exams of MS Patients.**
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.**
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.
Leiden University Medical Center, Leiden, The Netherlands.

948. Inter-Observer, Scan-Rescan and Interscanner Variabilities of MT Histogram-Derived Measures from Healthy Volunteers.
University of Milan, Italy.

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.

University of Heidelberg, Germany.

953. Disease Activity in Multiple Sclerosis: A Weekly Triple Dose Magnetic Resonance Imaging Study.
University of Milan, Italy; University of Brescia, Italy and Universita "La Sapienza", Rome, Italy.

Royal Infirmary, Stoke-on-Trent, UK.

University of British Columbia, Vancouver, British Columbia, Canada.
956. **Regional and Global Differences in Cerebral White Matter Diffusion with Alzheimer's Disease.**
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.**
University of Pennsylvania, Philadelphia, PA, USA.

958. **In vivo MR Tractography using Diffusion Tensor Imaging and Spatial Normalisation: Rotation of Eigenvectors into Talairach Space.**
National Society for Epilepsy, Chalfont St Peter, Bucks, UK and University College, London, UK.

959. **Diffusion Tensor Imaging of Multiple Sclerosis Plaques.**
Danish Research Center for Magnetic Resonance, Hvidovre, Denmark.

---

**MR Imaging of Brain: Miscellaneous**

960. **T₁ and T₂ Relaxographsies of Human Brain at the 3.0T MRI System.**
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,
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.**
University of Arkansas for Medical Sciences and University of Arkansas at Little Rock, Little Rock, AR,
USA.

965. **In vivo Volume Selective T₁ and T₂ Relaxation Measurements During Pre-Acute Stage of Experimental Allergic Encephalomyelitis in Rat Brain.**
All India Institute of Medical Science, New Delhi, India.

966. **Investigating White Matter Diffusion Anisotropy Using the Dysmelinating Shiverer Mutant Mouse.**
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.
   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.
   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.
   Kanazawa Medical University, Ishikawa, Japan.

972. Functional Magnetic Resonance Imaging in Lacrimal Duct Disorders with Conjunctival
     Application of a Paramagnetic Contrast Agent.
   Virchow-Klinikum, Berlin, Germany.

973. Imaging the Human Eye In Vivo With Magnetization Transfer Contrast Enhancement.
   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 T2-Weighted Axial Three-Dimensional Turbo
     Spin-Echo Images, Maximum Intensity Projections and 3-D Surface Reconstruction.
   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.
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.
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).
University of Sao Paulo Medical School, Sao Paulo, Brazil.

982. MRI Findings in 12 Patients with Oral, Nasal and Pharyngeal Leishmaniasis.
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.
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.
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.**  
Free University Hospital, Amsterdam, the Netherlands.

989. **Temporal Changes in Pathology in Injured Spinal Cord Tissue: In Vivo 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.**  
University of Pennsylvania, Philadelphia, PA, USA.

993. **In-Vivo Diffusion Weighted Interleaved Echo Planar Imaging of the Human Spinal Cord.**  
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.**  
Kumamoto University School of Medicine, Kumamoto, Japan.

995. **Spinal Arteriovenous Malformation or Fistulas: Evaluation with First-pass, Gadolinium-enhanced, Three-dimensional MR Angiography.**  
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.**  
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.**
    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.**
    Kurashiki Central Hospital, Kurashiki, Japan.

1003. **MR Imaging of Lumbar Nerve Roots: Implication for Interventional Use.**
    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.**
    University Hospital, Utrecht, The Netherlands.

1005. **Evaluation of Magnetic Force and Torque on Pacemakers and Implantable Cardioverter-Defibrillators in a Magnetic Resonance Imaging Unit.**
    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.**
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.**
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.**
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.**
University of Tubingen, Germany.

1014. **Specific Absorption Rate Study for Radio-Frequency Current Density Imaging.**
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.**
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.
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.
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.
University of Pennsylvania, Philadelphia, PA, USA.

1023. Sodium and Proton MR Properties of Cartilage during Compression.
University of Pennsylvania, Philadelphia, PA, USA.

S. Ghosh, D.C. Newitt and S. Majumdar.
University of California, San Francisco, CA, USA.

Dartmouth Hitchcock Medical Center, Hanover, NH, USA.

1026. Heterogeneity of Articular Surfaces as Determined using MR Microscopy.
Dartmouth Hitchcock Medical Center, Hanover, NH, USA.

Dartmouth Hitchcock Medical Center, Hanover, NH, USA; New York University Medical Center, New York, NY, USA and University of California, San Diego, CA, USA.

University of Western Ontario and John P. Robarts Research Institute, London, ON, Canada.

1029. Evaluation of Patellar Cartilage with Axial IR-FSE.
Yonsei University College of Medicine, Seoul, Korea.

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.**
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, 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.**
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.**
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.**
Kantonsspital, Winterthur, Switzerland.

1037. **Sequence- and Gadolinium Concentration Dependent Profile of Signal Enhancement in MR Arthrography.**
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.**
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.**
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.**
Kanazawa Medical University, Ishikawa, Japan.

1043. **T1-W Intensity Ratio of Vertebra and Disc (V/D Ratio) in Bone Marrow Evaluation: Preliminary Results in Normal Bone Marrow.**
University of Amsterdam, Amsterdam, the Netherlands.

1044. **In vivo Assessment of Trabecular Bone Changes Induced by Prednisolone in Rat Tibia Using High Resolution MRI.**
Abbott Laboratories, Abbott Park, IL, USA.

1045. **Osteodensitometry of Peripheral Bone Marrow by MR Gradient-Echo Imaging Applying Different Spatial Resolutions.**
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.**
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.**
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.**
University of Rochester, Rochester, NY, USA.
<table>
<thead>
<tr>
<th>Poster Session</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1052</td>
<td>Dynamic \textit{in vivo} Measurement of Diffusion and Pseudodiffusion in Skeletal Muscle after an Exercise.</td>
<td>L. Ahvenjarvi, J. Jauhiainen, O. Tervonen, R. Blanco and J. Oikarinen.</td>
<td>Oulu University Hospital, Oulu, Finland.</td>
</tr>
<tr>
<td>1055</td>
<td>\textsuperscript{1}H Double Quantum Filtered MRI as a New Tool for the Assessment of Healing of Ruptured Achilles Tendon.</td>
<td>Y. Seo, K. Ikoma, H. Takamiya, Y. Kusaka, L. Tsoref, U. Eliav, H. Shinar and G. Navon.</td>
<td>Kyoto Prefectural University of Medicine, Kyoto, Japan and Tel Aviv University, Tel Aviv, Israel.</td>
</tr>
<tr>
<td>1057</td>
<td>Fat Selective Imaging of Human Musculature using Spectral-Spatial Excitation and Low Receiver Bandwidth: Visualization of the Muscular Fat Distribution.</td>
<td>F. Schick, J. Machann, K. Brechtel, S. Jacob, J. Forster, A. Strempfer, D.T. Stein and C.D. Claussen.</td>
<td>University of Texas Southwestern Medical Center, Dallas, TX, USA.</td>
</tr>
<tr>
<td>1060</td>
<td>T\textsubscript{2} Changes in Stimulated Rat Hindlimb Muscle Depend on Osmolite Production.</td>
<td>B.M. Prior, L.L. Ploutz-Snyder, T.G. Cooper and R.A. Meyer.</td>
<td>Michigan State University, East Lansing, MI, USA.</td>
</tr>
</tbody>
</table>
MR Imaging of the Chest

1061. **Quantitative Analysis of the Chest Wall Configuration using MRI.**
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).**
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.**
University of Pennsylvania Medical Center, Philadelphia, PA, USA.

1064. **Varied Appearances and Potential Pitfalls of MR Pulmonary Perfusion Imaging.**
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.**
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 99mTc-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.**
Queen's Medical Centre, Nottingham, England.

1068. **High-Resolution Dynamic Contrast-Enhanced MR Imaging of Small Solitary Pulmonary Nodules.**
Kurashiki Central Hospital, Kurashiki, Japan.

1069. **The ECG Triggered 3D-Contrast Enhanced MR Angiography: Utility for Preoperative Examination of Bronchogenic Carcinoma.**
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.
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.

S.A. Englander, R. Charafeddine, S.G. Orel and M.D. Schnall.
Hospital of the University of Pennsylvania, Philadelphia, PA, USA.

Seirei Hamamatsu General Hospital, Hamamatsu, Shizuoka, Japan.

University of Wisconsin, Madison, WI, USA and Carleton University, Ottawa, ON, Canada.

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.

Kumamoto Rousai Hospital and Kumamoto University School of Medicine, Kumamoto, Japan.

Kumamoto Rousai Hospital and Kumamoto University School of Medicine, Kumamoto, Japan.

University of Hull, Hull Royal Infirmary, Hull, UK.

1080. Analysis of Contrast Agent Uptake in MR-Mammography by Unsupervised Neural Networks.
Johannes Gutenberg-University, Mainz, Germany.
University of Aberdeen, Scotland, UK and Universite Victor Segalen, Bordeaux, France.

W.H. Perman and E.V. Heiberg.
Saint Louis University School of Medicine, St. Louis, MO, USA.

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.
University of Pennsylvania, Philadelphia, PA, USA.

State University of New York, Stony Brook, NY, USA.

University of Aberdeen, Aberdeen, UK.

1088. In-vivo Quantitative Hydrolipidic Maps of Adipose Tissue by Chemical Shift Imaging at 4.7 Tesla.
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.

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.
Harvard Medical School and Brigham and Women's Hospital, Boston, MA, USA; University of Geneva, Geneva, Switzerland and Children's Hospital, Boston, MA, USA.

University of Aberdeen and Rowett Research Institute, Aberdeen, Scotland.

1093. The Role of MR VCUG in the Diagnosis of Vescicoureteral Reflux: Comparative Study with Fluoroscopic VCUG.
Kyungpook National University Hospital, Taegu, Korea.

1094. Revisit of MRI and Clinical Spectrum of Rhabdomyosarcoma in Children.
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.
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.
Royal Hallamshire Hospital and Jessop Hospital, Sheffield, England.

1097. Phase Sensitive Inversion Recovery Magnetic Resonance Imaging of the Pediatric Brain.
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.

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.
University of Leeds, Leeds, UK.

MR Imaging of Pelvis

University Hospital, Nijmegen, The Netherlands.

1102. Comparison of Normal and Cancerous Prostate Using Dynamic T1 and T2* Weighted MRI.
University of Toronto, Toronto, Ontario, Canada.

1103. Echo-Planar Diffusion-Weighted MR Imaging of the Prostate.
Ludwig-Maximilians-University, Munich, Germany and Siemens, Erlangen, Germany.

Mie University School of Medicine, Tsu, Mie, Japan.

1105. Grading of Prostate Carcinoma by Contrast-Enhanced MR.
University of Munster, Germany.

1106. MRI as a Screening Examination for Prostate Cancer in High Risk Patients.
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.
Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA.

Centre Hospitalier Universitaire de Quebec, Quebec City, Canada.

1109. Dynamic Contrast Enhanced MRI Fails to Differentiate Malignant from Benign Lesions in Recurrent Colorectal Adenocarcinoma.
University of Hull, Kinston-upon-Hull, UK.
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.  
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.  
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.  
University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

1115. Vascular Remodeling in the Preovulatory Rat Ovary Assessed by Functional MRI.  
Weizmann Institute of Science, Rehovot, Israel.

University of Tokushima, Tokushima, Japan.

1117. Ultrafast, Intrauterine MR Imaging of Fetal Malformation.  
Zurich University Hospital, Zurich, Switzerland.

1118. 3D Imaging of the Uterine Cavity and Observation of Myometrical Interaction with Paramagnetic Contrast Agents.  
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.
University of California, Irvine, CA, USA and BioSphere Technologies, Inc., Reno, NV, USA.

Showa University Fujigaoka Hospital, St. Marianna University School of Medicine and Yokohama Sakae Kyosai Hospital, Kanagawa, Japan.

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.

Kantoh-teishin Hospital and University of Tokyo, Tokyo, Japan.

1126. MR Urography of Lower Urinary Tracts: Value of a 3D Ultrafast T2-Weighted Sequence.
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.
Novartis Pharma Inc., Basel, Switzerland.

1128. Effect of 100% O2 Breathing on Intrarenal Oxygenation as Evaluated by BOLD MRI.
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

1129. In-Vivo Imaging of Mouse Kidneys After Surgical Obstruction Utilizing 1H 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 T2 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).
Tokyo Metropolitan Ebara Hospital and Jikei University School of Medicine, Tokyo, Japan.

Mie University School of Medicine, Tsu, Mie, Japan and Saiseikai Matsusaka Hospital, Matsusaka, Mie, Japan.

Bracco S.p.A., Milan, Italy and Ospedale Civile, Brescia, Italy.

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.

University of North Carolina at Chapel Hill, NC, USA and LUMC, Leiden, The Netherlands.

University of North Carolina at Chapel Hill, NC, USA and LUMC, Leiden, The Netherlands.

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.**
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: Evaluation with MR Imaging.**
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.**
German Cancer Research Center and University of Heidelberg, Heidelberg, Germany.

1145. **Hepatic MR Imaging: Comparison of 2D and 3D Gradient Echo Techniques.**
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.**
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.**
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.**
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.**
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.**
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.**
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.

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.**
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.**
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.**
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.**
Mie University School of Medicine, Mie, Japan.

1161. **Breath-hold T₁W Imaging for Abdomen with Multi-Shot FE EPI.**
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.**
Kanazawa Medical University, Ishikawa, Japan.

1163. **MR Residue Sign; A Simple and Easy Indicator of the Obstructive Site in Small Bowel Obstruction.**
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.**
Philips Research, Hamburg, Germany; University of Zurich and Swiss Federal Institute of Technology, Zurich, Switzerland.

1165. **Gastrointestinal Transit of Pharmaceutical Capsules Observed with ¹⁹F -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.**
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.**
National Institutes of Health, Baltimore, MD, USA.

1168. **Fast and Accurate Determination of Abdominal Adipose Tissue Distribution.**
St. Jude Children’s Research Hospital, Memphis, TN, USA.

---

**Contrast Agents**

1169. **Hepatocellular Carcinoma on Ferumoxides-Enhanced T₁-Weighted Gradient-Echo MR Imaging.**
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.**  
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.**  
University Hospital, Zurich, Switzerland.

1173. **Sequential Fast 3D MRI Following Oral Ingestion of Gd-DOTA A New Means to Assess Intestinal Transit Time.**  
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.**  
University Hospital, Zurich, Switzerland.

1175. **Evaluation of Arterial First Pass Contrast Medium Dynamics as a Function of Intravenous Injection Parameters.**  
University-Hospital Basel, Switzerland.

1176. **Characterization of T1 Relaxation and Blood-Myocardial Contrast Enhancement of NC100150 Injection in Cardiac MRL.**  
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.**  
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.**  
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.
Brookhaven National Laboratory, Upton, NY, USA and State University of New York, Stony Brook, NY, USA.

Yonsei University, College of Medicine, Seoul, Korea.

1183. The Usefulness of MnDPDP in MR Relaxometric Study of Liver.
University of Illinois, Urbana-Champaign, IL, USA and Kyungpook National University Hospital, Taegu, Korea.

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.
UNED, Madrid, Spain; RWTH, Aachen, Germany and C.S.I.C., Madrid, Spain.

University of California, Irvine, CA, USA.

1187. Fast T$_1$ Measurement of Gd-DTPA Bolus Passage in Normal and Diseased Brain Using EPI.
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?
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.
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.**
University Hospital of Muenster, Germany.

1193. **Effects of Local Diffusion Coefficient in Image Contrast.**
University of Illinois, Urbana, IL, USA.

1194. **Multisite Evaluation of Precision of NMRD.**
Bracco Research USA, Princeton, NJ, USA.

1195. **Quantification of Macroscopic Susceptibility Effects in Whole Body 1.5T and 8T MRI Systems.**
The Ohio State University, Columbus, OH, USA.

1196. **Dynamic Relaxometry: Application to Iron Uptake by Ferritin.**
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.**
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 Laboratory, 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.**
University of Kentucky, Lexington, KY, USA.

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.**  

1207. **Multi-Phase 3D High Resolution Dynamic Contrast-Enhanced MR Angiography of the Abdominal Aorta and Lower Extremities.**  
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.**  
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.**  
University of Rome "La Sapienza", Rome, Italy.

1210. **Renal Artery Stenosis: Identification with ceMRA, Grading with Flow Sensitized Segmented GRE with Echo Shaping and Interpolation.**  
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.**  
University Hospital Groningen, Groningen, The Netherlands, and Siemens Netherlands.
1212. **3D Gadolinium-Enhanced MRA in Liver Transplant Patients: Technique and Clinical Applications.**
St. Louis University Hospital, St. Louis, MO, USA.

1213. **Gadolinium Enhanced MR-Angiography after Pancreas and/or Kidney Transplantation: A Useful New Diagnostic Tool.**
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.**
Nara Medical University, Nara, Japan.

1215. **Superior Acceptance of Breathhold 3D Contrast Enhanced MR-Angiography Compared to Intra-Arterial DSA in Transplantation Medicine.**
University Hospital Groningen, The Netherlands, and Siemens Netherlands.

1216. **Costs of MR-Angiography and DSA in Transplantation Medicine.**
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.**
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.**
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.**
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.**
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.**
Maastricht University Hospital, Maastricht, The Netherlands.

1229. **Does Combined Use of Ultrafast 3D MRDSA with Moving Bed Contrast MRA Provide Additional Information?**
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.**
University Hospital and University of Maastricht, Maastricht, The Netherlands.

1231. **Clinical Usefulness of Contrast Enhanced 3D-MR Angiography using Automated Stepping Table Method.**
Mie University Hospital and Mie University School of Medicine, Mie, Japan.

1232. **Blood Pool MR Angiography of the Peripheral Vasculature.**
Utrecht University/University Hospital, Utrecht, The Netherlands.
1233. **The Effectiveness of Digital Subtraction Technique in Contrast-Enhanced MR Angiography.**
Kyungpook National University, Taegu, Korea.

1234. **The Availability of Low-Dose Contrast-Enhanced MR Angiography: Two-Station Study of Lower Extremities.**
Kyungpook National University, Taegu, Korea.

1235. **Artery-Vein Separation Using MR Angiographic Data in 25 Patients.**
University of Pennsylvania, Philadelphia, PA, USA and EPIX Medical, Inc., Cambridge, MA, USA.

1236. **Magnetic Resonance Angiography in the Evaluation of Peripheral Vascular Disease.**
University of Rome "La Sapienza", Rome, Italy.

1237. **3D Contrast Enhanced Phase Contrast Angiography: Utility for Arterial/Venous Segmentation.**
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.

1238. **3-D Pulmonary MR Angiography Using a New MR Blood Pool Agent (NC100150): Normal and Abnormal Anatomy.**
West Los Angeles VA and UCLA, Los Angeles, CA, USA.

1239. **Pulmonary MRA using Short Echo Train Spacing, Overlapped Signal T2 Blurring, and Less Flow Dephasing.**
M. Miyazaki, S. Sugiuira, 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.**
University of California, San Francisco, CA, USA.

1241. **Variable Appearance of Normal Central Venous Anatomy and Thoracic Inlet Veins with Dynamic Contrast-Enhanced MRA.**
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.**
University of Michigan, Ann Arbor, MI, USA.
1243. **Effect of the Number of Iterations in Partial k-space Reconstructions on Gadolinium 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.**
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).**
Cantonal Hospital, Winterthur, Switzerland.

1247. **Monitoring Wall Motion of Blood Vessels by 1-D MRI of Perpendicular Diameters.**
University of Toronto, Toronto, Ontario, Canada.

1248. **Standard Dose Gadolinium-Enhanced Dynamic 3D MRA of Thorax in Congenital and Acquired Diseases.**
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.**
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.**
Nippon Medical School and GE-YMS, Tokyo, Japan.

1251. **MR Coronary Angiography Using Connectivity.**
GE Corporate Research and Development, Schenectady, NY, USA and Stanford University, Stanford, CA, USA.
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.
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.
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.
University Hospital of Angers, Angers, France and GE Medical Systems, Buc, France.

Barnes-Jewish Hospital at Washington University Medical Center, St. Louis, MO, USA; Vrije Universiteit, Amsterdam, The Netherlands and Philips Medical Systems, Best, The Netherlands.

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.
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.**
University of Erlangen-Nuernberg and Siemens Medical Engineering Group, Erlangen, Germany.

1263. **Motion Adapted Gating for 3D Coronary Angiography – Initial Clinical Results.**
Philips Research Laboratories and Universitas-Krankenhaus Eppendorf, Hamburg, Germany.

University Hospital, Berne, Switzerland.

1265. **Locally Focused Three-Dimensional Coronary Imaging.**
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.**
University of Toronto, Toronto, Ontario and Stanford University, Stanford, CA, USA.

1268. **Three-Dimensional Coronary MR Angiography with AngioMARK™ (MS-325).**
Washington University, St. Louis, MO, USA and Northwestern University, Chicago, IL, USA.

1269. **Stenosis Detection using Gadomer-17-Enhanced Coronary MR Angiography.**
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.**
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.

---

**Myocardial Viability**

1272. **Monitoring of Progression of Myocardial Necrosis During Reperfusion of Ischemically Injured Myocardium Using Contrast Enhanced MR Imaging.**
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.**

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.**

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.**

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.**

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.**

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.**

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.**
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.**
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.**
Emory University School of Medicine, Atlanta, GA, USA.

1290. **Transesophageal MRI of Thoracic Aorta in Vivo in Patients with and without Atherosclerosis.**
Johns Hopkins University School of Medicine, Baltimore, MD, USA.

1291. **Virtual Transducer Color Flow MRI of Septal Defects and Valvular Disease.**
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.**
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.**
   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.**
   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.**
   University and ETH, Zurich, Switzerland.

1299. **Interactive Real-Time MRI for the Examination of Left Ventricular Function.**
   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.**
   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.**
   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.**  
Universitats Wurzburg, Germany.

1306. **MR-CAT Scan: Cardiac Imaging with a New Hybrid Approach.**  
Universitats Wurzburg, Wurzburg, Germany.

1307. **Magnetic Resonance Imaging of Mouse Hearts.**  
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.**  
National Institutes of Health, Bethesda, MD, USA.

1310. **MT Contrast Optimization for a Breathold 3D Sequence: Applications to Cardiac Imaging.**  
University of California, Los Angeles, CA, USA.

1311. **How Can We Detect Ischemia Inside the Magnet?**  
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.**  
National Cardiovascular Center, Osaka, Japan and Kyoto University, Kyoto, Japan.

1313. **Microscopic Coronary Angiography of the Mouse In Vivo.**  
Universitat Wurzburg, Germany.

1314. **Left Ventricular Function Parameters and Mass in Healthy Young Adults: Gender Differences after Indexing for Body Size.**  
Vrije Universiteit, Amsterdam, The Netherlands and Leiden University Medical Centre, Leiden, The Netherlands.

1315. **Cardiac Scouting Using Reduced Field-Of-View MR-Fluoroscopy.**  
1316. **Effect of Skeletal Muscle Assistance on Left Ventricular Function: Assessment using MR Tissue-Tagging.**
University of Pennsylvania Medical Center, Philadelphia, PA, USA.

1317. **The Effects of Aging on Myocardial Efficiency.**
Washington University School of Medicine, St. Louis, MO, USA.

1318. **Abnormal Myocardial T₁ in Patients with Fabry's Disease.**
National Institutes of Health, Bethesda, MD, USA.

1319. **MRI in Atrial Septal Defects Pre and Post Occlusion by Amplatzer Occluder.**
University Hospital Eppendorf, Hamburg, Germany.

1320. **Atrial Volume Measurements with MRI: A Method for Rapid Quantification in Chronic Mitral Regurgitation.**
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.**
University of Vienna, Austria.

1322. **Cardiac Alterations in Mice with Altered GLUT4 Expression.**
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.**
Zeneca Pharmaceuticals, Macclesfield, Cheshire, UK.

1325. **Dynamic Flow Studies in Mammary Carcinomas after Treatment with the PKC Inhibitor Bryostatin-1.**
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.**
University of California, Irvine, CA, USA.

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.**
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.**
German Cancer Research Center and University of Heidelberg, Heidelberg, Germany.

1330. **Necrotic Fraction Estimation of Osteogenic Sarcomas Undergoing Induction Chemotherapy using FMSPGR Dynamic Perfusion Imaging.**
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.**
Aarhus University Hospital, Aarhus, Denmark and Mount Vernon Hospital, Northwood, UK.

1334. **Evaluation of Tumor Perfusion by $^{3}$H-MRI of MCF7 Breast Cancer.**
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.**
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.**
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.**
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.**
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.**
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. \textit{\textsuperscript{19}F-MRS} Studies of the Novel Thymidylate Synthase (TS) Inhibitor, ZD9331.
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.
Weizmann Institute of Science, Rehovot, Israel.

1349. \textit{In Vivo} TQF \textsuperscript{23}Na MRS of Morris Hepatoma 7777 Using TmDOTP\textsuperscript{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 \textit{\textsuperscript{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.
German Cancer Research Center, Heidelberg, Germany and Lilly Deutschland GmbH, Bad Homburg, Germany.

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'Deoxuryridine (EUDR) in Tumor-Bearing Mice and Rats.
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 \textit{\textsuperscript{19}F MR Imaging}.
Federal Office for Radiation Protection, Neuherberg, Germany and German Cancer Research Center, Heidelberg, Germany.

1356. \textit{\textsuperscript{1}H MRS} of Cell Extracts Can Monitor the Effects on Cell Metabolism Due to Growth Impairment in Gamma Irradiated HeLa Cells.
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.**
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.**
University of Minnesota Medical School, Minneapolis, MN, USA.

1364. **Effects of Bafilomycin A1 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?**
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.**
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 Metabolic Alkalosis.**
N. Raghunand, B. Mahoney, R. van Sluis, B. Baggett and R.J. Gillies.
University of Arizona Health Sciences Center, Tucson, AZ, USA.
**Poster Sessions**

1369. *Intravenous Administration of Perfluorocarbons Overestimates Tumor Oxygen Tension in the GH3 Xenograft.*
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.*
University of Pennsylvania, Philadelphia, PA, USA.

1371. *Correlation of Proton and Fluorine-19 MR Measurements of Tumor Oxygenation.*
University of Chicago, Chicago, IL, USA.

St. George's Hospital Medical School, London, UK.

1373. *Dynamic Diffusion Weighted MRI to Monitor Ca$^{2+}$ Channel Blocker-Induced Changes in Tumor Microcirculation.*
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.*
Mount Vernon Hospital, Northwood, Middlesex, UK.

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.*
Weizmann Institute of Science, Rehovot, Israel.

Worcester Polytechnic Institute and University of Massachusetts Medical School, Worcester, MA, USA.

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.**
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.**
University of Michigan, Ann Arbor, MI, USA.

1382. **In Vivo Measurements of Size of Lipid Droplets in C6 Rat Glioma: $^1$H Diffusion Measurements.**
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: T1 Measurements and Subcellular Localization by Nile Red Staining.**
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.**
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 Metabaoite Changes in Patients with Glial Tumors: Assessment with in vivo $^1$H MR Spectroscopy.**
Chonnam University Hospital and Chonnam National University, Kwang-Ju, Korea.
1390. **Short-Echo Time \(^1\text{H}\) Macromolecule and Metabolite Spectra of Intracranial Tumors.**  
University of Tübingen, Germany.

1391. **Correlation of \(^1\text{H}\) MRSI, rCBV, and ADC to Image Guided Biopsies of Human Brain Tumors.**  
University of California, San Francisco, CA, USA.

1392. **Quantitative Brain Tumor Pathology with HRMAS Proton MR Spectroscopy.**  
Massachusetts General Hospital, Boston Children's Hospital, Brigham and Women's Hospital and Harvard Medical School, Boston, MA, USA.

1393. **Detection of an Unknown \(^1\text{H}\) MRS Signal at 2.37-2.40 ppm in Patients with Severe Late-delayed Radiation Injuries.**  
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.**  
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 \(^{31}\text{P}\) MRS of Human Brain Tumors.**  
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.**  
University of Heidelberg, Heidelberg, Germany.

1397. **Nosologic Image: A Tool for Analyzing Proton Magnetic Resonance Spectroscopic Images (\(^1\text{H}\) MRSI) of Brain Tumors.**  
Centre Hospitalier Universitaire, Grenoble, France.

1398. **Statistical Classification of Metabolites in Low Grade Gliomas with \(^1\text{H}\) MRSI.**  
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 \(^1\text{H}\)-MRS and Compartmentation Analysis in Fifty Subjects.**  
University of Liverpool, Liverpool, UK.
1400. **Reversal of Cerebral Metabolite Abnormalities with Highly Active Antiretroviral Therapy (HAART) in Mild HIV-1 Dementia.**
UCLA School of Medicine, Harbor-UCLA Medical Center, Torrance, CA, USA.

1401. **ECT Effects on Cortical GABA Levels as Determined by $^1$H-MRS.**
Yale University School of Medicine, New Haven, CT, USA.

1402. **Choline Abnormalities in Panic Disorder: A Link Between Anxiety and Depression?**
University of Washington, Seattle, WA, USA and Institut fur Medizin, Julich, Germany.

1403. **Early Cerebral Markers of Endocrine Responsiveness in Man.**
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.**
Johns Hopkins University, Baltimore, MD, USA.

1405. **Lesch-Nyhan Disease and Lesch-Nyhan Variants: Evaluation with Quantitative Proton MR Spectroscopic Imaging.**
Johns Hopkins University, Baltimore, MD, USA.

1406. **Neuronal Dysfunction in Patients with Chronic Alcoholism by In Vivo $^1$H MRS.**
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.**
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.**
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.**
Wayne State University School of Medicine, Detroit, MI, USA.

1410. **Does Hepatitis C Virus Infection Affect the Brain? A Proton Magnetic Resonance Spectroscopy Study.**
Hammersmith Hospital and Imperial College School of Medicine, St Mary's Hospital, London, UK.
1411. **Investigation of Hippocampal Choline in Depression.**
Central Institute of Mental Health, Mannheim, Germany.

1412. **Unidentified Bright Object Prediction in Infants with Neurofibromatosis Type 1.3D Multivoxel $^1$H MRS.**
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.**
Memorial Sloan-Kettering Cancer Center, New York, NY, USA.

Johns Hopkins University, Baltimore, MD, USA.

1416. **Comparison of Proton Metabolite T$_2$ Relaxation Times in Putamen and Insular Cortex at 3.0 Tesla.**
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.**
Yale University School of Medicine, New Haven, CT, USA.

1418. **Measurements of Human Brain Ethanol Methyl T$_2$ by Spectroscopic Imaging at 4.0T.**
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.**
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.**
   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.**
   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.**
   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.**
   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 Spectroscopy and
   Chemical Shift Imaging.**
   Chang Gung Memorial Hospital and Academia Sinica, Taipei, Taiwan.
1431. **Double Quantum Filtered $^1$H Spectroscopy of GABA in the Human Temporal Lobe.**  
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.**  
Max Planck Institute of Psychiatry and GE Medical Systems, Munich, Germany.

1433. **Localized $^1$H MR Spectroscopy for Children with Moyamoya Disease.**  
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.**  
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.**  
University of Frankfurt, Frankfurt, Germany.

1436. **Difference Between Slowly Progressive Aphasia without Generalized Dementia and Alzheimer's Disease by Proton Chemical Shift Imaging.**  
Kyoto Prefectural University of Medicine, Kyoto, Japan.

1437. **Regional Pattern of Diminished Levels of Cortical NAA in Alzheimer's Disease and Vascular Dementia.**  
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.**  
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.**  
Huddinge University Hospital, Huddinge, Sweden and Karolinska Hospital, Stockholm, Sweden.
1440. Creatine and Myo-Inositol are Increased in Multiple Sclerosis Normal Appearing White Matter.
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.
University of Pennsylvania Medical Center and Fox Chase Cancer Center, Philadelphia, PA, USA.

1442. T2 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 1H MRSI.
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 1H MRS.
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.
University of Alberta, Edmonton, Alberta, Canada.

1446. Metabolic Concentration of Basal Ganglia in Patients with Schizophrenia by in vivo Proton MRS.
South Japan Health Science Centre, Fujimoto Hospital, Miyakonojo, Japan.

1447. Brain Proton Magnetic Resonance Spectroscopy of Patients with the Sjogren-Larsson Syndrome.
University Hospital Nijmegen, Nijmegen, The Netherlands.

G. Helms and J. Frahm.
Biomedizinische NMR Forschungs GmbH, Gottingen, Germany.

1449. 1H-MR Spectroscopy in Myotonic Dystrophy.
Fukui Medical University, Fukui, Japan.

1450. 31P Chemical Shift Imaging in Patients with Schizophrenia.
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.

1452. Competitive Blood-Brain-Barrier Dynamics Observed by $^1$H MR Spectroscopy and EEG in Patients with Phenylketonuria.

1453. $^1$H MR Spectroscopy and Quantitative Cerebropetal Blood Flowmetry in Idiopathic Anatomic Megalencephaly.

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. $^3$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).


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.

1462. **3D $^1$H MR Spectroscopic Imaging of the Neonatal Brain.**
University of California, San Francisco, CA, USA.

1463. **Normal Developments in Cerebral Metabolism for Newborn Infants to Children by Localized $^1$H MR Spectroscopy.**
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.**
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.**
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.**
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.**
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 Pediatric Depression.**
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.**
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.**
University of Tokushima, Tokushima, Japan.

1475. **Brain Cell Volume and Osmolality in Human Hydrocephalus.**
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.**
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.**
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.**
Biomedizinische NMR Forschungs GmbH and Deutsches Primatenzentrum, Gottingen, Germany.

1479. **Cerebral Metabolite Levels, Energy Status and Intracellular pH during Hypoxia in Fetal Lambs, as Monitored by $^1$H and $^{31}$P MR Spectroscopy.**
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.**
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.**
University of Bern, Switzerland.

1487. **In Vivo Murine Cardiac Energy Metabolism and Function.**
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.**
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.**
University of Alabama at Birmingham, Birmingham, AL, USA.

1490. **Is Contrast-Induced T, Shortening Necessarily Correlated with Myocardial Injury? Assessment of Myocardial Infarction Using Contrast-Enhanced MR Imaging and Localized $^{31}$P Spectroscopy on Isolated Pig Hearts.**
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.**
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.**
Medizinische Universitätsklinik, Würzburg, 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.**
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.**
Leiden University Medical Center, Leiden, The Netherlands.

1498. **In Vivo Cardiac $^{31}$P MRS in Transgenic Mice Overexpressing Growth Hormone.**
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.**

1500. **Simultaneous Optical Fluorescence and $^{31}$P NMR Spectroscopy in vivo.**
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.
<table>
<thead>
<tr>
<th>Poster Session</th>
<th>Title</th>
<th>Authors</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1509</td>
<td>$^1$H MRS of the Prostate Using a Surface Coil: Its Possible Role in the Diagnosis of Large Prostatic Tumors.</td>
<td>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.</td>
<td>St. Marianna University School of Medicine, Kawasaki, Japan.</td>
</tr>
<tr>
<td>1511</td>
<td>Renal and Adrenal Applications of Line Scan Spectroscopic Imaging.</td>
<td>H. Shimoto, 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.</td>
<td>Keio University School of Medicine, Tokyo, Japan and Children's Hospital, Boston, MA, USA.</td>
</tr>
</tbody>
</table>
1513. **Elevated Hepatic Gluconeogenesis in Lung Cancer and Relation with Weight Loss as Observed by \(^{31}\text{P MRS with L-Alanine Infusion.}\)**  
University Hospital, Rotterdam, The Netherlands and Maastricht University, Maastricht, The Netherlands.

1514. **Hepatic ATP Recovery Following Graded Hypoxic Insults.**  
Royal Free and University College Hospital and Imperial College, Hammersmith Hospital, London, UK.

1515. **Liver Injury Following Intestinal Ischemia-Reperfusion Demonstrated by \(^{31}\text{P Magnetic Resonance Spectroscopy in vivo.}\)**  
University College London, UK.

1516. **Quantitative Measurement of Intracellular Triglyceride Content by \(^{1}\text{H MRS in vivo.}\)**  
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-\(^{13}\text{C}\) Alanine.**  
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 \(^{1}\text{H MR Spectroscopy.}\)**  
University of California, San Francisco, CA, USA.

1519. **Localization of Prostate Cancer After Hormone Ablation of MRI and 3D \(^{1}\text{H MRSI: Case-Control Study with Pathologic Correlation.}\)**  
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. **\(^{1}\text{H Spectroscopic Characterization of Red Bone Marrow in Young Adults using Interleaved Data Acquisition (INTACTSPEC).}\)**  
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.**
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.**
National Research Council of Canada and Health Sciences Centre, Winnipeg, MB, Canada.

1525. **Accumulation of Intramuscular Triglycerides in Patients with Myotonic Dystrophy.**
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.**
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.**
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.**
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.**
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.**
National Institutes of Health, Bethesda, MD, USA.
1533. **Detecting Altered Gene Expression by Magnetic Resonance: Analysis of Contractile Economy in Rat Skeletal Muscles.**
University of Washington, Seattle, WA, USA.

1534. **31P Magnetic Resonance Spectroscopy Investigation of Gender Impact on Muscle Energetics in Untrained Subjects.**
Faculte de medecine and Hopital de la Conception, Marseille, France.

1535. **Evaluation of Juvenile Dermatomyositis (JDM) Patients Using MRI and 31P MRS.**
Vanderbilt Medical School, Nashville, TN, USA.

1536. **Abnormalities in Magnesium (Mg\textsuperscript{2+}) and ATP Levels in Muscle Disorders: Dermatomyositis and Fibromyalgia.**
Vanderbilt Medical School, Nashville, TN, USA.

1537. **The Relationship Between Creatine Kinase Reaction Kinetics and Exercise Intensity in Human Forearm is Unchanged by Age.**
Johns Hopkins University School of Medicine and National Institutes of Health, Baltimore, MD, USA.

1538. **Investigations of Human m. Gastrocnemius During Dynamic Exercise using 31P MR Spectroscopy in vivo – Influence of Pre-Exercise Acidification.**
Institute of Nuclear Physics and Academy of Physical Education, Krakow, Poland.

1539. **In vivo 1H-MRS of Skeletal Muscle in Galactosemia.**
University of Pennsylvania and The Children's Hospital of Philadelphia, Philadelphia, PA, USA.

1540. **Cytosolic Free [Mg\textsuperscript{2+}] in the Human Calf Muscle in Different Metabolic Conditions: in vivo 31P 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 1H-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.**
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 31P-NMR.**
H.O. Portner, C. Bock and A. Reipschläger.
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.**  
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.**  
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.**  
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.**  
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.**  
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.**  
University of Sydney, Australia.

1553.  **Evaluation for Spectral Patterns of Malignant Ovarian Tumors by $^{1}$H NMR Spectroscopy.**  
University of Ulsan College of Medicine, Asan Medical Center and Asan Institute for Life Sciences, Seoul, Korea.
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 T1 Relaxation Differences 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.  
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.

H. Kugel, B. Roth, G. Benz-Bohm, W. Heindel and K. Lackner.  
University of Cologne, Koln, Germany.

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?  
University of Bern, Switzerland.

1562. Interactive ROI Analysis in 1H-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 London, UK.

1563. Cerebral Metabolite Levels in Patients Awaiting Liver Transplantation Observed with 1H MR Spectroscopy.  
University of California, Los Angeles, CA, USA.
1564. **Detection of Elevated GABA Signals in the Human Brain in 1.5 Tesla using Phase-Sensitive 2D J-Resolve 1H Spectroscopy.**
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 1H MR Spectroscopy of Human Vertebra in Normal Subjects.**
C-S. Lin, A. Finley, B. Davis and D. Schelling.
Georgetown University, Washington, DC, USA.

1566. **13CO2-H13CO3 – 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 1H NMR Brain Spectroscopy.**
J. Knight-Scott.
University of Virginia Health Sciences Center, Charlottesville, VA, USA.

1568. **Suppression of Signal Contributions from Short T1 Macromolecules in Short Echo Time 1H NMR Spectroscopy of Human Brain.**
J. Knight-Scott.
UVA Health Sciences Center, Charlottesville, VA, USA.

1569. **Quantification of the Coupled 1H Metabolites Using PRESS – Numerical Modeling and Basis Function Calculation.**
University of Alberta, Edmonton, Alberta, Canada.

1570. **Quantitative 1H MRS Demonstrates Cerebral Osmolyte Changes in Normal Pregnancy.**
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 1H 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-Acetylaspaptate Quantitation Using Non-Echo, Non- T1 or T2 Weighted 1H-MRS.**
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 1H 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.**  
University of California and DVA Medical Center, San Francisco, CA, USA.

### MR Spectroscopy Methods

1578. **In Vivo Glucose Detection by Homonuclear Spectral Editing.**  
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.**  
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.**  
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 Spectroscopy in Human Cancer Research.**  
Multi-Institutional Group on MRS Application to Cancer.
1586. *In Vivo Proton MR Spectroscopy of Thyroid Tumors: Toward Non-Invasive Management.*
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.**
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.**
University of Toronto, Toronto, Ontario, Canada.

1593. **Evaluation of Unilateral Testicular Trauma in Rat Testis by MR Imaging and $^{31}$P MR Spectroscopy.**
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.**
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.**  
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.**  
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.**  
University of Pennsylvania, Philadelphia, PA, USA.

1603. **Concatenated Refocusing for Improved Selectivity in PRESS.**  
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.**
Medison Co., Taejon, Korea.

1610. **Spin-Echo Planar $^1$H Spectroscopic Imaging for Fast Lipid Characterization in Bone Marrow.**
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.**
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.**
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 Measurement 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.**
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.**
The University of Michigan, Ann Arbor, MI, USA.

1617. **Measurement of Harmonic Motion for MR Elastography.**
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.**
   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.**
   Hitachi, Ltd., Tokyo, Japan.

1626. **3D-One-Shot-Imaging by Using Dual-Frequency Amplitude-Modulated BURST Imaging Method.**
   Hitachi, Ltd., Tokyo, Japan.

1627. **Rapid Multi-Slice Interleaved Spirals MR Imaging.**
   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.**
   National Cardiovascular Center, Osaka, Japan and Kyoto University and Rakuwakai Otowa Hospital, Kyoto, Japan.

1629. **T₂* 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.**  
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.**  
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.**  
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.**  
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. **Amplitude 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 T2 Weighted Imaging Between Fast Recovery Fast Spin Echo and Conventional Fast Spin Echo Techniques.**  
Nippon Medical School and GE-YMS, Tokyo, Japan.

1643. **A New Approach for the Simultaneous Determination of Skeletal Muscle Perfusion, Oxygenation and Energy Metabolism.**  
Pitie-Salpetriere, Paris, France and Bruker Medical, Ettlingen, Germany.

1644. **Efficient Region of Interest Approximation for MR Image Acquisition.**  
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.**  
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.**
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.**
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.**
University of Chicago, Chicago, IL, USA.

**fMRI Techniques: Acquisition**

1661. **Improvement of Auditory Stimulation in Event-Related fMRI by Insertion of Silent Intervals.**
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.**
Washington University School of Medicine, St. Louis, MO, USA.

1664. **The Effect of Scanner Sound in Visual, Motor and Auditory fMRI.**
Nottingham University, Nottingham, UK.
1665. **A Hemodynamic-Response Based Sequence for Event-Related fMRI Studies Without Interference of Scanner Noise.**
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.**
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.**
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.**
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.**
Institute of Neurology, London, UK.

1672. **Effect of Signal Fluctuations from the Eyes on fMRI Data and Post-Processing.**
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.**
Nottingham University, Nottingham, UK.

1675. **Evaluation of Motion Correction in fMRI – Dependency of Spatial Resolution.**
Hokkaido University, Sapporo, Japan.

1676. **A Quantitative Analysis of Artifacts on fMRI.**
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.**
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.

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.**
Wake Forest University School of Medicine, Winston-Salem, NC, USA.

1684. **Echo-Planar fMRI with 1-mm Cubicle Voxels.**
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.**
University of Medicine and Dentistry of New Jersey, Newark, NJ, USA.

1693. **Characterisation of the Haemodynamic Response Function in Epilepsy using EEG-Correlated fMRI.**
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.**
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.**
Institute of Neurology, London, UK.

1697. **The Time-Course of the Hemodynamic Response to Similar in Interictal Epileptiform Discharges and Brief Visual Stimuli.**
Institute of Neurology and National Society for Epilepsy, London, UK.

1698. **The Effect of EEG Recording on Functional MR Image Quality.**
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.
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.
Research Institute for Brain and Blood Vessels, Akita, Japan.

1705. Spatial Distribution of Low Frequency Noise in fMRI.
Hvidovre Hospital, Copenhagen, Denmark.

University of Wisconsin, Madison, WI, USA.

1707. fMRI Data Reduction and Significance 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.

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 Improvement 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.

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

K. Arfanakis, D. Cordes, J.A. Sorenson, V.M. Haughton, M.A. Quigley and M.E. Meyerand.
University of Wisconsin, Madison, WI, USA.

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.
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.
Indiana University School of Medicine, Indianapolis, IN, USA.

1718. Exploratory Analysis of fMR Images by Fuzzy Clustering: Voxel Preselection via "Self-Similarity".
National Research Council of Canada, Winnipeg, MB, Canada.

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.**  
National Taiwan University and Tri-Service General Hospital, Taiwan, ROC.

1725. **Spatial Characteristics of Temporal Delay in Visual Cortex: Demonstrated by Functional MRI.**  
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.**  
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.**  
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.
Research Center Julich GmbH, Julich, Germany.

1734. CBF and BOLD during Graded Hypercapnia: Modeling of BOLD Effect.
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.
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.
McGill University, Montreal, Quebec, Canada.

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.
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.
Carnegie Mellon University, Pittsburgh, PA, USA; Faculte de Medecine Grange-Blanche, Lyon, France and University of Minnesota Medical School, Minneapolis, MN, USA.

Vrije Universiteit, Amsterdam, The Netherlands; Institut fur Diagnostische und Interventionelle Radiologie (IDIR), Jena, Germany and Mallinckrodt Institute of Radiology, St. Louis, MO, USA.

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.

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.
National Institutes of Health, Bethesda, MD, USA.

Osaka University Medical School, Osaka, Japan.

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.
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.
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.**
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.**
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.**
Yale University, New Haven, CT, USA.

1759. **A Model for the Regulation of Cerebral Oxygen Delivery and Blood Oxygenation: Implications for Functional MRI.**
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}*.**
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 T₂* 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.**  
The University of Texas Health Science Center, San Antonio, TX, USA.

1768. **Voxel-Wise Comparison of T₁ Relaxation Times and Simultaneously Measured Perfusion and BOLD Signal Increases During Motor Activation.**  
Medical College of Wisconsin, Milwaukee, WI, USA and University of California, San Diego, CA, USA.

1769. **Mismatch Between T₂* and Echo Time Dependence of BOLD Contrast fMRI in Men and Women.**  
Research Center Julich GmbH, Julich, Germany.

1770. **Oxygenation Dependent Spin-Lattice Relaxation of Hyperpolarized ¹²⁹Xe 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.**  
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.**  
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.**  
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.**
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 Encephalomyelitis.**
All India Institute of Medical Sciences, New Delhi, India.

1778. **Diffusion Tensor Imaging Demonstrates Reduced Anisotropy in a Patient with Cerebral Dysgenesis.**
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.**
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.**
University of Oulu, Finland.

1784. **Diffusion Imaging in vivo in Skeletal Muscle Tissue and Correlation to the Arteriosclerosis of the Lower Extremities.**
Oulu University Hospital, Oulu, Finland.
University of Cambridge, Cambridge, UK.

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.

P.J. Basser and S. Pajevic.
National Institutes of Health, Bethesda, MD, USA.

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.

D.K. Jones, M.A. Horsfield and A. Simmons.
University of Leicester, Leicester Royal Infirmary, Leicester, UK and Institute of Psychiatry, London, UK.

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.

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.**
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.**
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.**
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.**
The Institute of Cancer Research and The Royal Marsden NHS Trust, Sutton, Surrey, UK.

1802. **A Phantom Study ofRestricted 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.**
University College, London, UK and Queensland University of Technology, Brisbane, Australia.

1804. **Directional Dependence of Diffusion Weighted BOLD fMRI at 9.4 T.**
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.**
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.**  
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.**  
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).**  
Department of Veterans Affairs Medical Center and University of California, San Francisco, CA, USA.

1813. **Diffusional Anisotropy in Bovine Optic Nerve after Heating.**  
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.**  
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.**  
Philips Medical Systems, Best, The Netherlands.
1818. **Correction of Image Shift and Distortion in Diffusion-Weighted Echo Planar Imaging.**
General Electric Medical Systems, Milwaukee, WI, USA.

1819. **Single-Shot 3D Diffusion Weighted FSE Imaging Using a Cubic Target Excitation.**
Toshiba Nasu Works and Toshiba Medical Engineering Laboratory, Tochigi, Japan.

1820. **Sampling and Reconstruction Effects Due to Motion in Diffusion-Weighted Interleaved EPI.**
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.**
Yale University School of Medicine, New Haven, CT, USA.

1822. **High Resolution Diffusion Imaging via a Radial Fast Spin-Echo Method.**
University of Arizona, Tucson, AZ, USA.

1823. **High b-Value Diffusion Tensor Imaging Using a High Performance Whole-Body Gradient Coil.**
GE Medical Systems, Milwaukee, WI, USA.

1824. **High-Resolution Diffusion-Weighted Imaging of Stroke using DIFRAD-FSE.**
University of Arizona, Tucson, AZ, USA.

1825. **Navigator Aided, Multishot EPI Diffusion Images of Brain with Complete Orientation and Anisotropy Information.**
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.**
Karolinska Hospital/Karolinska Institute, Stockholm, Sweden and Stanford University School of Medicine, Stanford, CA, USA.

1827. **Single-Scan Diffusion Trace \(^1\)H NMR Spectroscopy.**
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.**
University of Tubingen, Germany.

1832. **Eddy Current Compensation in Diffusion-Weighted, Stimulated 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.**
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.**
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.**
University of Nottingham, Nottingham, UK.

1837. **A Novel Spin Labelling Perfusion Method by Progressive Saturation (ProSat).**
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.
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.
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.

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.

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 Quantification 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.

C. Preibisch and A. Haase.
Universitat Wurzburg, Wurzburg, Germany.

1850. NMR Perfusion Imaging of the Mouse Cortex: Response to Systemic Hypoxia is Gender Dependent.
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.
<table>
<thead>
<tr>
<th>Poster Session</th>
<th>Title</th>
<th>Authors</th>
<th>Affiliations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1852</td>
<td>MR Perfusion Imaging of Pulmonary Parenchyma Using Arterial Spin Labeling Techniques: FAIRER, FAIR, EST and Hybrid FAIRER.</td>
<td>V.M. Mai, J. Knight-Scott, Q. Chen, R.R. Edelman, K.D. Hagspiel and S.S. Berr.</td>
<td>University of Virginia Health Sciences Center, Charlottesville, VA, USA and Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.</td>
</tr>
<tr>
<td>1854</td>
<td>rCBF, rCBV or MTT? What do we Measure with Spin Labeling Techniques Based on the $T_1$ Perfusion Model?</td>
<td>C. Kremser, M. Schocke, R. Ellinger and S. Felber.</td>
<td>University of Innsbruck, Austria.</td>
</tr>
<tr>
<td></td>
<td><strong>Perfusion: Contrast Agents</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1857</td>
<td>Quantification of Renal Perfusion: Results of an Experimental Animal Study.</td>
<td>S. Aumann, S.O. Schoenberg, A. Just, K. Briley-Saeb, M. Knopp and G. Brix.</td>
<td>German Cancer Research Center (DKFZ) and University of Heidelberg, Heidelberg, Germany; Nycomed Imaging, Oslo, Norway and Institute of Radiation Hygiene, Neuherberg, Germany.</td>
</tr>
<tr>
<td>1861</td>
<td>Quantitative Analysis of First-Pass Magnetic Resonance Perfusion Imaging of a Mouse Model of Hindlimb Ischemia.</td>
<td>S. Kaji, H.V. Ho, P.C. Yang, T. Quertermous, J.P. Cooke and B.S. Hu.</td>
<td>Stanford University, Stanford, CA, USA.</td>
</tr>
</tbody>
</table>
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.**
University of Texas Health Science Center, San Antonio, TX, USA.

1864. **Quantification of Brain Perfusion Using Gd-DTPA and T1 Measurements.**
Hvidovre University Hospital, Copenhagen, Denmark.

1865. **Quantitative Assessment of Regional Pulmonary Perfusion with Contrast Enhanced MRI using a FLASH Sequence.**
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

1866. **Tracer Kinetic Modeling in the Myocardium Using a Fast T1-Mapping Method.**
St. Joseph's Health Centre and University of Western Ontario, London, Ontario, Canada.

1867. **Cerebral Perfusion Study with Short TE Gradient Echo MRI.**
Fukui Medical University, Fukui, Japan.

1868. **Demonstration of Gravity Dependent Lung Perfusion with Contrast Enhanced Magnetic Resonance Imaging.**
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.**
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.**
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.**
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.**
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.**
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.**
University of California, San Francisco, CA, USA.

1879. **Diffusion Anisotropy and Cerebral Perfusion Changes in Patients with Probable Alzheimer's Disease.**
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.**
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.**
University of Wisconsin, Madison, WI, USA.

1885. **MRA with Intra-Arterial Administration of Contrast.**
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. Prinze 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.**
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.**
Klinikum Grosshadern, Munich, Germany.

1892. **Magnetic Resonance Imaging of Vascular Stents.**
Royal Adelaide Hospital, Adelaide, Australia.

1893. **Catheter Injection of Contrast Agent: Application in MR-Guided Endovascular Interventions.**
University Hospital Utrecht, Utrecht, The Netherlands.

1894. **In Situ Administration of Contrast Agent in MR Angiography.**
University Hospital Utrecht, Utrecht, The Netherlands.
1895. **Contrast Bolus Timing at Multiple Locations for Bolus-Chase Peripheral MRA using Ultrasound Bubbles.**  
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.**  
University of Wisconsin, Madison, WI, USA.

1898. **Fast Fat Suppression for 3D Angiographic Imaging.**  
Stanford University, Stanford, CA, USA.

1899. **Undersampled Projection Imaging for Time-Resolved Contrast-Enhanced 3D MR Angiography (PR-TRICKS).**  
University of Wisconsin, Madison, WI, USA.

1900. **Time-Resolved Projection Magnetic Resonance Angiography of the Cerebral Vasculature after Bolus Injection of Contrast Agent.**  
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.**  
Dijkzigt University Hospital, Rotterdam, The Netherlands.

University of Vienna, Austria and Nycomed Amersham.
University Hospital, Lund, Sweden.

Non-Contrast MR Angiography Techniques

1907. Variation In Navigator Measurements Used in SLINKY Reconstruction.
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.

Toshiba, Tochigi, Japan.

Y. Machida and Y. Kassai.
Toshiba Corp., Tochigi, Japan.

O. Vendelbo, A.D. Blankholm, F. Taagehoj, E. Lundorf and E.M. Pedersen.
Aarhus University Hospital, Aarhus, Denmark.

D. Bilecen, S. Wetzel and K. Scheffler.
University of Basel, Switzerland.

1913. SLINKY MRA with Time-Varying Gradients and Flow-Independent Contrast.
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.
VA Medical Center, San Francisco, CA, USA and German Cancer Research Institute, Heidelberg, Germany.

University of Virginia, Charlottesville, VA, USA.
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.
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.

H San Raffaele, Milan, Italy.

S.A. Roll, W. Dreher and D. Leibfritz.
University of Bremen, Bremen, Germany and Siemens AG, Erlangen, Germany.

University Hospital, Maastricht, The Netherlands.

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.

B. Behnia and A.G. Webb.
University of Illinois at Urbana-Champaign, IL, USA.

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.
University of Toronto, Toronto, Ontario, Canada.

1932. MRI Temperature Measurement for Hot Saline Injection Therapy.
Brigham and Women's Hospital and Children's Hospital, Harvard Medical School, Boston, MA, USA.

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.

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.
Case Western Reserve University and University Hospitals of Cleveland, Cleveland, OH, USA.
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.**  
Lund University Hospital, Lund, Sweden.

1940. **In-Vivo Laser Ablation of a Porcine Model: Real-Time Temperature Monitoring and Tissue Damage Modeling.**  
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.**  
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.**  
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.**  
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.**  
University of Wisconsin, Madison, WI, USA.

1947. **Improved Visualization of Endovascular Devices in Susceptibility Based Tracking Using Complex Subtraction.**  
University Hospital Utrecht, Utrecht, The Netherlands.
1948. **Real-Time Interactive Catheter Tracking by MRI.**  
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.

University of Freiburg, Germany.

1951. **Active Catheter Visualization Using Field-Inhomogeneity Catheters Combined with Radial Data Acquisition.**  
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.**  
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.**  
Philips Research, Hamburg, Germany.

1955. **Contrast-Enhancing Signal-Intensity Correction for Intravascular Magnetic-Resonance Imaging.**  
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.**  
University Hospital and Siemens Medical Systems, Lille, France.

University of Aachen, Aachen, Germany.
1959. **Interactive Real-Time MR-Guided Catheter Interventions with Continuous Radial Scanning.**
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

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.**

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).**
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.**
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.**
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.**
University of Minnesota, Minneapolis, MN, USA.

1969. **MR-Guided Percutaneous Nephrostomy of the Non Dilated Upper Urinary Tract in a Porcine Model.**
University Hospitals of Cleveland/Case Western Reserve University, Cleveland, OH, USA.
Cantonal Hospital, Winterthur, Switzerland and Philips Medical Systems, Zuerich, Switzerland.

1971. **Correction of Image Distortion for Interventional MRI.**
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.**
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.**
Medical Faculty Charite, Berlin, Germany and Philips Research, Hamburg, Germany.

1974. **Analysis of Dielectric Resonances at 8.0 Tesla.**
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. **B1 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.**
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.
   University College, London, UK and ChangGung University, Taiwan.

   J. Mao and A.W. Song.
   University of Florida, Gainesville, FL, USA and Duke University, Durham, NC, USA.

   Y. Zaim Wadghiri, G. Johnson and D.H. Turnbull.
   New York University School of Medicine, New York, NY, USA.

   University of Cambridge and Addenbrooke's Hospital, Cambridge, UK.

   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.

   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

   P. Irarrazaval and J.M. Santos.
   Pontificia Universidad Catolica de Chile, Santiago, Chile.

   K. Liu.
   Picker International Inc., Highland Heights, OH, USA.

   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.

   Vrije Universiteit, Amsterdam, The Netherlands.
1993. **Cardiac Imaging at 3 Tesla: B₀ Inhomogeneity and T₂* Measurements.**
Fachbereich Medizinische Messtechnik, Berlin, Germany.

1994. **High Resolution Cardiac Imaging of the Rabbit at 4.0 Tesla.**
University of Pennsylvania Medical Center, Philadelphia, PA, USA.

1995. **Improved ECG Triggering with the T-Wave Terminator.**
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.**
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.**
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.

Peking University and The PLA General Hospital, Beijing, China.

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.
Royal Adelaide Hospital, Adelaide, Australia.

Flow Quantification

Wageningen Agricultural University, Wageningen, Germany.

U. Kohler.
The University of Edinburgh, Western General Hospital, Edinburgh, Scotland, UK.

O. Heid.
Siemens AG, Erlangen, Germany.

Aarhus University Hospital, Aarhus, Denmark and Odense University Hospital, Odense, Denmark.

Brookhaven National Laboratory, Upton, NY, USA and State University of New York, Stony Brook, NY, USA.

University of Sheffield, Sheffield, England.

N. Alperin, C. Stelzig, W. Betz, F. Charbel and T. Lichtor.
University of Illinois at Chicago, IL, USA.

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.
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.

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.**
Universitat Tubingen, Tubingen, Germany.

2017. **Precision of the MR Velocity and Acceleration Measurements: Theoretical Issues and Phantom Experiments.**
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.**
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.**
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.**
Aarhus University Hospital, Aarhus, Denmark.

2023. **Simulations of Cine Phase-Contrast Flow Imaging.**
University of Edinburgh, UK.

2024. **Velocity Quantitation in Arteries Using Individualized and Automated Variable Velocity Encoding (VENC) for Each Heart Phase.**
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.**
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.**
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.**
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.**
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.**
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.**
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.**
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.  
University of Tsukuba, Tsukuba, Japan.

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.  
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.  
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.

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.  
Medison Co., Taejon, Korea.
2047. **Numerical Evaluation of the Signal-to-Noise Ratio of MR Surface Coils Using FDTD and Reciprocity.**  
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.**  
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.**  
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.**  
The Ohio State University, Columbus, OH, USA.

2059. **Tuning of the Quadrature Elliptic Birdcage Coil Part II: An Optimization Approach.**  
University of Western Ontario and Robarts Research Institute, London, ON, Canada.

2060. **RF Field Mapping of a High Field (3T) Birdcage Coil.**  

2061. **3-Dimensional Full Wave Analysis for MRI RF Coils.**  
The Ohio State University, Columbus, OH, USA.

2062. **Development of TEM Head-Size Resonator for 3.0T MRI Head Coil.**  
The Catholic University of Korea and Hanme System, Seoul, Korea.

2063. **A Lumped Element TEM Resonator for Head at 3.0 Tesla.**  
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 31P 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.**  
Yonsei University, Seoul, Korea.

2069. **Optimized Probe-Design for Localized in vivo Mouse Brain 31P NMR Spectroscopy.**  
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.**  
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.**  
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.**  
Universitat Wurzburg, Germany.

2076. **A RF High Temperature Superconducting Two Coil Array.**  
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 Susceptibility 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.**
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.**
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.**
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 3He and 129Xe for Imaging Purposes.**
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.**
Theilen.
Johannes Gutenberg-University Mainz, Germany.
2092. **Considerations in Using the Variable-Flip-Angle Method in Laser-Polarized Magnetic Resonance Gas Imaging and Spectroscopy Experiments.**  
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.**  
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 $^3$He: Investigation of Spin-Lattice Relaxation and Correlation with Pulmonary Function.**  
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.**  
Johannes Gutenberg-University, Mainz, Germany.

2097. **Dynamically Adaptive Hyperpolarized Noble Gas MRI Using Multi-Resolution Line Scan Encoding.**  
Brigham & Women's Hospital, Harvard Medical School and Boston University, Boston, MA, USA.

2098. **Pulmonary Studies with Hyperpolarized $^3$He: Methods for Delivering Mixtures of $O_2$ and $^3$He for Small-Animal Imaging and Spectroscopy.**  
Duke University Medical Center, Durham, NC, USA.

2099. **Hyperpolarized Noble Gas Imaging using a Simple Programmable Gas Delivery System.**  
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.**  
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.**
Research Centre Julich, Julich, Germany.

2104. **Magnetic Resonance Imaging Using Oxygen as a T\(_1\) Contrast Agent.**
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.**
Ludwig-Maximilians-Universitat, Munich, Germany and Siemens Medizintechnik, Erlangen, Germany.

2106. **Dynamic \(^{17}\)O Imaging with Fast T\(_1\)[rho] Dispersion MRI.**
University of Pennsylvania, Philadelphia, PA, USA.

2107. **Imaging Obstructed Ventilation with Inert Fluorinated Gases.**
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.**
Catholic University of Louvain, Brussels, Belgium.

2110. **EPR Oximetry Mapping (EPROM) of Cartilage Formed in a Hollow Fiber Bioreactor.**
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.**
University of Aberdeen, Aberdeen, UK and Institutes of Organic and Kinetic Chemistry, Novosibirsk, Russia.

2112. **A Prototype Field-Cycling Overhauser MRI Scanner.**
Philips Research, Hamburg, Germany and Nycomed Innovation AB, Malmo, Sweden.

2113. **Sensitivity-Enhanced \(^{13}\)C EPI.**
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.**
Columbia University, New York, NY, USA and University of Hong Kong, China.

2116. **Restoration of Metabolic Images with A Priori Anatomic Information.**
Johns Hopkins University, Baltimore, MD, USA.

2117. **Triple Quantum Filtered Sodium Imaging of Muscle at 3.0T.**
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.**
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).**
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.**
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.**
University Hospital, Nijmegen, The Netherlands.
2125. **Magnetic Resonance Microangiography ([μ]-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.**
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.**
National Research Council Canada, Winnipeg, Canada and University of Exeter and Royal Devon & Exeter Hospital, Exeter, UK.

2131. **T₂-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.**
University of Florida, Gainesville, FL, USA.

2133. **Volumetric Analysis of Temporal Lobe Resections.**
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.**
University "Federico II", Naples, Italy.

2135. **In Vivo Quantitative Tissue Volume Fraction Analysis in the Brain using IR-SE-EPI.**
Vrije Universiteit, Amsterdam, The Netherlands and Mallinckrodt Institute of Radiology, St. Louis, MO, USA.
2136. **Statistical Morphometrics Applied to Cerebral Cortical Shape.**
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.**
Henry Ford Health System, Detroit, MI, USA.

2138. **A Non-Invasive MRI Measure of Subtle Longitudinal Volume Changes in Brain.**
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. **T₁ Fast Acquisition Relaxation Mapping (T₁ FARM): Optimized Data Acquisition.**
St. Joseph's Health Centre and University of Western Ontario, London, Ontario, Canada.

2143. **3D T₁ Mapping by Means of Fast Field Echo Technique.**
University of Manchester, UK; Zeneca Pharmaceuticals, Macclesfield, UK; Christy Hospital and Manchester Royal Infirmary, Manchester, UK.

2144. **Accurate Multislice T₁ 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 T₁ 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 T₁ Measurements with the Modified Fast Inversion Recovery Method.**
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 Postprandial 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.**
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.**
University of Pennsylvania, Philadelphia, PA, USA.

2153. **Can MR-Derived Topological Parameters Help Predict Osteoporotic Fractures?**
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.

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.**
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.**
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.**
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.**
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.**
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.**
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.**
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.**
Southern General Hospital, Glasgow, UK.

2178. **An Automatic Registration Algorithm for Cardiac MR Perfusion Analysis.**
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. DelLano, 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.**
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.**
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.**
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.**
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.**
University of Illinois at Urbana-Champaign, Urbana, IL, USA.

2187. **Automatic Segmentation of Grey and White Matter in Serial T1-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.**
University of Bergen, Bergen, Norway and Michigan State University, East Lansing, MI, USA.

2189. **Neural Network Segmentation and Classification of Quantitative T1 Images.**
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.**
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\(^2\)O MRI (PETAMRI).**
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.

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, Neuerberg, 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 Virtual 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.**  
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.**  
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.**  
IIT Kanpur, India and SGPGI, Lucknow, India.
2212. **Comparison of Commutator Images with Phase Images for the Depiction of Susceptibility Effects.**  
Inserm, Clermont-Ferrand, France.

2213. **Heterogeneous Brain Tissue Mimicking Phantom for the Assessment of MRI Spatial Distortion in Stereotactic Target Localization.**  
Hospital Na Homolce, Prague, The Czech Republic.

2214. **Phantom Development for Virutal Endoscopy of Bowel using Fluid and Gas Contrast Media.**  
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.**  
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:

\[ ^{13}\text{C} = 13\text{C} \quad \text{O}_2 = \text{O}_2 \quad \text{H}_2\text{O} = \text{H}_2\text{O} \quad \text{H}_2^{15}\text{O} = \text{H}_2^{15}\text{O} \]

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:

\[ ^{13}\text{C} = 13\text{C} \quad \text{O}_2 = \text{O}_2 \quad \text{H}_2\text{O} = \text{H}_2\text{O} \quad \text{H}_2^{15}\text{O} = \text{H}_2\,\text{15}\,\text{O} \]

**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: \( \Delta R_2 = [\delta]R_2 \)

\[ \alpha = [\text{alpha}] \quad \gamma = [\text{gamma}] \]
\[ \beta = [\text{beta}] \quad \mu = [\text{mu}] \]
\[ \Delta = [\text{delta}] \quad \rho = [\text{rho}] \]
\[ \phi = [\text{phi}] \quad \omega = [\text{omega}] \]

**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 \quad \text{Großmann} = \text{Grossman}

\[ \text{à, á, â, ä, å} = a \quad \text{ñ} = n \]
\[ \text{æ} = \text{ae} \quad \text{ŷ} = y \]
\[ \text{ç} = \text{c} \quad \text{ß} = \text{ss} \]
**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:

<table>
<thead>
<tr>
<th>Old Category</th>
<th>Name</th>
<th>Document Info</th>
<th>Subject</th>
<th>Old Category</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Cardiovascular</td>
<td>210, RF Coil</td>
<td>Safety/Bioeffects</td>
<td>101</td>
<td>RF Coils</td>
</tr>
</tbody>
</table>

**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