Opening Session

Room Plenary Hall 07:30-08:20 *Chair:* Georg Bongartz, ISMRM President

07:30 **Welcome & Award Presentations**.

2011 Mansfield Lecture

Room Plenary Hall 08:20-09:05 *Chair:* Georg Bongartz, ISMRM President

08:20 **Challenges in fMRI**
Seiji Ogawa, Ph.D.
Tohoku Fukushi University, Sendai, Japan

Plenary Lectures
Functional Brain Networks at "Rest": Mechanisms, Methods & Clinical Utilization

Room Plenary Hall 09:05-10:20 *Organizers:* Peter A. Bandettini & Mark J. Lowe

09:05 **1**. **What is the Physiological Basis of Functional Connectivity & What Can It Tell Us?**
Maurizio Corbetta
Washington University School of Medicine, St. Louis, MO, USA
Spontaneous or intrinsic, i.e. not stimulus- or task-driven, activity in the brain is not noise, but orderly and organized at the level of large scale systems in a series of functional networks that maintain at all times a high level of coherence. Understanding this distributed spatio-temporal structure is critical for understanding neuronal communication and behavior.

09:30 **2**. **Resting-State Signals: Identification, Classification & Relation to Brain Connectivity**
Stephen M. Smith
Oxford University FMRIB Centre, Oxford, England, UK
Cardiovascular MRI technology continues to evolve in terms of its ability to rapidly and reliably produce accurate, functional, diagnostic information, and also in its capacity to provide quantitative results. a number of centers are beginning to explore the use of MRI as a means to triage patients presenting in the emergency room with acute chest pain. This presentation will explore the latest advances in cardiovascular MRI methods that are especially applicable to the diagnosis of Acute Coronary Syndrome (ACS).

09:55 **3**. **Resting Functional Connectivity: Potential as a Clinical Marker in Individual Patients**
Michael D. Greicius
Stanford University Medical Center, Stanford, CA, USA
Functional MRI currently has few clinical applications. This is due, in part, to the difficulty of using task-activation fMRI in a clinical setting. Resting-state fMRI, which allows for the detection of 15-20 large-scale brain networks, has the potential to overcome some of these clinical limitations. This talk will examine efforts to develop resting-state fMRI biomarkers for several neuropsychiatric disorders including coma, depression and chronic pain. Particular emphasis will be placed on resting-state fMRI as a potential biomarker in Alzheimer's disease.

Clinical Intensive Course
(Admission limited to Clinical Course registrants only)
Hip Bone & Soft Tissue Pathology: Case-Based Teaching

Room 516A-C 08:30-09:45 *Moderator:* Mark Schweitzer

08:30 **Soft Tissue Pathology About the Hip**
Miriam A. Bredella

09:10 **Osseous Pathology About the Hip**
Mark Schweitzer

Clinical Intensive Course
(Admission limited to Clinical Course registrants only)
Oncologic Body Imaging

Room 510 08:30-10:15

08:30 **Tumor Response Assessment using CT & MRI: Current Clinical Practice**
Frank H. Miller

09:00 **Tumor Response Assessment using the Advanced MRI Methods**
Dow-Mu Koh

09:30 **Whole Body DWI: Does It Have a Role in Oncology?**
Taro Takahara

10:00 **Discussion**

Clinical Intensive Course
MR Imaging in Brain Tumors - ISMRM/ASNR Joint Session

Room 510 11:00-13:00 *Moderators:* Meng Law & Brian D. Ross

11:00 **Cerebral Blood Flow & Permeability in Brain Tumors**
Meng Law

11:25 **Diffusion in Brain Tumors**
Danielle van Westen

11:50 **MR Biomakers in Brain Tumor**
Thomas L. Chenevert

12:15 **Pseudoprogression, Recurrence & Radiation Necrosis**
Pia C. Maly Sundgren

12:45 **Discussion**

Clinical Intensive Course
Clinical Protocol Challenges in MSK

Room 516A-C 11:00-13:00 *Moderator:* Garry E. Gold

11:00 **High Field (3T & 7T)**
Garry E. Gold

11:40 **Reducing Metallic Susceptibility**
Hollis G. Potter

12:20 **Pediatric**
Jerry R. Dwek

High Resolution Brain Imaging

Room 511A-C 11:00-13:00 *Moderators:* Fernando Calamante & Timothy Q. Duong

11:00 **4**. **Using *In-Vivo* MRI to Study Learning Induced Brain Plasticity in Adult Mice Trained on a Spatial Maze**
Jurgen Germann[1], D. Vousden[1], P Steadman[1], J. Dazai[1], C. Laliberte[1], S. Spring[1], L. Cahill[1], R. M. Henkelman[1], Jason P. Lerch[1]
[1]The Mouse Imaging Centre, the Hospital for Sick Children, Toronto, Ontario, Canada

11:12 **5**. **Can Preexisting Differences in Neuroanatomy Predict Training Performance? An *In-Vivo* MRI study of Adult Mice Trained on a Spatial Maze**

Jurgen Germann[1], P. Steadman[1], D. Vousden[1], J. Dazai[1], S. Spring[1], C. Laliberte[1], L. Cahill[1], R. M. Henkelman[1], J. P. Lerch[1]

[1]The Mouse Imaging Centre, the Hospital for Sick Children, Toronto, Ontario, Canada

11:24 **6**. **Super-Resolution Track-Density Imaging Studies of Mouse Brain: Comparison to Histology**

Fernando Calamante[1,2], Jacques-Donald Tournier[1,2], Nyoman D. Kurniawan[3], Zhengyi Yang[3], Erika Gyengesi[4], Graham J. Galloway[3], David C. Reutens[3], Alan Connelly[1,2]

[1]Brain Research Institute, Florey Neuroscience Institutes, Heidelberg West, Victoria, Australia; [2]Department of Medicine, University of Melbourne, Melbourne, Victoria, Australia; [3]Centre for Advanced Imaging, the University of Queensland, Brisbane, Queensland, Australia; [4]Neuroscience Research Australia, Randwick, New South Wales, Australia

11:36 **7**. **Ultra-High Resolution Functional MRI & Electrophysiology of the Rat Primary Somatosensory Cortex**

Yen-Yu Ian Shih[1], You-Yin Chen[2], Hsin-Yi Lai[2], Timothy Q. Duong[1]

[1]Research Imaging Institute, University of Texas Health Science Center at San Antonio, San Antonio, TX, USA; [2]Institute of Biomedical Engineering, National Yang-Ming University, Taipei, Taiwan

11:48 **8**. **Magnetic Resonance Microscopy of Human α-Motor Neurons & Neural Processes**

Jeremy Joseph Flint[1,2], Brian Hansen[3], Sharon Portnoy[1,2], Choong H. Lee[2,4], Michael A. King[5], Michael Fey[6], Franck Vincent[6], Peter Vestergaard-Poulsen[3], Stephen J. Blackband[2,7]

[1]Neuroscience, University of Florida, Gainesville, Fl, USA; [2]McKnight Brain Institute, University of Florida, Gainesville, Fl, USA; [3]Center for Functionally Integrative Neuroscience, University of Aarhus, Aarhus, Denmark; [4]Electrical Engineering, University of Florida, Gainesville, Fl, USA; [5]Pharmacology & Therapeutics, University of Florida, Gainesville, Fl, USA; [6]Bruker Biospin; [7]National High Magnetic Field Laboratory, Talahassee, Fl, USA

12:00 **9**. **Evidence Towards Columnar Organization of Human Area MT with Sub-Millimetric, 3D, T_2 weighted BOLD fMRI at 7 Tesla**

Federico De Martino[1], Jan Zimmermann[1], Gregor Adriany[2], Pierre-Francois van de Moortele[2], David A. Feinberg[3], Kamil Ugurbil[2], Rainer Goebel[1], Essa Yacoub[2]

[1]Cognitive Neuroscience, Maastricht University, Maastricht, Netherlands; [2]CMRR, Radiology, University of Minnesota, Minneapolis, MN, USA; [3]Advanced MRI Technologies, Sebastopol, CA, USA

12:12 **10**. **Within Digit Somatotopy of the Human Somatosensory Cortex using fMRI at 7T**

Rosa M. Sanchez Panchuelo[1], Julien Besle[2], Richard Bowtell[3], Denis Schluppeck[2], Susan Francis[3]

[1]Sir Peter Mansfield Magnetic Resonance Centre , University of Nottingham, Nottingham, United Kingdom; [2]School of Psychology, University of Nottingham, Nottingham, United Kingdom; [3]Sir Peter Mansfield Magnetic Resonance Centre, University of Nottingham, Nottingham, United Kingdom

12:24 **11**. **Fast High Resolution Whole Brain T_2* Weighted Imaging using Echo Planar Imaging at 7T**

Jaco J. M. Zwanenburg[1, 2], Maarten J. Versluis[3], Peter R. Luijten[1], Natalia Petridou[1, 4]

[1]Radiology, Universiy Medical Center Utrecht, Utrecht, Netherlands; [2]Image Sciences Institute, Universiy Medical Center Utrecht, Utrecht, Netherlands; [3]Radiology, Leiden University Medical Center, Leiden, Netherlands; [4]Rudolf Magnus Institute, University Medical Center Utrecht, Utrecht, Netherlands

12:36 **12**. **Investigation of Magnetic Susceptibility Contrast Across Cortical Grey Matter & White Matter**

Masaki Fukunaga[1,2], Peter van Gelderen[1], Jongho Lee[1], Tie-Qiang Li[1], Jacco A. de Zwart[1], Hellmut Merkle[1], Kant M. Matsuda[3], Eiji Matsuura[4], Jeff H. Duyn[1]

[1]Advanced MRI section, LFMI, NINDS, National Institutes of Health, Bethesda, MD, USA; [2]Biofunctional Imaging, Immunology Frontier Research Center, Osaka University, Suita, Osaka, Japan; [3]Laboratory of Pathology, NCI, National Institutes of Health, Bethesda, MD, USA; [4]Laboratory of Neuroimmunology, NINDS, National Institutes of Health, Bethesda, MD, USA

12:48 **13**. **Exploring Orientation Dependence of T_2* in White Matter by Extreme Rotation of the Human Head at 7 Tesla**

Graham Wiggins[1], Chris Wiggins[2], Bei Zhang[1], Ryan Brown[1], Bernd Stoeckel[3], Daniel K. Sodickson[1]

[1]Center for Biomedical Imaging, Department of Radiology, New York University School of Medicine, New York, NY10016, USA; [2]CEA/NeuroSpin, Saclay, France; [3]Siemens Medical Solutions USA Inc, New York, NY, USA

Experimental Myocardial Imaging & Spectroscopy

Room 511D-F 11:00-13:00 *Moderators:* David Sosnovik & Gustav J. Strijkers

11:00 **14**. **Introduction**
Frederick H. Epstein

11:12 **15**. **Regional Quantification of Myocardial Stiffness using MR Elastography**
Arunark Kolipaka[1], Kiaran McGee[1], Shivani Aggarwal[1], Qingshan Chen[1], Nandan Anavekar[1], Armando Manduca[1], Richard Ehman[1], Philip Araoz[1]
[1]Mayo Clinic, Rochester, MN, USA

11:24 **16**. **Embryonic Cardiomyocytes Improve Contractility & Viability of Ischemic Myocardium**
Leonie E. Paulis[1], Alexandra Klein[2], Tessa Geelen[1], Bernd Fleischmann[2], Wilhelm Roell[2], Klaas Nicolay[1], Gustav J. Strijkers[1]
[1]Biomedical NMR, Department of Biomedical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands; [2]Institute for Physiology, Life & Brain Centre, University of Bonn, Bonn, Germany

11:36 **17**. **Beyond Qualitative Tractography: A Novel & Reproducible Technique for the Quantitative Analysis of Cardiac Diffusion MR Tractography Datasets *In Vivo***
Choukri Mekkaoui[1], Shuning Huang[1], Guangping Dai[1], Timothy G. Reese[1], Udo Hoffmann[2], Marcel P. Jackowski[3], David E. Sosnovik[1]
[1]Radiology, Harvard Medical School, Massachusetts General Hospital, Martinos Center For Biomedical Imaging, Charlestown, MA, USA; [2]Radiology, Massachusetts General Hospital, Harvard Medical School, USA; [3]Computer Science, University of São Paulo, Institute of Mathematics & Statistics, São Paulo, Brazil

11:48 **18**. **Microstructural Signatures of Ischemia & Stem Cell Therapy in the Myocardium Revealed with Serial Diffusion Tensor MRI & Tractography of the Mouse Heart *In Vivo*.**
Shuning Huang[1], Choukri Mekkaoui[1], Howard H. Chen[1], Soeun Ngoy[2], Michael Bauer[2], Ruopeng Wang[1], Van J. Wedeen[1], Guangping E. Dai[1], Ronglih Liao[2], David E. Sosnovik[1, 3]
[1]Martinos Center for Biomedical Imaging, Mass General Hospital, Charlestown, MA, USA; [2]Cardiology, Brigham & Woman's Hospital, Boston, MA, USA; [3]Cardiology, Mass General Hospital, Charlestown, MA, USA

12:00 **19**. **Quantitative Assessment of Mitochondrial Metabolic Efficiency by ^{17}O & ^{31}P MR Spectroscopy in Isolated Rat Hearts**
Bharath Atthe[1, 2], Mary Kemerer[1, 2], Ya Chen[1, 2], Ming Lu[1, 2], Gheorghe Mateescu[2, 3], Chris Flask[2, 3], Xin Yu[1, 2]
[1]Biomedical Engineering, Case Western Reserve University, Cleveland, OH, USA; [2]Case Center for Imaging Research, Case Western Reserve University, Cleveland, OH, USA; [3]Radiology, Case Western Reserve University School of Medicine, Cleveland, OH, USA

12:12 **20**. **Creatine Kinase Overexpression Increases *In Vivo* ATP Synthesis in the Failing Mouse Heart**
Ashish Gupta[1,2], Vadappuram P. Chacko[3], Yibin Wang[4], Robert G. Weiss[2,5]
[1]Department of Medicine, Division of Cardiology, the Johns Hopkins University, School of Medicine, Baltimore, MD, USA; [2]Department of Radiology, Division of Magnetic Resonance Research, the Johns Hopkins University , Baltimore, MD, USA; [3]Department of Radiology,Division of Magnetic Resonance Research, the Johns Hopkins University School of Medicine, Baltimore, MD, USA; [4]Department of Anesthesiology & Medicine, University of California, Los Angeles, CA, USA; [5]Department of Medicine, Division of Cardiology, the Johns Hopkins University School of Medicine, Baltimore, MD, USA

12:24 **21**. **Hyperpolarized ^{13}C Magnetic Resonance Imaging & Spectroscopy Uniquely Reveal Early & Late Onset Metabolic Changes in the Failing Heart**
Marie Allen Schroeder[1, 2], Angus Z. Lau[1, 3], Albert Chen[4], Kim Connelly[1, 5], Xudong Hu[5], Jennifer Barry[1], Damian J. Tyler[2], Kieran Clarke[2], Graham A. Wright[1,3], Chuck H. Cunningham[1,3]
[1]Schulich Heart Centre, Sunnybrook Health Sciences Centre, Toronto, Ontario , Canada; [2]Physiology, Anatomy & Genetics, University of Oxford, Oxford, Oxfordshire, United Kingdom; [3]Department of Medical Biophysics, University of Toronto, Toronto, Ontario, Canada; [4]GE-Healthcare, Toronto, Ontario, Canada; [5]Keenan Research Centre of the Li Ka Shing Knowledge Institute, St Michael's Hospital , Toronto, Ontario, Canada

12:36 **22**. **Assessment of Chemical Exchange Saturation Transfer Effects in Myocardial Tissue at 7T**
Mohammad Haris[1], Anup Singh[1], Kejia Cai[1], Walter R. T. Witschey[2], James J. Pilla[1], Giovanni Ferrari[3], Kevin Koomalsingh[3], Robin Hinmon[3], Gerald Zsido[1], Joseph H. Gorman III[3], Robert C. Gorman[3], Hari Hariharan[1], Ravinder Reddy[1]
[1]CMROI, Radiology, University of Pennsylvania, Philadelphia, PA, USA; [2]University Hospital Freiburg, Germany; [3]Department of Surgery, University of Pennsylvania

12:48 **23**. **High Spatial Resolution Free Breathing 3D T_2 Mapping for Edema Detection in Radio Frequency Ablation**
Haiyan Ding[1,2], Di Xu[1], M. Muz Zviman[3], Valeria Sena-Weltin[3], Luciano Amado[3], Saman Nazarian[3], Henry Halperin[3], Elliot R. McVeigh[1], Daniel A. Herzka[1]
[1]Department of Biomedical Engineering, Johns Hopkins School of Medicine, Baltimore, MD, USA; [2]Department of Biomedical Engineering, Tsinghua University, Beijing, China, People's Republic of; [3]Department of Medicine, Division of Cardiology, Johns Hopkins School of Medicine, Baltimore, MD, USA

Fetal & Pediatric Neuro Studies

Room 512A-G 11:00-13:00 *Moderators:* Patricia Ellen Grant & Judith Verhoeven

11:00 **24**. **Radial & Tangential Migrational Pathways Revealed by Diffusion Tractography**
Emi Takahashi[1], Rebecca D. Folkerth[2], Albert M. Galaburda[3], P. Ellen Grant[1]
[1]Children's Hospital Boston, Boston, MA, USA; [2]Brigham & Women's Hospital; [3]Beth Israel Deaconess Medical Center

11:12 **25**. ***In Vivo* Fetal Cortical Development**
Cedric Clouchoux[1,2], Dimitri Kudelski[3], Ali Gholipour[4], Simon K. Warfield[4], Sophie Viseur[5], Jean-Luc Mari[3], Alan C. Evans[2], Adre J. DuPlessis[1], Catherine Limperopoulos[1,2]
[1]Children's National Medical Center, Washington, DC, USA; [2]Montreal Neurological Institute, Montreal, QC, Canada; [3]LSIS, Marseille, France; [4]Children's Hospital Boston, Boston, MA, USA; [5]Universite de Provence, Marseille, France

11:24 **26**. **Detection & Mapping of Delays in Early Cortical Folding in Fetuses with Ventriculomegaly from *In Utero* MRI**
Piotr A. Habas[1], Julia A. Scott[1], Vidya Rajagopalan[1], Kio Kim[1], A. James Barkovich[1], Orit A. Glenn[1], Colin Studholme[1]
[1]University of California San Francisco, San Francisco, CA, USA

11:36 **27**. **Diminished Regional Brain Growth is Associated with Impaired White Matter Microstructural Development Following Premature Birth**
Gareth Ball[1], James P. Boardman[1,2], Daniel Rueckert[3], Paul Aljabar[3], Tomoki Arichi[1,4], Nazakat Merchant[1,4], Ioannis S. Gousias[1], A. David Edwards[1,4], Serena J. Counsell[1]
[1]Imperial College London & MRC Clinical Sciences Centre, London, United Kingdom; [2]Simpson Centre for Reproductive Health, Royal Infirmary of Edinburgh, Edinburgh, United Kingdom; [3]Department of Computing, Imperial College London, London, United Kingdom; [4]Division of Neonatology, Imperial College Healthcare NHS Trust, London, United Kingdom

11:48 **28**. **Initial Experience with Pseudo-Continuous Arterial Spin Labeling (pCASL) in the Infant Brain**
Mathieu Dehaes[1,2], Rudolph Pienaar[2], Janet S. Soul[3], P. Ellen Grant[1,2]
[1]Division of Newborn Medicine, Department of Medicine, Children's Hospital Boston, Harvard Medical School, Boston, MA, USA; [2]Center for Fetal-Neonatal Neuroimaging & Developmental Science, Boston, MA, USA; [3]Department of Neurolory, Children's Hospital Boston, Harvard Medical School, Boston, MA, USA

12:00 **29**. **Prognostic Value of ^{1}H-MRS & DTI after Hypothermic Treatment in Newborns with Perinatal Asphyxial Encephalopathy**
Claudia Testa[1], Caterina Tonon[1], David Neil Manners[1], Emil Malucelli[1], Sara Grandi[2], Francesca Sbravati[2], Giacomo Faldella[2], Gina Ancora[2], Raffaele Lodi[1]
[1]MR Spectroscopy Unit, Department of Internal Medicine, Aging & Nephrology, University of Bologna, Bologna, Italy; [2]Neonatology Unit, Department of Woman, Child & Adolescent Health, University of Bologna, Bologna, Italy

12:12 **30**. **Serial Diffusion Tensor Tractography Studies in Term Neonates with Hypoxic Ischemic Encephalopathy**
Richa Trivedi[1], Abhishek Yadav[2], Gyanendra Kumar Malik[3], Archana Yadav[3], Ram K. S. Rathore[4], Rakesh Kumar Gupta[2]
[1]Institute of Nuclear Medicine & Allied Sciences, New Delhi, Uttar Pradesh, India; [2]Radiodiagnosis, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India, Lucknow, Uttar Pradesh, India; [3]Paediatrics, Chhatrapati Sahu ji Maharaj Medical University, Lucknow, Uttar Pradesh, India; [4]Mathematics & Statistics, Indian Institute of Technology, Kanpur, Kanpur, Uttar Pradesh, India

12:24 **31**. **Correlation of Thalamic Volume & Microstructural Abnormalites in Central Visual Pathways in High Risk Preterm Infants**
Arabhi C. Nagasunder[1,2], Rafael Ceschin[3], Robin L. Haynes[4], Jessica Wisnowski[1,5], Jane Tavare[6], Marvin D. Nelson[1], Stefan Bluml[1,2], Lisa Paquette[7], Ashok Panigrahy[1,3]
[1]Radiology, Childrens Hospital Los Angeles, Los Angeles, CA, USA; [2]Rudi Schulte Research Institute, Santa Barbara, CA, USA; [3]Radiology, Children's Hospital of Pittsburgh of UPMC, Pittsburgh, PA, USA; [4]Pathology, Children's Hospital Boston, Boston, MA, USA; [5]Brain & Creativity Institute, University of Southern California, Los Angeles, CA, USA; [6]Division of Pathology, Childrens Hospital Los Angeles, Los Angeles, CA, USA; [7]Division of Neonatology, Childrens Hospital Los Angeles, Los Angeles, CA, USA

12:36 **32**. **Corpus Callosum Alterations in Preterm Infants at Term Predict Motor Outcomes at 5 Years**
Deanne Kim Thompson[1,2], Terrie E. Inder[1,3], Gehan Roberts[1], Jeremy Lim[1], Lex W. Doyle[1,4], Peter J. Anderson[1], Gary F. Egan[2]
[1]Murdoch Childrens Research Institute, Royal Children's Hospital, Parkville, Victoria, Australia; [2]Florey Neurosciences Institute, Centre for Neuroscience, University of Melbourne, Parkville, Victoria, Australia; [3]Department of Pediatrics, St Louis Children's Hospital, Washington University in St Louis, St Louis, USA; [4]Department of Obstetrics & Gynecology, Royal Women's Hospital, Parkville, Victoria, Australia

12:48 **33**. **Prematurity & Prenatal Growth Restriction Differently Affects Brain Connectivity**
Elda Fischi-Gomez[1], François Lazeyras[2], Cristina Borradori-Tolsa[3], Jean-Philippe Thiran[1], Petra S. Hüppi[3]
[1]Signal Processing Laboratory 5 (LTS5), Ecole Politechnique Federale de Lausanne, Lausanne, Vaud, Switzerland; [2]Service of Radiology, University Hospital of Geneva, Geneva, Switzerland; [3]Division of Development & Growth. Department of Pediatrics, University of Geneva, Geneva, Switzerland

Microscopy & Elastography

Room 513A-D 11:00-13:00 *Moderators:* Robert R. Edelman & Cornelius J. Faber

11:00 **34**. **Non-Invasive Visualization of the Complete Cardiac Conduction System using MR Microscopy**
Min-Sig Hwang[1,2], Katja E. Odening[3], Bum-Rak Choi[3], Gideon Koren[3], Stephen J. Blackband[1,2], John R. Forder[1,4]
[1]McKnight Brain Institute, Gainesville, FL, USA; [2]Neuroscience, University of Florida, Gainesville, FL, USA; [3]Cardiovascular Research Center, the Rhode Island Hospital, Alpert Medical School of Brown University, Providence, RI, USA; [4]Radiology, University of Florida, Gainesville, FL, USA

11:12 **35**. **A New Method for Phenotyping the Brain Tumor Microenvironment using MR Microscopy**
Eugene Kim[1], Jiangyang Zhang[2], Karen Hong[3], Arvind P. Pathak[2,4]
[1]Department of Biomedical Engineering, the Johns Hopkins University School of Medicine, Baltimore, MD, USA; [2]Russell H. Morgan Department of Radiology & Radiological Science, the Johns Hopkins University School of Medicine; [3]The Johns Hopkins University School of Public Health; [4]JHU ICMIC Program

11:24 **36**. **MR Microscopy of Brain Cytoarchitecture by Quantitative Mapping of Magnetic Susceptibility**
Chunlei Liu[1,2], Wei Li[1], G. Allan Johnson[2]
[1]Brain Imaging & Analysis Center, Duke University, Durham, NC, USA; [2]Radiology, Duke University, Durham, NC, USA

11:36 **37**. **Imaging Neural Stem Cell Populations in the Developing Mouse Brain using Magnetic Resonance Micro Histology**
Francesca C. Norris[1, 2], Jon O. Cleary[1, 3], Joanne Henderson[4], Benjamin Sinclair[1, 5], Karen McCue[6], Jack A. Wells[1], Sebastien Ourselin[7], Paolo Salomoni[4], Peter J. Scambler[6], Mark F. Lythgoe[1]
[1]Centre for Advanced Biomedical Imaging, University College London, London, United Kingdom; [2]Centre for Mathematics & Physics in the Life Sciences & Experimental Biology (CoMPLEX), University College London, London, United Kingdom; [3]Department of Medical Physics & Bioengineering, University College London, London, United Kingdom; [4]Samantha Dickson Brain Cancer Unit, UCL Cancer Institute, London, United Kingdom; [5]Centre for Medical Image Computing, University College London, London, United Kingdom; [6]Molecular Medicine Unit, UCL Institute of Child Health, London, United Kingdom; [7]Centre for Medical Image Computer, University College London, London, United Kingdom

11:48 **38**. **Dual-Mode Optical-MR Microscopy with Uniplanar Gradient Coils**
Andrey V. Demyanenko[1], Shuyi Nie[1], Yun Kee[1], Marianne Bronner-Fraser[1], Julian Michael Tyszka[1]
[1]Biology, California Institute of Technology, Pasadena, CA, USA

12:00 **39**. **Investigating Anisotropic Elasticity using MR-Elastography Combined with Diffusion Tensor Imaging: Validation using Anisotropic & Viscoelastic Phantoms**
Eric Chuan Qin[1], Ralph Sinkus[2], Caroline Rae[1], Lynne Eckert Bilston[1]
[1]Neuroscience Research Australia, Randwick, NSW, Australia; [2]Centre de Recherches Biomédicales , Hopital Beaujon, Paris, France

12:12 **40**. **Biomechanical Properties Quantified *In Vivo* By Magnetic Resonance Elastography Correlate wth Myelination & Brain Parenchymal Integrity – a Combined 7 Tesla MRE & Histopathology Study in a Mouse Model of Multiple Sclerosis**
Katharina Schregel[1,2], Eva Wuerfel[3], Philippe Garteiser[4], Timur Prozorovskiy[5], Hartmut Merz[6], Dirk Petersen[1], Jens Wuerfel[1,7], Ralph Sinkus[4,7]
[1]Institute of Neuroradiology, University Luebeck, Luebeck, Germany; [2]INSERM UMR 773, CRB3, Centre de Recherches Biomédicales Bichat-Beaujon , Paris, France; [3]Department of Pediatrics, University Luebeck, Luebeck, Germany; [4]INSERM UMR 773, CRB3, Centre de Recherches Biomédicales Bichat-Beaujon, Paris, France; [5]Molecular Neurology, Heinrich-Heine-University, Life Science Center, Duesseldorf, Germany; [6]Department of Pathology, University Luebeck, Luebeck, Germany; [7]authors contributed equally

12:24 **41**. **Hydrocephalus Detection using Intrinsically-Activated MRE**
Keith D. Paulsen[1,2], Adam J. Pattison[1], Irina M. Perreard[3], John B. Weaver[1,3], David W. Roberts[3]
[1]Thayer School of Engineering, Dartmouth College, Hanover, NH, USA; [2]Norris Cotton Cancer Center, Lebanon, NH, USA; [3]Dartmouth-Hitchcock Medical Center, Lebanon, NH, USA

12:36 **42**. **Cerebral MR Elastography for Measuring Poroelastic Properties of the Brain**
Sebastian Hirsch[1], Dieter Klatt[1], Sebastian Papazoglou[1], Kaspar Josche Streitberger[1], Juergen Braun[2], Ingolf Sack[1]
[1]Department of Radiology, Charité - University Medicine Berlin, Berlin, Germany; [2]Institute of Medical Informatics, Charité - University Medicine Berlin, Berlin, Germany

12:48 **43**. **Cardiac-Gated Hepatic MR Elastography with Intrinsic Transient Waveforms**
David Andrew Olsen[1], Pengfei Song[1], Kevin J. Glaser[1], Richard L. Ehman[1]
[1]Mayo Clinic, Rochester, MN, USA

Prostate Cancer (Clinical Studies)

Room 518-A-C 11:00-13:00 *Moderators:* Jurgen J. Fütterer & Anwar Padhani

11:00 **44**. **Introduction**
Anwar Padhani

11:12 **45**. **Diffusion Kurtosis Imaging in Prostate Cancer**
Andreas Lemke[1], Anja Weidner[2], Jörg Döpfert[1], Dietmar Dinter[2], Lothar Rudi Schad[1]
[1]Computer Assisted Clinical Medicine, Heidelberg University, Mannheim, Germany; [2]Department of Clinical Radiology & Nuclear Medicine, Heidelberg University, Mannheim, Germany

11:24 **46**. **Preoperative Nomograms Incorporating Magnetic Resonance Imaging & Spectroscopy for Prediction of Insignificant Prostate Cancer**
Amita Shukla-Dave[1], Hedvig Hricak[1], Oguz Akin[1], Changhong Yu[2], Kristen L. Zakian[1], Victor Reuter[1], Peter T. Scardino[1], James Eastham[1], Michael W. Kattan[2]
[1]Memorial Sloan-Kettering Cancer Center, New York, NY, USA; [2]Cleveland Clinic, Cleveland, OH, USA

11:36 **47**. **Multiparametric 3T MR Imaging of Prostate Cancer: Histopathologic Correlation using Customized MRI-Based Specimen Molds**
Baris Turkbey[1], Haresh Mani[2], Vijay Shah[3,4], Marcelino Bernardo[3, 4], Ardeshir Rastinehad[5], Thomas Pohida[6], Yuxi Pang[7], Dagane Daar[3], Compton Benjamin[5], Yolanda McKinney[1], Joanna Shih[8], Maria J. Merino[2], Peter A. Pinto[5], Peter L. Choyke[1]
[1]Molecular Imaging Program, NCI, NIH, Bethesda, MD, USA; [2]Laboratory of Pathology, NCI, NIH, USA; [3]Molecular Imaging Program, NCI, NIH, USA; [4]Imaging Physics, SAIC Frederick, Inc., NCI-Frederick; [5]Urologic Oncology Branch, NCI, NIH, USA; [6]Division of Computational Bioscience, Center for Information Technology, NIH, USA; [7]Philips Healthcare, USA; [8]Biometric Research Branch, NCI, NIH, USA

11:48 **48**. **Diffusion Weighted Magnetic Resonance Imaging (DW-MRI) for Locally Recurrent Prostate Cancer after External Beam Radiotherapy (EBRT)**
Veronica A. Morgan[1], Sharon L. Giles[1], Sophie F. Riches[1], David Dearnaley[2], Nandita M. deSouza[1]
[1]CRUK & EPSRC Cancer Imaging Centre, Institute of Cancer Research & Royal Marsden NHS Foundation Trust, Sutton, Surrey, United Kingdom; [2]Academic Urology, Institute of Cancer Research & Royal Marsden NHS Foundation Trust, Sutton, Surrey, United Kingdom

12:00 **49**. **Diagnostic value of ADC in Patients with Prostate Cancer: Influence of the Choice of b-Values**
Gregor Thörmer[1], Josephin Otto[1], Martin Reiss-Zimmermann[1], Matthias Seiwerts[1], Nikita Garnov[1], Michael Moche[1], Thomas Kahn[1], Harald Busse[1]
[1]Department of Diagnostic & Interventional Radiology, Leipzig University Hospital, Leipzig, Saxony, Germany

12:12 **50**. **A Novel Luminal Water Model for DCE MRI of Prostatic Tissues**
Susan M. Noworolski[1,2], Galen D. Reed[1,2], John Kurhanewicz[1, 2]
[1]Radiology & Biomedical Imaging, University of California, San Francisco, San Francisco, CA, USA; [2]Graduate Group in Bioengineering, University of California, San Francisco & Berkeley, San Francisco & Berkeley, CA, USA

12:24 **51**. **Validation with DCE-CT Proves that the DCE-MRI Phase Signal Can be Used for Robust Measurement of the Arterial Input Function (AIF) in the Iliac Arteries**
Johannes Georg Korporaal[1], Cornelis A. T. van den Berg[1], Matthias J. P. van Osch[2], Greetje Groenendaal[1], Marco van Vulpen[1], Uulke A. van der Heide[1]
[1]Dept. of Radiotherapy, University Medical Center Utrecht, Utrecht, Netherlands; [2]Dept. of Radiology, Leiden University Medical Center, Leiden, Netherlands

12:36 **52**. **Magnetic Resonance Imaging-Transrectal Ultrasound Fusion Improves Biopsy Yield**
Daniel Jason Aaron Margolis[1], Shyam Natarajan[2], Dinesh Kumar[3], Ram Narayanan[3], Leonard Marks[4]
[1]Dept. of Radiology, UCLA David Geffen School of Medicine, Los Angeles, CA, USA; [2]Center for Advanced Surgical & Interventional Technology , UCLA David Geffen School of Medicine; [3]Eigen; [4]Dept. of Urology, UCLA David Geffen School of Medicine, Los Angeles, CA, USA

12:48 **53**. **3T MRI-Guided Transperineal Targeted Prostate Biopsy: Clinical Feasibility, Safety & Early Results**
Kemal Tuncali[1], Junichi Tokuda[1], Andriy Fedorov[1], Iulian Iordachita[2], Sam Song[1], Sota Oguro[1], Andras Lasso[3], Fiona M. Fennessy[1], Yi Tang[1], Nobuhiko Hata[1], Clare M. Tempany[1]
[1]Radiology, Brigham & Women's Hospital, Boston, MA, USA; [2]The Johns Hopkins University, Baltimore, MD, USA; [3]School of Computing, Queen's University, ON, Canada

Cancer Cells

Room 520B-F 11:00-13:00 *Moderators:* E. Jim Delikatny & Kristine Glunde

11:00 **54**. **Both the Glutaminolytic & Reverse Isocitrate Dehyrdogenase Pathways are Important for De Novo Lipogenesis from Glutamine in Immortilized Hematapoietic Cells**
Anthony Mancuso[1,2], Kathryn E. Wellen[1], Chao Lu[1], Weixia Liu, Stephen Pickup, Craig B. Thompson[1,3]
[1]Cancer Biology, University of Pennsylvania, Philadelphia, PA, USA; [2]Radiology, University of Pennsylvania, Philadelphia, PA, USA Minor Outlying Islands; [3]Memorial Sloan Kettering Cancer Center, New York, NY, USA

11:12 **55**. **Lactate-Mediated Metabolic Cooperation between Human Stromal & Breast Cancer Cells**
Ellen Ackerstaff[1], Brijesh B. Patel[2], Yanique I. Rattigan[2], George Sukenick[3], Natalia Kruchevsky[1], John W. Glod[2], Jason A. Koutcher[1], Debabrata Banerjee[2]
[1]Memorial Sloan-Kettering Cancer Center, New York, NY, USA; [2]The Cancer Institute of New Jersey, RWJMS, UMDNJ, New Brunswick, NJ, USA; [3]Sloan-Kettering Institute, New York, NY, USA

11:24 **56**. **Free Choline Influences Adaptation Mechanisms in Choline Phospholipid Metabolism of Human Breast Cancer Cells**
Balaji Krishnamachary[1], Noriko Mori[1], Mayur Gadiya[1], Yelena Mironchik[1], Flonne Wildes[1], Kristine Glunde[1], Zaver M. Bhujwalla[1]
[1]Radiology, Johns Hopkins University, Baltimore, MD, USA

11:36 **57**. **Effects of Targeting the Glycerophosphocholine Phosphodiesterase GDPD5 in Breast Cancer Models**
Maria Dung Cao[1,2], Lu Jiang[1], Balaji Krishnamachary[1], Mailin Doepkens[1,3], Zaver M Bhjuwalla[1], Ingrid Gribbestad[2], Kristine Glunde[1]
[1]Russell H. Morgan Department of Radiology & Radiological Science, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [2]Department of Circulation & Medical Imaging, Norwegian University of Science & Technology (NTNU), Trondheim, Norway; [3]Department of Chemistry & Biology, University of Bremen, Bremen, Germany

11:48 **58**. **Effect of the HIF Pathway Inhibitor NSC-134754 on Glucose Metabolism**
Lauren C. J. Baker[1], Yuen-Li Chung[1], Jessica K. Boult[1], Margaret A. Ashcroft[2], Simon P. Robinson[1]
[1]CRUK & EPSRC Cancer Imaging Centre, the Institute of Cancer Research & Royal Marsden NHS Trust, Sutton, Surrey, United Kingdom; [2]University College London, United Kingdom

12:00 **59**. **Magnetic Resonance Spectroscopy Metabolic Profiling Reveals Different Mechanisms of Action in Response to Signaling Inhibitors in Prostate Cancer**
Alessia Lodi[1], Sabrina M. Ronen[1]
[1]University of California San Francisco, San Francisco, CA, USA

12:12 **60**. **Comparing the Chemotherapeutic Response of Prostate Cancer Cells using MR-visible Lipids & Fluorescent Fatty Acid Incorporation**
Daniel-Joseph Leung[1,2], E. James Delikatny[2]
[1]Department of Pharmacology, University of Pennsylvania, Philadelphia, PA, USA; [2]Department of Radiology, University of Pennsylvania, Philadelphia, PA, USA

12:24 **61**. **Noninvasive Assessment of Renal Tumor Aggressiveness using Hyperpolarized ^{13}C MR**
Kayvan R. Keshari[1], Bertram Koelsch, Rahwa Iman, Mark Van Criekinge, Daniel B. Vigneron, John Kurhanewicz, Zhen J. Wang
[1]UCSF, San Francisco, CA, USA

12:36 **62**. **^{1}H MRS & Hyperpolarised ^{13}C MRS Assays of Pyruvate-Lactate Exchange in SW1222 Cancer Cells *In Vitro***
Deborah Katherine Hill[1], Yann Jamin[1], Nicolas Tardif[1], Anne-Christine Wong Te Fong[1], Simon P. Robinson[1], Harold G. Parkes[1], Matthew R. Orton[1], Martin O. Leach[1], Yuen-Li Chung[1], Thomas R. Eykyn[1,2]
[1]Clinical Magnetic Resonance, CRUK & EPSRC Cancer Imaging Centre, Royal Marsden NHS Trust & the Institute of Cancer Research, Sutton, Surrey, United Kingdom; [2]Division of Imaging Sciences, the Rayne Institute, Lambeth Wing, St.Thomas Hospital, London, United Kingdom

12:48 **63**. **Metabolism of Hyperpolarized U-^{13}C-d$_7$-D-Glucose in Living Breast Cancer Cell Cultures**
Talia Harris[1], Lucio Frydman[1], Hadassa Degani[2]
[1]Chemical Physics, Weizmann Institute of Science, Rehovot, Israel; [2]Biological Regulation, Weizmann Institute of Science, Rehovot, Israel

Compressed Sensing & Sparsity

Room 710A 11:00-13:00 *Moderators:* Michael Lustig & Nicole E. Seiberlich

11:00 **64**. **Introduction**

11:12 **65**. **ESPIRiT (Efficient Eigenvector-Based L1SPIRiT) for Compressed Sensing Parallel Imaging - Theoretical Interpretation & Improved Robustness for Overlapped FOV Prescription**
Peng Lai[1], Michael Lustig[2,3], Shreyas S. Vasanawala[4], Anja C. S. Brau[1]
[1]Global Applied Science Laboratory, GE Healthcare, Menlo Park, CA, USA; [2]Electrical Engineering, Stanford University, Stanford, CA, USA; [3]Electrical Engineering & Computer Science, University of California, Berkeley, CA, USA; [4]Radiology, Stanford University, Stanford, CA, USA

11:24 **66**. **Combination of Compressed Sensing & Parallel Imaging with Respiratory Motion Correction for Highly-Accelerated First-Pass Cardiac Perfusion MRI**
Ricardo Otazo[1], Daniel Kim[1], Leon Axel[1], Daniel K. Sodickson[1]
[1]Department of Radiology, NYU School of Medicine, New York, NY, USA

11:36 **67**. **Entropy Aided K-t Group Sparse SENSE Method for Highly Accelerated Dynamic MRI**
Muhammad Usman[1], Claudia Prieto[1], Tobias Schaeffter[1], Philip G. Batchelor[1]
[1]Division of Imaging Sciences & Biomedical Engineering, King's College London, London, United Kingdom

11:48 **68**. **Improving Compressed Sensing Parallel Imaging using Autocalibrating Parallel Imaging Initialization with Variable Density Tiled Random k-Space Sampling**
Peng Lai[1], Tao Zhang[2], Michael Lustig[2,3], Shreyas S. Vasanawala[4], Anja C. S. Brau[1]
[1]Global Applied Science Laboratory, GE Healthcare, Menlo Park, CA, USA; [2]Electrical Engineering, Stanford University, Stanford, CA, USA; [3]Electrical Engineering & Computer Science, University of California, Berkeley, CA, USA; [4]Radiology, Stanford University, Stanford, CA, USA

12:00 **69**. **K-t Group Sparse using Intensity Based Clustering**
Claudia Prieto[1], Muhammad Usman[1], Eike Nagel[1], Philip Batchelor[1], Tobias Schaeffter[1]
[1]Division of Imaging Sciences & Biomedical Engineering, King's College London, London, United Kingdom

12:12 **70**. **High-Frequency Subband Compressed Sensing with ARC Parallel Imaging**
Kyunghyun Sung[1], Anderson N. Nnewihe[1,2], Bruce L. Daniel[1], Brian A. Hargreaves[1]
[1]Radiology, Stanford University, Stanford, CA, USA; [2]Bioengineering, Stanford University, Stanford, CA, USA

12:24 **71**. **Joint Bayesian Compressed Sensing for Multi-Contrast Reconstruction**
Berkin Bilgic[1], Vivek K. Goyal[1], Elfar Adalsteinsson[1, 2]
[1]EECS, MIT, Cambridge, MA, USA; [2]Harvard-MIT Division of Health Sciences & Technology, MIT, Cambridge, MA, USA

12:36 **72**. **Location Constrained Approximate Message Passing (LCAMP) Algorithm for Compressed Sensing**
Kyunghyun Sung[1], Bruce L. Daniel[1], Brian A. Hargreaves[1]
[1]Radiology, Stanford University, Stanford, CA, USA

12:48 **73**. **On the Quality Evaluation for Images Reconstructed by Compressed Sensing**
Tobias Wech[1, 2], Daniel Stäb[1], André Fischer[1], Dietbert Hahn[1], Herbert Köstler[1]
[1]Institute of Radiology, University of Wuerzburg, Wuerzburg, Bavaria, Germany; [2]Center for Applied Medical Imaging, Siemens Corporate Research, Baltimore, MD, USA

Brain Microstructure & Diffusion Imaging

Room 710B 11:00-13:00 *Moderators:* Valerij G. Kiselev & Eleftheria Panagiotaki

11:00 **74**. **Axon Diameter Mapping in the Presence of Orientation Dispersion using Diffusion MRI**
Hui Zhang[1], Penny L. Hubbard[2], Geoff J. M. Parker[2], Daniel C. Alexander[1]
[1]University College London, London, United Kingdom; [2]Manchester Academic Health Sciences Centre, Manchester, United Kingdom

11:12 **75**. **Magnetic Resonance Characterization of General Compartment Size Distributions**
Evren Ozarslan[1,2], Noam Shemesh[3], Cheng Guan Koay[1, 4], Yoram Cohen[3], Peter Joel Basser[1]
[1]STBB / PPITS / NICHD, National Institutes of Health, Bethesda, MD, USA; [2]Center for Neuroscience & Regenerative Medicine, USUHS, Bethesda, MD, USA; [3]School of Chemistry, Tel Aviv University, Tel Aviv, Israel; [4]Department of Medical Physics, University of Wisconsin, Madison, WI, USA

11:24 **76**. **AxCaliber 3D**
Daniel Barazany[1], Derek Jones[2], Yaniv Assaf[1]
[1]Neurobiology, Tel Aviv University, Tel Aviv, Israel; [2]CUBRIC, School of Psychology, Cardiff University, Wales, UK

11:36 **77**. **Inferring Micron-scale Tissue Structure using Extreme Value Theory for Cylindrically-restricted Diffusion**
Leigh A. Johnston[1,2], David Wright[2], Rick H. H. M. Philipsen[3], Scott C. Kolbe[2], James A. Bourne[4], Iven M. Y. Mareels[1], Gary F. Egan[2]
[1]Electrical & Electronic Engineering & NICTA VRL, University of Melbourne, Parkville, VIC, Australia; [2]Howard Florey Institute, Florey Neuroscience Institutes, Parkville, VIC, Australia; [3]Technical University of Eindhoven, Netherlands; [4]Australian Regenerative Medicine Institute, Monash University, Australia

11:48 **78**. **Activation Energies for Water Diffusion in *ex-vivo* White Matter**
Bibek Dhital[1], Christian Labadie[1,2], Harald E. Möller[1], Robert Turner[1]
[1]Max Planck Institute for Human Cognitive & Brain Sciences, Leipzig, Germany; [2]Laboratoire de Spectrométrie Ionique et Moléculaire, Université Claude Bernard Lyon 1, Lyon, France

12:00 **79**. **Assessment of Axon Diameter Distribution in Mouse Spinal Cord with q-Space Imaging**
Henry H. Ong[1], Felix W. Wehrli[1]
[1]Laboratory for Structural NMR Imaging, Department of Radiology, University of Pennsylvania, Philadelphia, PA, USA

12:12 **80**. **Surface-to-Volume Ratio with Oscillating Gradients**
Dmitry S. Novikov[1], Valerij G. Kiselev[2]
[1]Radiology, NYU School of Medicine, New York, NY, USA; [2]Diagnostic Radiology, University Hospital Freiburg, Freiburg, Germany

12:24 **81**. **Probing Microscopic Cellular Architecture in the Mouse Brain by Oscillating Gradient Diffusion Tensor Imaging**
Manisha Aggarwal[1], Susumu Mori[1], Jiangyang Zhang[1]
[1]Russell H. Morgan Department of Radiology & Radiological Science, Johns Hopkins University School of Medicine, Baltimore, MD, USA

12:36 **82**. **Double-PFG MR Imaging of the CNS: Probing Underlying Grey Matter Microstructure**
Noam Shemesh[1], Daniel Barzany[2], Ofer Sadan[3], Yuval Zur[4], Daniel Offen[5], Yaniv Assaf[2], Yoram Cohen[1]
[1]School of Chemistry, Tel Aviv University, Tel Aviv, Israel; [2]Department of Neurobiology, Tel Aviv University, Israel; [3]Department of Neurology, Tel-Aviv Medical Center, Tel Aviv University, Israel; [4]GE Healthcare, Israel; [5]Laboratory of Neurosciences, Felsenstein Medical Research Center, Department of Neurology, Rabin Medical Center & Tel Aviv University, Israel

12:48 **83**. **A Comparative Study of Axon Diameter Imaging Techniques using Diffusion MRI**
Hui Zhang[1], Daniel Barazany[2], Yaniv Assaf[2], Henrik M. Lundell[3], Daniel C. Alexander[1], Tim B. Dyrby[3]
[1]University College London, London, United Kingdom; [2]Tel Aviv University, Tel Aviv, Israel; [3]Copenhagen University Hospital Hvidovre, Hvidovre, Denmark

Gold Corporate Member Lunchtime Symposium
Siemens

Room Plenary Hall 12:30-13:30

Clinical Intensive Course
MRI of the Foot & Ankle

Room 510 14:00-16:00 *Moderator:* Lynne S. Steinbach

14:00 **Forefoot**
Lynne S. Steinbach

14:40 **Ankle Tendons**
Kathryn J. Stevens

15:20 **Ankle Excluding Tendon**
William B. Morrison

Clinical Intensive Course
Female Pelvis & Bladder: Case-Based Teaching

Room 516A-C 14:00-16:00 *Moderators:* Patricia Noël & Evis Sala

14:00 **MRI of the Adnexa: Lesion Characterization**
Patricia Noël

14:30 **Bladder Tumors: The Role of MRI in Staging & Treatment Planning**
Andrea G. Rockall

15:00 **MRI of the Ovarian Cancer: Staging, Treatment Response & Detection of Recurrence**
Evis Sala

15:30 **MRI of Pregnant Patient: Diagnostic & Management Challenges**
Fergus Coakley

Clinical Intensive Course
Spine & Spinal Cord Imaging - ISMRM/ASNR Joint Session

Room 520B-F 14:00-16:00 *Moderators:* Mauricio Castillo & Majda M. Thurnher

14:00 **Trauma to the Spine & Spinal Cord**
Mauricio Castillo

14:25 **Postoperative Spine Imaging**
Mario Muto

14:50 **Tumors to the Spine & Spinal Cord**
Diana M. Gomez-Hassan

15:15 **Demyelinating Disease + Myelitis**
Massimo Gallucci

15:45 **Discussion**

ISMRM/SMRT Forum: DTI: is It Ready for the Clinic

Room 511A-C 14:00-16:00

14:00 **Technical Considerations for the Clinical Application of DTI: A Physicist's Perspective**
Derek K. Jones

14:30 **Technical Considerations for the Clinical Application of DTI: A Radiographer's Perspective**
Shawna Farquharson

15:00 **Implementation & Development of Guidelines for using DTI in Routine Clinical Practise: A Radiologist's Perspective**
Meng Law

15:30 **Panel Discussion**

Non-Contrast & Contrast-Enhanced MRA

Room 511D-F 14:00-16:00 *Moderators:* Tim Leiner & Mitsue Miyazaki

14:00 **84**. **Introduction: Contrast-Enhanced MRA: Relic of the Past or Alive & Kicking?**
Jeffrey H. Maki

14:12 **85**. **Simultaneous MR Angiography & Perfusion (MRAP): Application in Lower Extremity MRA & Skeletal Muscle Perfusion**
Katherine L. Wright[1,2], Nicole Seiberlich[2,3], John A. Jesberger[2], Raymond F. Muzic[1,3], Mark A. Griswold[1,3], Vikas Gulani[2,3]
[1]Department of Biomedical Engineering, Case Western Reserve University, Cleveland, OH, USA; [2]Case Center for Imaging Research, Case Western Reserve University, Cleveland, OH, USA; [3]Department of Radiology, University Hospitals, Cleveland, OH, USA

14:24 **86**. **4D PC MR of the portal venous system: Benefits of using a Blood Pool Contrast Agent**
Benjamin Landgraf[1], Alex Frydrychowicz[1], Kevin Johnson[2], Alejandro Roldan[1], Chris Francois[1], Scott Reeder[1, 2], Oliver Wieben[2]
[1]Radiology, University of Wisconsin - Madison, Madison, WI, USA; [2]Medical Physics, University of Wisconsin - Madison, Madison, WI, USA

14:36 **87**. **Comparison of CAPR MRA with CT Angiography for Evaluation of Below the Knee Runoff: Preliminary Results of Radiologist Confidence**
Phillip Young[1], James F. Glockner[1], Terri R. Vrtiska, Thanila Macedo, Petrice Mostardi, Stephen J. Riederer
[1]Radiology, Mayo Clinic, Rochester, MN, USA

14:48 **88**. **ECG-gated First-pass Contrast-Enhanced Magnetic Resonance Angiography of the Thorax - Initial Experience in Healthy Volunteers & Patients**
Moritz Wagner[1,2], Yutaka Natsuaki[2,3], Bernd Hamm[4], Gerhard Laub[2,3], Paul Finn[2]
[1]Radiology, Charite - University Hospital, Berlin, Germany; [2]Department of Radiological Sciences, David Geffen School of Medicine, University of California, Los Angeles, CA, USA; [3]Siemens Healthcare, USA; [4]Radiology, Charite - University Hospital, Berlin, Germany

15:00 **89**. **Incidental Venous Thrombosis as Detected by Magnetic Resonance Thrombus Imaging in 245 Patients with Suspected Peripheral Arterial Disease using a Blood Pool Contrast Agent**
Dariusch Reza Hadizadeh[1], Guido M. Kukuk[1], Ute L. Fahlenkamp[1], Jürgen Gieseke[1,2], Frank Träber[1], Josephine Pressacco[3], Christian Schäfer[4], Eberhard Rabe[5], Arne Koscielny[6], Frauke Verrel[6], Hans H. Schild[1], Winfried A. Willinek[1]
[1]Radiology, University of Bonn, Bonn, NRW, Germany; [2]Philips Healthcare, Best, Netherlands; [3]Radiology, Montreal Heart Institute, Montreal, Quebec, Canada; [4]Internal Medicine II, Division of Cardiology, Pneumology & Angiology, University of Bonn, Bonn, NRW, Germany; [5]Dermatology, Division of Phlebology, University of Bonn, Bonn, NRW, Germany; [6]Vascular Surgery, University of Bonn, Bonn, NRW, Germany

15:12 **90**. **Acceleration Dependent Vascular Anatomy for Non-Contrast-Enhanced MRA (ADVANCE-MRA)**
Andew Nicholas Priest[1], Martin J. Graves[1], David J. Lomas[1]
[1]Department of Radiology, Addenbrookes Hospital & University of Cambridge, Cambridge, United Kingdom

15:24 **91**. **Non-Enhanced Extracranial Carotid MR Angiography using Pseudocontinuous ASL: Comparison with Pulsed ASL & Clinical Feasibility at 1.5T**
Ioannis Koktzoglou[1,2], NavYash Gupta[3], Robert R. Edelman[1]
[1]Radiology, NorthShore University HealthSystem, Evanston, IL, USA; [2]Radiology, the University of Chicago, Chicago, IL, USA; [3]Vascular Surgery, NorthShore University HealthSystem, Evanston, IL, USA

15:36 **92**. **3D Angiography with Psuedo Continous Arterial Spin Labeling(PCASL) & Accelerated 3D Radial Acquisition**
Huimin Wu[1], Walter F. Block[2], Patrick A. Turski[3], Charles A. Mistretta[1], Kevin M. Johnson[1]
[1]Medical Physics, University of Wisconsin-Madison, Madison, WI, USA; [2]Biomedical engineering, University of Wisconsin-Madison, Madison, WI, USA; [3]Radiology, University of Wisconsin-Madison, Madison, WI, USA

15:48 **93**. **Highly-Accelerated Dynamic Non-Contrast MRA using a Combination of Compressed Sensing & Parallel Imaging**
Ricardo Otazo[1], Pippa Storey[1], Daniel Kim[1], Daniel K. Sodickson[1], Vivian S. Lee[1]
[1]Department of Radiology, NYU School of Medicine, New York, NY, USA

Your Coils & You: A Primer for the Busy Clinician & the Curious Scientist

Room 512A-G 14:00-16:00

14:00 **What is an RF Coil?**
Cecil E. Hayes

14:30 **A Buyer's & User's Guide to RF Coils**
Graham C. Wiggins

15:00 **What Can Coils Do?**
Lawrence L. Wald

15:30 **Coils in 2020**
Daniel K. Sodickson

Young Investigator Awards, Oral Presentations

Room 710A 14:00-16:00

14:00 **94**. **Magnetic Resonance Elastography of Human Lung Parenchyma: Technical Development, Theoretical Modeling & *In Vivo* Validation**
Yogesh kannan Mariappan[1], Kevin Glaser[1], Rolf D. Hubmayr[2], Armando Manduca[1], Richard L. Ehman[1], Kiaran P. McGee[1]
[1]Department of Radiology, Mayo Clinic, Rochester, MN, USA; [2]Department of Pulmonary & Critical Care medicine, Mayo Clinic, Rochester, MN, USA

14:20 **95**. **Hyperpolarized Xenon-129 Gas-Exchange Imaging of Lung Microstructure: Preliminary Results in Subjects with Obstructive Lung Disease**
Isabel Dregely[1], John P. Mugler III[2], Iulian Constantin Ruset[3], Talissa A. Altes[2], Jamie F. Mata[2], G. Wilson Miller[2], Jeffrey Ketel[3], Steve Ketel[3], Jan Distelbrinck[3], F. William Hersman[1,3], Kai Ruppert[2]
[1]Physics, University of New Hampshire, Durham, NH, USA; [2]Radiology, University of Virginia, Charlottesville, VA, USA; [3]Xemed LLC, Durham, NH, USA

14:40 **96**. **3D+T Biventricular Strain from Tagged Magnetic Resonance Images by Phase-Unwrapped HARP**
Bharath Ambale Venkatesh[1], Himanshu Gupta[2], Steven G. Lloyd, Louis Dell' Italia, Thomas S. Denney, Jr.
[1]Electrical & Computer Engineering, Auburn University, Auburn, AL, USA; [2]University of Alabama at Birmingham, USA

15:00 **97**. **Multi-Coil Shimming of the Mouse Brain**
Christoph Juchem[1], Peter B. Brown[1], Terence W. Nixon[1], Scott McIntyre[1], Douglas L. Rothman[1], Robin A. de Graaf[1]
[1]MR Research Center, Yale University, New Haven, CT, USA

15:20 **98**. **Double-PFG MR as a Novel Means for Characterizing Microstructures in Grey Matter**
Noam Shemesh[1], Ofer Sadan[2], Daniel Offen[3], Yoram Cohen[1]
[1]School of Chemistry, the Raymond & Beverly Sackler Faculty of Exact Sciences, Tel Aviv University, Tel Aviv, Israel; [2]Department of Neurology, Tel-Aviv Medical Center & the Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel; [3]Laboratory of Neurosciences, Felsenstein Medical Research Center, Department of Neurology, Rabin Medical center, Israel

15:40 **99**. **Low-dimensional-Structure Self-Learning & Thresholding (LOST): Regularization Beyond Compressed Sensing for MRI Reconstruction**
Mehmet Akcakaya[1], Tamer Basha[1], Beth Goddu[1], Lois Goepfert[1], Kraig V. Kissinger[1], Vahid Tarokh[2], Warren J. Manning[1], Reza Nezafat[1]
[1]Medicine, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, USA; [2]School of Engineering & Applied Sciences, Harvard University, Cambridge, MA, USA

Clinical Intensive Course
MR Physics & Techniques for Clinicians

Room 516A-C 16:30-18:30

16:30 **Spin Gymnastics I**
Walter Kucharczyk

17:10 **Spin Gymnastics II**
Donald B. Plewes

17:50 **K-space**
Kevin M. Koch

Neurophysiological Basis of fMRI

Room 510 16:30-18:30 *Moderators:* Galit Pelled & Ed X. Wu

16:30 **100**. **The Laminar Specific Neuronal Responses to Forepaw & Optogenetics Stimulations**
John Downey[1], Nan Li[2,3], Assaf A. Gilad[4,5], Piotr Walczak[4,5], Nitish V. Thakor[3], Galit Pelled[1,4]
[1]F. M. Kirby Research Center for Functional Brain Imaging, Kennedy Krieger Institute, Baltimore, MD, USA; [2]F. M. Kirby Research Center for Functional Brain Imaging, Kennedy Krieger Institute, Baltimore, MD, USA; [3]The Department of Biomedical Engineering, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [4]The Russell H. Morgan Department of Radiology & Radiological Sciences, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [5]Cellular Imaging Section, Vascular Biology Program, Institute for Cell Engineering, Johns Hopkins University School of Medicine, Baltimore, MD, USA

16:42 **101**. **Opto-fMRI in Awake Rodents: Activation & Deactivation fMRI Signals Induced by Excitation & Inhibition of Neurons**
Lino Becerra[1,2], Gary Brenner[2,3], James Bishop[1], Pei-Ching Chang[1], Hae-Sook Shin[3], Aimei Yang[4], Michael Baratta[4], Patrick Monahan[4], Edward Boyden[4,5], David Borsook[1,2]
[1]A. Martinos Center, Massachusetts General Hospital, Boston, MA, USA; [2]Harvard Medical School, Boston, MA, USA; [3]Anesthesiology & Critical Care, Massachusetts General Hospital, Boston, MA, USA; [4]Media Laboratory, Massachusetts Institute of Technology, Cambridge, MA, USA; [5]Biological Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA

16:54 **102**. **Optogenetics-Guided Cortical Plasticity Following Forepaw Denervation**
Nan Li[1, 2], John Downey[3], Amnon Bar-Shir[4,5], Assaf A. Gilad[4,5], Piotr Walczak[4,5], Heechul Kim[4,5], Suresh E. Joel[3,4], James J. Pekar[3, 4], Nitish V. Thakor[2], Galit Pelled[3, 4]
[1]F. M. Kirby Research Center for Functional Brain Imaging, Kennedy Krieger Institute, Baltimore, MD, USA; [2]The Department of Biomedical Engineering, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [3]F. M. Kirby Research Center for Functional Brain Imaging, Kennedy Krieger Institute, Baltimore, MD, USA; [4]The Russell H. Morgan Department of Radiology & Radiological Sciences, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [5]Cellular Imaging Section, Vascular Biology Program, Institute for Cell Engineering, Johns Hopkins University School of Medicine, Baltimore, MD, USA

17:06 **103**. **Tight Coupling of Resting-State BOLD Fluctuations with Intracortical DC Changes in Rat Somatosensory Cortex during Prolonged Medetomidine Sedation**
Wen-ju Pan[1], Matthew Magnuson[1], Garth Thompson[1], Dieter Jaeger[2], Shella Keilholz[1]
[1]Biomedical Engineering, Emory University/ Georgia Institute of Technology, Atlanta, GA, USA; [2]Biology, Emory University, Atlanta, GA, USA

17:18 **104**. **Strengthening of Thalamocortical Synapses at Layer IV in the Juvenile Whisker Barrel Measured by MRI & Electrophysiology**
Xin Yu[1], Seungsoo Chung[1], Shumin Wang[1], Stephen Dodd[1], Judith Walters[1], John Isaac[1], Alan Koretsky[1]
[1]NINDS, NIH, Bethesda, MD, USA

17:30 **105**. **Layer-Specific Interhemispheric Functional Connectivity in Rat S1fl Revealed by Laminar Electrode Recordings & Resting State fMRI**
Kwangyeol Baek[1,2], Woo Hyun Shim[1,2], Jaeseung Jeong[1], Harsha Radhakrishnan[2], Bruce R. Rosen[2], David A. Boas[2], Maria Franceschini[2], Young Ro Kim[2]
[1]Bio & Brain Engineering, KAIST, Daejeon, Korea, Republic of; [2]Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Charlestown, MA, USA

17:42 **106**. **Caffeine-Induced Reductions in Motor Connectivity: A Comparison of fMRI & MEG Measures**
Omer Tal[1], Chi Wah Wong[2], Valur Olafsson[2], Mithun Diwakar[1,2], Ming-Xiong Huang[2], Thomas T. Liu[2]
[1]Department of Bioengineering , University of California - San Diego, La Jolla, CA, USA; [2]Department of Radiology, University of California - San Diego, La Jolla, CA, USA

17:54 **107**. **Simultaneous Intracranial EEG-fMRI in Humans Suggests that High Gamma Frequencies are the Closest Neurophysiological Correlate of BOLD fMRI**
David William Carmichael[1], Serge Vulliemoz[1, 2], Roman Rodionov[1], Matthew Walker[1], Karin Rosenkranz[1], Andrew McEvoy[3], Louis Lemieux[1, 4]
[1]Clinical & Experimental Epilepsy, UCL Institute of Neurology, London, United Kingdom; [2]Epilepsy Unit, University Hospital & University of Geneva, Geneva, Switzerland; [3]Victor Horsley Dept. Neurosurgery, National Hospital for Neurology & Neurosurgery, London, United Kingdom; [4]MRI Unit , National Society for Epilepsy, Chalfont St Peter, United Kingdom

18:06 **108**. **A Simultaneous EEG & High Temporal Resolution fMRI Study of Trial-by-Trial Fluctuations in Visual Evoked Potentials**
Pierre LeVan[1], Benjamin Zahneisen[1], Thimo Grotz[1], Jürgen Hennig[1]
[1]Medical Physics, University Medical Center Freiburg, Freiburg, Germany

18:18 **109**. **Negative BOLD & CBF Responses are Predicted by Natural Variations in Evoked EEG Response to a Median Nerve Stimulus in Humans.**
Karen J. Mullinger[1], Stephen D. Mayhew[2], Andrew P. Bagshaw[2], Richard W. Bowtell[1], Susan T. Francis[1]
[1]Sir Peter Mansfield Magnetic Resonance Centre, School of Physics & Astronomy, University of Nottingham, Nottingham, Nottinghamshire, United Kingdom; [2]Birmingham University Imaging Centre, School of Psychology, University of Birmingham, Birmingham, United Kingdom

Vessel Wall Imaging & Coronary MRA

Room 511A-C 16:30-18:30 *Moderators:* René M. Butnar & Kun-cheng Li

16:30 **110**. **Carotid Plaque Characteristics at MRI & Recurrent Clinical Cerebrovascular Ischemic Events**
Robert Kwee[1], Robert van Oostenbrugge[2], Werner Mess[2], Rob van der Geest[3], Johannes ter Berg[4], Cees Franke[5], Arthur Korten[6], Bé Meems[7], Jos van Engelshoven[2], Joachim Wildberger[2], Eline Kooi[2]
[1]Maastricht University Medical Center, Maastricht, Limburg, Netherlands; [2]Maastricht University Medical Center, Netherlands; [3]Leiden University Medical Center; [4]Orbis Medical Center Sittard, Netherlands; [5]Atrium Medical Center Parkstad Heerlen, Netherlands; [6]Laurentius Hospital Roermond, Netherlands; [7]VieCuri Medical Center Venlo, Netherlands

16:42 **111**. **WITHDRAWN**

16:54 **112**. **Characterization of Carotid Atherosclerotic Plaque Compositions by Single Magnetic Resonance Imaging Sequence: A Comparison Study with Multicontrast Plaque Imaging at 3T**
Xihai Zhao[1], Niranjan Balu[2], Wenbo Liu[2], Jinnan Wang[3], Huilin Zhao[4], Jianrong Xu[4], Chun Yuan[1,2]
[1]Department of Biomedical Engineering & Center for Biomedical Imaging Research, School of Medicine, Tsinghua University, Beijing, China, People's Republic of; [2]Department of Radiology, University of Washington, Seattle, WA, USA; [3]Philips Research North America, Briarcliff Manor, NY, USA; [4]Department of Radiology, Renji Hospital, Shanghai Jiao Tong University, Shanghai, China, People's Republic of

17:06 **113**. **Interpretation of Tissue Contrast in a Rapid Black-Blood Gradient Echo Sequence with Motion-Sensitized Driven Equilibrium (MSDE) Preparation (3D MERGE) for 3D Isotropic High-Resolution Imaging of the Vessel Wall & its Application for Hemorrhage Detection**
Niranjan Balu[1], Vasily Yarnykh[1], William Kerwin[1], Jinnan Wang[2], Chun Yuan[1]
[1]Department of Radiology, University of Washington, Seattle, WA, USA; [2]Philips Research North America, Seattle, WA, USA

17:18 **114**. **Haptoglobin Phenotype Modulates MRIPH Signal**
General Leung[1,2], Helen Cheung[2], Stephanie E. Chiu[1], Betty Wong[3], David Cole[3], Alan R. Moody[1,2]
[1]Medical Biophysics, University of Toronto, Toronto, Ontario, Canada; [2]Medical Imaging, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada; [3]Division of Biochemistry & Genetics, Sunnybrook Health Sciences Centre

17:30 **115**. **High Resolution 3D Coronary Vessel Wall Imaging with Near 100% Respiratory Efficiency using Epicardial Fat Tracking: Reproducibility & Comparison with Standard Methods**
Andrew David Scott[1,2], Jennifer Keegan[1,2], David Firmin[1,2]
[1]Cardiovascular Magnetic Resonance Unit, Imperial College London, London, United Kingdom; [2]Cardiovascular Magnetic Resonance Unit, the Royal Brompton & Harefield NHS Foundation Trust, London, United Kingdom

17:42 **116**. **Left Coronary Artery Imaging at 7T: Initial Results using Multiple B_1+ Shimming Algorithms & Targets**
Gregory John Metzger[1], Lance Delabarre[1], Xiaoming Bi[2], Saurabh Shah[2], Sven Zuehlsdorff[2], Tommy Vaughan[1], Kamil Ugurbil[1], Pierre-Francois van de Moortele[1]
[1]Center for Magnetic Resonance Research, University of Minnesota, Minneapolis, MN, USA; [2]Siemens Healthcare, Cardiovascular MR R&D, Chicago, IL, USA

17:54 **117**. **Water/Fat resolved Whole-Heart Imaging for Coronary MRA**
Peter Koken[1], Holger Eggers[1], Gabrielle Beck[2], Peter Börnert[1]
[1]Philips Research Laboratories, Hamburg, Germany; [2]Philips Healthcare, Best, Netherlands

18:06 **118**. **Whole-Heart Coronary MRA using 2D Self-Navigation**
Markus Henningsson[1], Christian Stehning[2], Claudia Prieto[1], Peter Koken[2], Rene M. Botnar[1]
[1]Division of Imaging Sciences & Biomedical Engineering, King's College London, London, United Kingdom; [2]Philips Research Europe, Hamburg, Germany

18:18 **119**. **A Joint Prospective-Retrospective Respiratory Navigator for Contrast Enhanced Whole-Heart Coronary MRI**
Mehdi Hedjazi Moghari[1], Tamer Basha[1], Mehmet Akçakaya[1], Alan O'Connor[1], Lois Goepfert[1], Kraig V. Kissinger[1], Beth Goddu[1], Doug Stanton[2], Warren J. Manning[1], Reza Nezafat[1]
[1]Dept. of Medicine (Cardiovascular Div.), Beth Israel Deaconess Medical Center, Harvard Medical Sch., Boston, MA, USA; [2]Philips Research

New Contrast

Room 511D-F 16:30-18:30 *Moderators:* Ludovic De Rochefort & Klaas Pruessmann

16:30 **120**. **SEMI-TWINS: Simultaneous Extraction of Myelin & Iron using a T_2*-Weighted Imaging Sequence**
Ferdinand Schweser[1,2], Andreas Deistung[1], Berengar Wendel Lehr[3], Karsten Sommer[1, 4], Jürgen R. Reichenbach[1]
[1]Medical Physics Group, Dept. of Diagnostic & Interventional Radiology 1, Jena University Hospital, Jena, Germany; [2]School of Medicine, Friedrich Schiller University of Jena, Jena, Germany; [3]Medical Physics Group, Dept. of Diagnostic & Interventional Radiology, Jena University Hospital, Jena, Germany; [4]School of Physics & Astronomy, Friedrich Schiller University of Jena, Jena, Germany

16:42 **121**. ***In Vivo* Evidence of Susceptibility Anisotropy & Susceptibility Tensor Imaging of Human Brain**
Wei Li[1], Bing Wu[1], Chunlei Liu[1,2]
[1]Brain Imaging & Analysis Center, Duke University, Durham, NC, USA; [2]Radiology, Duke University, Durham, NC, USA

16:54 **122**. **Origin of Phase Contrast: Insight from Susceptibility, R_2* & Element Imaging by LA-ICP-MS**
Ana-Maria Oros-Peusquens[1], Andreas Matusch[2], Johannes Lindemeyer[3], Sabine Johanna Becker[4], Nadim Jon Shah[1]
[1]Institute of Neuroscience & Medicine (INM-4), Research Centre Juelich, Juelich, NA, Germany; [2]INM-2, Research Centre Juelich, Germany; [3]INM-4, Research Centre Juelich, Germany; [4]ZCH, Research Centre Juelich

17:06 **123**. **Active Contrast Modulation of Iron Oxide Nanoparticles using Rotary Saturation**
Bo Zhu[1,2], Thomas Witzel[1,2], Shan Jiang[3], Daniel G. Anderson[3], Robert S. Langer[3], Bruce R. Rosen[1,2], Lawrence L. Wald[1,2]
[1]Harvard-MIT Division of Health Sciences & Technology, Massachusetts Institute of Technology, Cambridge, MA, USA; [2]Department of Radiology, Athinoula A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Charlestown, MA, USA; [3]Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA

17:18 **124**. **A General $T_{1\rho}$ Relaxation Model for Spin-Lock MRI using a Rotary Echo Pulse**
Jing Yuan[1], Yi-Xiang Wang[1]
[1]Department of Imaging & Interventional Radiology, the Chinese University of Hong Kong, Shatin, New Territories, Hong Kong

17:30 **125**. **Comparing Electric Properties Tomography at 1.5, 3 & 7 T.**
Astrid L. H. M. W. van Lier[1], Tobias Voigt[2], Ulrich Katscher[2], Cornelis A. T. van den Berg[1]
[1]Radiotherapy, UMC Utrecht, Utrecht, Netherlands; [2]Philips Research Europe, Hamburg, Germany

17:42 **126**. **Imaging Electrical Properties of the Human Brain using a 16-Channel Transceiver Array Coil at 7T**
Xiaotong Zhang[1], Pierre-Francois Van de Moortele[2], Sebastian Schmitter[2], Bin He[1]
[1]Department of Biomedical Engineering, University of Minnesota, Minneapolis, MN, USA; [2]Center for Magnetic Resonance Research, University of Minnesota, Minneapolis, MN, USA

17:54 **127**. ***In Vivo* Glioma Characterization using MR Conductivity Imaging**
Tobias Voigt[1], Ole Väterlein[2], Christian Stehning[1], Ulrich Katscher[1], Jens Fiehler[2]
[1]Philips Research Laboratories, Hamburg, Germany; [2]Department of Neuroradiology, University Medical Centre Hamburg-Eppendorf, Hamburg, Germany

18:06 **128**. **Real-Time Conductivity Mapping using Balanced SSFP & Phase-Based Reconstruction**
Christian Stehning[1], Tobias Ratko Voigt[2], Ulrich Katscher[1]
[1]Philips Research Laboratories, Hamburg, Germany; [2]Institute of Biomedical Engineering, University of Karlsruhe, Karlsruhe, Germany

18:18 **129**. **Panel**
Richard W. Bowtell, Ludovic De Rochefort, Klaas Pruessmann & Daniel K. Sodickson

Novel Techniques for Image Analysis

Room 512A-G 16:30-18:30 *Moderators:* Jan Scholz & Simon K. Warfield

16:30 **130**. **Comparison of Cortical Surface Reconstructions from MP2RAGE Data at 3T & 7T**
Kyoko Fujimoto[1], Jonathan R. Polimeni[1], Andre J. van de Kouwe[1], Tobias Kober[2], Thomas Benner[1], Bruce Fischl[1,3], Lawrence L. Wald[1,4]
[1]Athinoula A. Martinos Center for Biomedical Imaging, Department of Radiology, Harvard Medical School, Massachusetts General Hospital, Charlestown, MA, USA; [2]Laboratory for Functional & Metabolic Imaging, Ecole Polytechnique Fédérale de Lausanne, Advanced Clinical Imaging Technology, Siemens Suisse SA - CIBM, Lausanne, Switzerland; [3]Computer Science & AI Lab (CSAIL), Massachusetts Institute of Technology, Cambridge, MA, USA; [4]Harvard-MIT Division of Health Sciences & Technology, Massachusetts Institute of Technology, Cambridge, MA, USA

16:42 **131**. **Who Said Fat is Bad? Skull-Stripping Benefits from Additional Fat Image.**
Delphine Ribes[1,2], Tobias Kober[1,2], Giulio Gambarota[3], Reto Meuli[4], Gunnar Krueger[2]
[1]Laboratory for Functional & Metabolic Imaging, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; [2]Advanced Clinical Imaging Technology, Siemens Suisse SA - CIBM, Lausanne, Switzerland; [3]Clinical Imaging Center, GSK, Imperial College, London, United Kingdom; [4]Department of Radiology, Centre Hospitalier Universitaire Vaudois, Lausanne, Switzerland

16:54 **132**. **Atlas-Based Online Spatial Normalization**
Judd M. Storrs[1,2], Jing-Huei Lee[1,3]
[1]Center for Imaging Research, University of Cincinnati, Cincinnati, OH, USA; [2]Department of Psychiatry & Behavioral Neuroscience, University of Cincinnati, Cincinnati, OH, USA; [3]School of Energy, Environmental, Biological & Medical Engineering, University of Cincinnati, Cincinnati, OH, USA

17:06 **133**. **Segmentation Priors from Local Image Properties, Not Location-Based Templates**
Ziad Serhal Saad[1], Andrej Vovk[2], Janez Stare[3], Dusan Suput[2], Robert W. Cox[1]
[1]SSCC, NIMH/NIH, Bethesda, MD, USA; [2]Institute of Pathophysiology, University of Ljubljana, Ljubljana, Slovenia; [3]Institute for Biostatistics & Medical Informatics, University of Ljubljana, Ljubljana, Slovenia

17:18 **134**. **Improved Segmentation of Mouse MRI Data using Multiple Automatically Generated Templates**
Mallar Chakravarty[1,2], Matthijs Christiaan van Eede[1], Jason P. Lerch[1]
[1]Mouse Imaging Centre (MICe), the Hospital for Sick Children, Toronto, Ontario, Canada; [2]Rotman Research Institute, Baycrest, Toronto, Ontario, Canada

17:30 **135**. **Creation of a Population-Representative Brain Atlas with Clear Anatomical Definition**
Yajing Zhang[1], Jiangyang Zhang[2], Jun Ma[3], Kenichi Oishi[2], Andreia V. Faria[2], Michael I. Miller[1,3], Susumu Mori[2,4]
[1]Department of Biomedical Engineering, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [2]Department of Radiology & Radiological Science, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [3]Center for Imaging Science, Johns Hopkins University, Baltimore, MD, USA; [4]F. M. Kirby Research Center for Functional Brain Imaging, Kennedy Krieger Institute, Baltimore, MD, USA

17:42 **136**. **Computerized Lesion Segmentation on DCE-MRI using Active Contours & Spectral Embedding.**
Shannon Agner[1], Jun Xu[1], Sudha Karthigeyan[1], Anant Madabhushi[1]
[1]Biomedical Engineering, Rutgers University, Piscataway, NJ, USA

17:54 **137**. **MR Estimation of Longitudinal Relaxation Time (T_1) in Spoiled Gradient Echo using an Adaptive Neural Network**
Hassan Bagher-Ebadian[1,2], Siamak P. Nejad-Davarani[1,3], Ramesh Paudyal[1], Tom Mikkelsen[4], Quan Jiang[1,2], James R. Ewing[1,2]
[1]Neurology, Henry Ford Hospital, Detroit, MI, USA; [2]Physics, Oakland University, Rochester, MI, USA; [3]Biomedical Engineering, University of Michigan, Ann Arbor, MI, USA; [4]Neurosurgery, Henry Ford Hospital, Detroit, MI, USA

18:06 **138**. **Application of the Extended Phase Graph Technique to Improve T_2 Quantitation Across Sites**
William D. Rooney[1], James R. Pollaro[1], Sean C. Forbes[2], Dah Jyuu Wang[3], Krista Vandenborne[2], Glenn A. Walter[4]
[1]Advanced Imaging Research Center, Oregon Health & Science University, Portland, OR, USA; [2]Department of Physical Therapy, University of Florida, Gainesville, FL, USA; [3]Department of Radiology, the Children's Hospital of Philadelphia, Philadelphia, PA, USA; [4]Department of Physiology & Functional Genomics, University of Florida, Gainesville, FL, USA

18:18 **139**. **Support Vector Machines can Decode Speech Patterns from High Speed Dynamic Spiral FLASH Images of the Mouth**
Stephen LaConte[1], Jonathan Lisinski[1], Bradley Sutton[2]
[1]School of Biomedical Engineering & Sciences, Virginia Tech, Blacksburg, VA, USA; [2]Bioengineering, University of Illinois, Urbana-Champaign, Urbana, IL, USA

Spectroscopy Localization

Room 513A-D 16:30-18:30 *Moderators:* Hoby Hetherington & Vladimir Mlynarik

16:30 **140**. ***In-Vivo* Proton MR Spectroscopic Imaging of Glycine in Brain Tumors at 3.0 T**
Sandeep Kumar Ganji[1], Ivan E. Dimitrov[1,2], Elizabeth A. Maher[3], Changho Choi[1]
[1]Advanced Imaging Research Center, University of Texas Southwestern Medical Center, Dallas, TX, USA; [2]Philips Medical Systems, Cleveland, OH, USA; [3]Internal Medicine & Neurology, University of Texas Southwestern Medical Center, Dallas, TX, USA

16:42 **141**. **Slice with Non-Parallel Boundaries**
Bu S. Park[1], M. J. Lizak[2], Y. Xiang[1], J. Shen[1]
[1]National Institute of Mental Health (NIMH), NIH, Bethesda, MD, USA; [2]National Institute of Neurological Disorders & Stroke (NINDS), NIH, Bethesda, MD, USA

16:54 **142**. **Multi-Slice MRSI of the Human Brain at 7 Tesla using Dynamic B_0 & B_1 Shimming**
Vincent Oltman Boer[1], Dennis W. J. Klomp[1], Christoph Juchem[2], Peter R. Luijten[1], Robin A. de Graaf[2]
[1]Radiology, UMC Utrecht, Utrecht, Netherlands; [2]MR Research Center, Yale University, New Haven, Conneticut, USA

17:06 **143**. **Diffusion-Weighted Spectroscopic Imaging of Rat Brains After Middle Cerebral Artery Occlusion**
Yoshitaka Bito[1], Yuko Kawai[2], Koji Hirata[1], Toshihiko Ebisu[3], Toru Shirai[1], Satoshi Hirata[1], Yoshihisa Soutome[1], Hisaaki Ochi[1], Masahiro Umeda[2], Toshihiro Higuchi[4], Chuzo Tanaka[4]
[1]Central Research Laboratory, Hitachi, Ltd., Kokubunji-shi, Tokyo, Japan; [2]Medical Informatics, Meiji University of Integrative Medicine, Kyoto, Japan; [3]Neurosurgery, Nantan General Hospital, Kyoto, Japan; [4]Neurosurgery, Meiji University of Integrative Medicine, Kyoto, Japan

17:18 **144**. **High-Resolution Mapping of the Neurochemical Profile after Focal Ischemia in Mice**
Malte Frederick Alf[1,2], Hongxia Lei[1,3], Carole Berthet[4], Lorenz Hirt[4], Rolf Gruetter[1,3], Vladimir Mlynárik[1]
[1]Laboratory of Functional & Metabolic Imaging, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; [2]Institute of Pharmaceutical Sciences, ETH Zürich, Zürich, Switzerland; [3]Department of Radiology, University of Lausanne; [4]Department of Clinical Neuroscience, Centre Hospitalier Universitaire Vaudois

17:30 **145**. **Fast ^{1}H Metabolic Imaging of Cancer**
Sairam Geethanath[1], Hyeon-Man Baek[2], Sandeep K. Ganji[2,3], Yao Ding[3], Robert D. Sims[4], Changho Choi[2,4], Vikram D. Kodibagkar[1,4]
[1]Joint graduate program in biomedical engineering, UT Arlington & UT Southwestern Medical Center, Dallas, TX, USA; [2]Advanced Imaging Research Center, UT Southwestern Medical Center; [3]Graduate program in radiological sciences, UT Southwestern Medical Center; [4]Radiology, UT Southwestern Medical Center

17:42 **146**. **Artefact Minimized Spectral Editing at 7T: Quick & Accurate *In-Vivo* Detection of GABA.**
Anna Andreychenko[1], Vincent O. Boer[1], Jannie P. Wijnen[1], Catalina Arteaga[1], Peter Luijten[1], Dennis W. J. Klomp[1]
[1]University Medical Center Utrecht, Utrecht, Netherlands

17:54 **147**. **Adiabatic Spiral Correlation Chemical Shift Imaging**
Ovidiu Cristian Andronesi[1], Borjan A. Gagoski[2], Elfar Adalsteinsson[2], A. Gregory Sorensen[1]
[1]Martinos Center for Biomedical Imaging, Radiology Department, Massachusetts General Hospital, Harvard Medical School, Charlestown, MA, USA; [2]Electrical Engineering & Computer Science, Massachusetts Institute of Technology, Cambridge, MA, USA

18:06 **148**. **Water-Independent Frequency- & Phase-Corrected Spectroscopic Averaging using Cross-Correlation & Singular Value Decomposition**
Aaron T. Hess[1], André J. W. van der Kouwe[2], Ernesta M. Meintjes[1]
[1]MRC/UCT Medical Imaging Research Unit, Human Biology, University of Cape Town, Cape Town, South Africa; [2]Radiology, Massachusetts General Hospital, Boston, MA, USA

18:18 **149**. **Short Dual-Band VAPOR-Like Pulse Sequence for Simultaneous Water & Lipid Suppression for *In Vivo* MR Spectroscopy & Spectroscopic Imaging**
Zenon Starcuk Jr.[1], Jana Starcukova[1], Zenon Starcuk[1]
[1]Magnetic Resonance & Bioinformatics, Institute of Scientific Instruments, Academy of Sciences of the Czech Republic, Brno, Czech Republic

Placenta, Fetus & Gynecologic Malignancy

Room 518-A-C 16:30-18:30 *Moderators:* Penny Anne Gowland & Patricia Noël

16:30 **150**. **Introduction: Fetal Development & the Utero-Placental Unit: What Can MRI Tell Us?**
Penny Anne Gowland

16:42 **151**. **The Effect of Maternal Diabetes on Placental Blood Flow Assessed using IVIM**
Devasuda Anblagan[1], Ruta Deshpande[2], Nia W. Jones[2], Carolyn Costigan[1], Nick Raine Fenning[3], Peter Mansell[2], George Bugg[2], Lopa Leach[4], Penny A. Gowland[1]
[1]Sir Peter Mansfield Magnetic Resonance Centre, University of Nottingham, Nottingham, Nottinghamshire, United Kingdom; [2]Nottingham University Hospitals NHS Trust, University of Nottingham, Nottingham, United Kingdom; [3]School of Clinical Sciences, University of Nottingham, Nottingham, United Kingdom; [4]School of Biomedical Sciences, University of Nottingham, Nottingham, United Kingdom

16:54 **152**. **Changes in Placental & Fetal Organ Perfusion during Chronic Maternal Hypoxia: Assessment by BOLD MRI During Brief Hypercapnic & Hyperoxic Challenge**
Rinat Abramovitch[1,2], Nathalie Corchia[1], Uriel Elchalal[3], Yehuda Ginosar[4]
[1]The Goldyne Savad Institute of Gene Therapy, Hadassah Hebrew University Medical Center, Jerusalem, Israel; [2]MRI lab HBRC, Hadassah Hebrew University Medical Center, Israel; [3]Department of Obstetrics & Gynecology, Hadassah Hebrew University Medical Center, Jerusalem, Israel; [4]Department of Anesthesiology, Hadassah Hebrew University Medical Center, Jerusalem, Israel

17:06 **153**. **Intra Voxel Incoherent Motion in the Human Placenta using the Akaike Information Criterion**
David Mark Morris[1,2], Caroline Wright[3], Philip A. Baker[4], Ian Crocker[3], Penny A. Gowland[5], Geoff J. M. Parker[1,6], Colin P. Sibley[3]
[1]Imaging Science & Biomedical Engineering, the University of Manchester, Manchester, United Kingdom; [2]Biomedical Imaging Institute, the University of Manchester, Manchester, United Kingdom; [3]Maternal & Fetal Helath Research Group, the University of Manchester, Manchester, United Kingdom; [4]Faculty of Medicine & Dentistry, University of Alberta, Edmonton, Alberta, Canada; [5]Sir Peter Mansfield Magentic Resonance Centre, University of Nottingham, Nottingham, United Kingdom; [6]Biomedical Imaging Institute, the University of Manchester, Manchester, United Kingdom

17:18 **154**. **Protection of Fetuses from *In Utero* Inflammation: Can MRI be the Solution?**
Sylvie Girard[1], Luc Tremblay, Guillaume Sebire, Martin Lepage
[1]Universite de Sherbrooke, Sherbrooke, QC, Canada

17:30 **155**. **A Novel Technique for Cardiac MRI of the Fetal Heart: MR Compatible Doppler Ultrasound (CTG) for CardiacTriggering**
Ulrike Wedegaertner[1], Michael Frisch[1], Inga Kopp[1], Joachim Graessner[2], Kurt Hecher[1], Gerhard Adam[1], Jin Yamamura[1]
[1]University Hospital Hamburg-Eppendorf, Hamburg, Germany; [2]Siemens

17:42 **156**. **Characterising Heterogeneity of Stage 1 Cervical Cancers using Histogram Analysis from Diffusion Weighted Images.**
Katherine Downey[1,2], S. F. Riches[1,2], V. A. Morgan[1,2], S. L. Giles[1,2], C. Simpkin[1,2], D. P. Barton[3,4], N. M. deSouza[1,2]
[1]Clinical MRI Unit, Institute of Cancer Research, Sutton, United Kingdom; [2]Clinical MRI Unit, the Royal Marsden Hospital , Sutton, United Kingdom; [3]Gynaecology Unit, the Royal Marsden Hospital, Sutton, United Kingdom; [4]Gynaecology Unit, Institute of Cancer Research, Sutton, United Kingdom

17:54 **157**. **Endovaginal Magnetic Resonance Imaging of Stage 1A/1B$_1$ Cervical Cancer with a T$_2$- & Diffusion-Weighted Magnetic Resonance Technique: Effect of Lesion Size & Previous Cone Biopsy on Tumor Detectability**
Elizabeth Charles-Edwards[1], Veronica Morgan[1], Ayoma Attygalle[2], Sharon Giles[1], Thomas E. Ind[3], Michael Davis[4], John Shepherd[3], Norman McWhinney[5], Nandita deSouza[1]
[1]CRUK & EPSRC Cancer Imaging Centre, Institute of Cancer Research & Royal Marsden NHS Foundation Trust, Sutton, Surrey, United Kingdom; [2]Histopathology, Royal Marsden NHS Foundation Trust, Sutton, Surrey, United Kingdom; [3]Gynaecology, Royal Marsden NHS Foundation Trust, Sutton, Surrey, United Kingdom; [4]Gynaecology, Kingston Hospital , Kingston, Surrey, United Kingdom; [5]Gynaecology, Epsom & St. Helier NHS Trust, Epsom, Surrey, United Kingdom

18:06 **158**. **Comparison of Diffusion Weighted Imaging & Dynamic Contrast Enhanced MRI for Assessing the Depth of Myometrial Invasion in Endometrial Cancer**
Peter Beddy[1], Penelope Moyle[1], Masako Kataoka[1], Adam K. Yamamoto[1], Ilse Joubert[1], David J. Lomas[1], Robin Crawford[2], Evis Sala[1]
[1]Radiology, University of Cambridge, Cambridge, Cambridgeshire, United Kingdom; [2]Gynaecological Oncology, University of Cambridge, Cambridge, Cambridgeshire, United Kingdom

18:18 **159**. **Assessment of Ovarian Movement on Consecutive Pelvic MRI Scans for Accurate Radiotherapy Planning in Patients with Gynaecological Malignancies**
Nicky HGM Peters[1,2], Gail Horan[3], Deborah Gregory[3], Li Tee Tan[3], Charlotte Coles[3], Andrew J. Patterson[2], Evis Sala[2]
[1]Radiology, University Medical Center Utrecht, Utrecht, Netherlands; [2]Radiology, Addenbrooke's Hospital, Cambridge, Cambridghire, United Kingdom; [3]Oncology, Addenbrooke's Hospital, Cambridge, Cambridghire, United Kingdom

Receive Coils & Arrays

Room 520B-F 16:30-18:30 *Moderators:* Hiroyuki Fujita & Tamer S. Ibrahim

16:30 **160**. **A 64-Channel Array Coil for 3T Head/Neck/C-spine Imaging**
Boris Keil[1], Stephan Biber[2], Robert Rehner[2], Veneta Tountcheva[1], Kathrin Wohlfarth[2], Philipp Hoecht[3], Michael Hamm[3], Heiko Meyer[2], Hubertus Fischer[2], Lawrence L. Wald[1,4]
[1]A. A. Martinos Center for Biomedical Imaging, Department of Radiology, Massachusetts General Hospital, Harvard Medical School, Charlestown, MA, USA; [2]Siemens Healthcare, Erlangen, Germany; [3]Siemens Healthcare, Charlestown, MA, USA; [4]Harvard-MIT Division of Health Sciences & Technology, Cambridge, MA, USA

16:42 **161**. **Millimeter Isotropic Resolution Volumetric Pediatric Abdominal MRI with a Dedicated 32-Channel Phased Array Coil**
Shreyas S. Vasanawala[1], Thomas Grafendorfer[2], Paul Calderon[3], Greig Scott[4], Marcus T. Alley[1], Michael Lustig[5], Anja C. Brau[6], Arvind Sonik[1], Peng Lai[6], Vijay Alagappan[7], Brian A. Hargreaves[1]
[1]Radiology, Stanford University, Stanford, CA, USA; [2]ATD Coils, GE Healthare, Stanford, CA, USA; [3]MR Hardware Engineering, GE Healthcare, Fremont, CA, USA; [4]Electrical Engineering, Stanford University, Stanford, CA, USA; [5]Electrical Engineering & CS, UC Berkeley, Berkeley, CA, USA; [6]Global Applied Science Laboratory, GE Healthcare, Menlo Park, CA, USA; [7]ATD Coils, GE Healthcare, Aurora, OH, USA

16:54 **162**. **A 7T Coil System for Imaging Humans in the Sphinx Position to Evaluate the Effect of Head Orientation Relative to B_0 for MR Imaging**
Bei Zhang[1], Ryan Brown[1], Chris Wiggins[2], Daniel K. Sodickson[1], Bernd Stoeckel[3], Graham Wiggins[1]
[1]Center for Biomedical Imaging, Department of Radiology, New York University School of Medicine, New York, NY10016, USA; [2]CEA/NeuroSpin, Saclay, France; [3]Siemens Medical Solutions USA Inc, New York, NY, USA

17:06 **163**. **Multiplexed RF Transmission for Transceiver Arrays at 7T**
Hoby Patrick Hetherington[1], Nikolai I. Avdievich[1], Jullie W. Pan[1]
[1]Neurosurgery, Yale University, New Haven, CT, USA

17:18 **164**. **Human Brain Imaging at 9.4 Tesla using a Combination of Traveling Wave Excitation with a 15-Channel Receive-Only Array**
Jens Oliver Hoffmann[1], Gunamony Shajan[1], Rolf Pohmann[1]
[1]High-Field Magnetic Resonance Center, Max Planck Institute for Biological Cybernetics, Tuebingen, BW, Germany

17:30 **165**. **32-Channel Receive Only Array for Cardiac Imaging at 7T**
Carl Jason Snyder[1], Lance DelaBarre[1], Gregory Metzger[1], Kamil Ugurbil[1], J. Thomas Vaughan[1]
[1]University of Minnesota, Minneapolis, MN, USA

17:42 **166**. **Highly Accelerated 7T Prostate Imaging using Parallel Imaging**
Alexander J. E. Raaijmakers[1], Ozlem Ipek[1], Wouter Koning[2], Hugo Kroeze[2], Cecilia Possanzini[3], Paul R. Harvey[3], Dennis Klomp[2], Peter R. Luijten[2], Jan J. W. Lagendijk[1], Cornelis A. T. van den Berg[1]
[1]Radiotherapy, UMC Utrecht, Utrecht, Netherlands; [2]Radiology, UMC Utrecht, Utrecht, Netherlands; [3]Philips Medical Systems, Best, Netherlands

17:54 **167**. **Dual Mouse 8-Element Coil Array & Bed for Sequential Multimodality PET, SPECT, CT & MRI of Multiple Mice**
Marcelino Bernardo[1,2], Gabriela Kramer-Marek[3], Nalini Shenoy[4], Jurgen Seidel[1], Michael V. Green[1], Jacek Capala[5], Peter L. Choyke[1]
[1]Molecular Imaging Program, NCI, Bethesda, MD, USA; [2]SAIC-Frederick, Frederick, MD, USA; [3]Radiation Oncology Branch, NCI, USA; [4]Image Probe Development Center, NIH, USA; [5]Radiation Oncology Branch, NCI, Bethesda, MD, USA

18:06 **168**. **A Novel Radiolucent Phased Array Design Suitable for MR Guided Radiation Therapy**
Kirk Champagne[1], Wayne Schellekens[1], Mehran Fallah-Rad[1], Hongxiang Yi[1], Haoqin Zhu[1], Labros Petropoulos[1]
[1]IMRIS Inc., Winnipeg, MB, Canada

18:18 **169**. **Design Criteria of an MR-PET Array Coil for Highly Parallel MR Brain Imaging**
Christin Y. Sander[1,2], Boris Keil[2], Ciprian Catana[2], Bruce R. Rosen[2,3], Lawrence L. Wald[2,3]
[1]Electrical Engineering & Computer Science, Massachusetts Institute of Technology, Cambridge, MA, USA; [2]A. A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Harvard Medical School, Charlestown, MA, USA; [3]Health Sciences & Technology, Harvard-MIT, Cambridge, MA, USA

Diffusion Acquisition & Pulse Sequences

Room 710A 16:30-18:30 *Moderators:* Roland Bammer & Claudia A. Wheeler-Kingshott

16:30 **170**. **Preventing Signal Dropouts in DWI using Continous Prospective Motion Correction**
Michael Herbst[1], Julian Maclaren[1], Matthias Weigel[1], Jan Gerrit Korvink[2,3], Maxim Zaitsev[1]
[1]Medical Physics, University Medical Center Freiburg, Freiburg, Germany; [2]Dept. of Microsystems Engineering - IMTEK, University of Freiburg, Freiburg, Germany; [3]Freiburg Institute of Advanced Studies (FRIAS), University of Freiburg, Germany

16:42 **171**. **Benefits of Optical Prospective Motion Correction for Single-Shot DTI**
Murat Aksoy[1], Christoph Forman[2], Daniel Kopeinigg[1], Matus Straka[1], Rafael O'Halloran[1], Samantha Holdsworth[1], Stefan Skare[1,3], Roland Bammer[1]
[1]Radiology, Stanford University, Stanford, CA, USA; [2]Computer Science, Friedrich-Alexander-University Erlangen-Nuremberg, Erlangen, Germany; [3]Clinical Neuroscience, Karolinska Institute, Stockholm, Sweden

16:54 **172**. **Prospective Correction of Spatially Non-Linear Phase Patterns for Diffusion-Weighted FSE Imaging using Tailored RF Excitation Pulses**
Rita Gouveia Nunes[1, 2], Shaihan J. Malik[2], Joseph V. Hajnal[2]
[1]Institute of Biophysics & Biomedical Engineering, Faculty of Sciences, University of Lisbon, Lisbon, Portugal; [2]Robert Steiner MRI Unit, Imaging Sciences Department, MRC Clinical Sciences Centre, Hammersmith Hospital, Imperial College London, London, United Kingdom

17:06 **173**. **Dynamic & Inherent B_0 Correction for DTI using Stimulated Echo Spiral Imaging**
Alexandru Vlad Avram[1, 2], Trong-Kha Truong[2], Arnaud Guidon[1, 2], Chunlei Liu[2], Allen W. Song[2]
[1]Biomedical Engineering Department, Duke University, Durham, NC, USA; [2]Brain Imaging & Analysis Center, Duke University Medical Center, Durham, NC, USA

17:18 **174**. **Diffusion-Weighted Inner-Field-of-View EPI using 2D-Selective RF Excitations with a Tilted Excitation Plane**
Jürgen Finsterbusch[1,2]
[1]Department of Systems Neuroscience, University Medical Center Hamburg-Eppendorf, Hamburg, Germany; [2]Neuroimage Nord, University Medical Centers Hamburg-Kiel-Lübeck, Hamburg-Kiel-Lübeck, Germany

17:30 **175**. **3D Submillimeter-Resolution Reduced-Field-of-View Diffusion Tensor Imaging**
Anh Tu Van[1], Joseph Holtrop[2], Bradley P. Sutton[2]
[1]Electrical & Computer Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA; [2]Bioengineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA

17:42 **176**. **A New Spectro-Spatial RF Pulse Design for High-Resolution Isotropic Diffusion Imaging**
Sangwoo Lee[1], Gaohong Wu[1]
[1]GE Healthcare, Waukesha, WI, USA

17:54 **177**. **Diffusion Weighted vGRASE (DW-vGRASE)**
Mathias Engström[1], Roland Bammer[2], Stefan Skare[1]
[1]Clinical Neuroscience, Karolinska Institute, Stockholm, Sweden; [2]Radiological Sciences Laboratory, Stanford University, Palo Alto, CA, USA

18:06 **178**. **Bipolar Diffusion Encoding with Implicit Spoiling of Undesired Coherence Pathways**
Thorsten Feiweier[1]
[1]Siemens AG, Healthcare Sector, Erlangen, Germany

18:18 **179**. **X-PROP: A Fast & Robust Diffusion-Weighted PROPELLER Technique**
Zhiqiang Li[1], James G. Pipe[2], Chu-Yu Lee[2,3], Josef P. Debbins[2,3], John P. Karis[4], Donglai Huo[1,2]
[1]MR Engineering, GE Healthcare, Waukesha, WI, USA; [2]Neuroimaging Research, Barrow Neurological Institute, Phoenix, AZ, USA; [3]Electrical Engineering, Arizona State University, Tempe, AZ, USA; [4]Radiology, Barrow Neurological Institute, Phoenix, AZ, USA

Human Brain Tumors: Advances in Diagnosis & Prognosis

Room 710B 16:30-18:30 *Moderators:* Sarah J. Nelson & A. Gregory Sorensen

16:30 **180**. **Feature Analysis in SVM-Based Classification of Gliomas**
Frank G. Zoellner[1], Kyrre E. Emblem[2,3], Lothar R. Schad[1]
[1]Computer Assisted Clinical Medicine, Medical Faculty Mannheim, Heidelberg University, Mannheim, Germany; [2]Department of Radiology, MGH-HST A. A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital & Harvard Medical School, Boston, MA, USA; [3]The Interventional Center, Oslo University Hospital, Oslo, Norway

16:42 **181**. ***In Vivo* Detection of IDH Mutations in Gliomas by ^{1}H-MRS**
Changho Choi[1], Sandeep Ganji[1], Ralph De Berardinis[1], Zoltan Kovacs[1], Robert Bachoo[1], Juan Pascual[1], Ivan Dimitrov[1,2], Bruce Mickey[1], Craig Malloy[1,3], Elizabeth Maher[1]
[1]University of Texas Southwestern Medical Center, Dallas, TX, USA; [2]Philips Medical Systems; [3]VA North Texas Health Care System

16:54 **182**. **Metabolic Characterization of Glioma Populations with Emphasis on Onco-Metabolite 2-Hydroxyglutarate**
Adam Elkhaled[1], Llewellyn Jalbert[1], Hikari Yoshihara[1], Gabriella Bourne[1], Joanna Phillips[2], Soonmee Cha[1], Susan M. Chang[3], Radhika Srinivasan[1], Sarah J. Nelson[1,4]
[1]Department of Radiology & Biomedical Imaging, University of California, San Francisco, San Francisco, CA, USA; [2]Department of Pathology, University of California, San Francisco; [3]Department of Neurological Surgery, University of California, San Francisco; [4]Department of Bioengineering & Therapeutic Sciences, University of California, San Francisco

17:06 **183**. **Presence of 2-Hydroxyglutarate in IDH1 Mutated Low-Grade Glioma using *Ex Vivo* Proton HR-MAS Spectroscopy**
Llewellyn Jalbert[1], Adam Elkhaled[1], Joanna Phillips[2], Hikari Yoshihara[1], Radhika Srinivasan[1], Gabriela Bourne[1], Susan Chang[3], Soonmee Cha[1], Sarah Nelson[1, 4]
[1]Department of Radiology & Biomedical Imaging, University of California - San Francisco, San Francisco, CA, USA; [2]Department of Pathology, University of California - San Francisco; [3]Department of Neurological Surgery, University of California - San Francisco; [4]Department of Bioengineering & Therapeutic Sciences, University of California - San Francisco

17:18 **184**. **Detection of 2-Hydroxyglutarate in Mutant Brain Tumors *In Vivo* using Proton Magnetic Resonance Spectroscopy**
Rajakumar Nagarajan[1], Michael Albert Thomas[1], Whitney B. Pope[1], Robert M. Prins[2], Neil Wilson[1], Noriko Salamon[1], Linda M. Liau[2]
[1]Radiological Sciences, University of California Los Angeles, Los Angeles, CA, USA; [2]Neurosurgery, University of California Los Angeles

17:30 **185**. **Segmentation of Combinations of Mean Diffusivity & DCE Perfusion Derived CBV in Glioblastoma Multiforme**
Rishi Awasthi[1], Ram Kishan Singh Rathore[2], Jitesh Kumar Singh[2], Nuzhat Husain[3], Priyanka Soni[3], Rohit Kumar Singh[4], Sanjay Behari[4], Rakesh Kumar Gupta[1], Shaleen Kumar[5]
[1]Radiodiagnosis, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India, Lucknow, Uttar Pradesh, India; [2]Mathematics & Statistics, Indian Institute of Technology, Kanpur, Kanpur, Uttar Pradesh, India; [3]Pathology, Chatrapati Sahu ji Maharaj Medical University, Lucknow, Uttar Pradesh, India; [4]Neurosurgery, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India, Lucknow, Uttar Pradesh, India; [5]Radiotherapy, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India, Lucknow, India

17:42 **186**. **Evaluation of Relative $CMRO_2$ from BOLD & CBF Changes in Hyperoxia: Significant Increase of Oxygen Consumption rate in Glioblastoma**
Heisoog Kim[1,2], Ciprian Catana[1], Kim Mouridsen[1], Div Bolar[1], Elizabeth R. Gerstner[3], Tracy T. Batchelor[3], Rakesh K. Jain[4], Bruce R. Rosen[1,2], A. Gregory Sorensen
[1]Radiology, A. A. Martinos Center, Charlestown, MA, USA; [2]HST/NSE, Massachusetts Institute of Technology, Cambridge, MA, USA; [3]Neurology, Massachusetts General Hospital, Boston, MA, USA; [4]Radiation Oncology, Massachusetts General Hospital, Boston, MA, USA

17:54 **187**. **A Simultaneous Measurement of Relative $CMRO_2$ with MRI & FMISO Uptake with PET in Glioblastoma**
Heisoog Kim[1], Ciprian Catana[1], Grae Arabasz[1], Div Bolar[1], Elizabeth R. Gerstner[2], Tracy T. Batchelor[2], Rakesh K. Jain[3], Bruce R. Rosen[1], A. Gregory Sorensen[1]
[1]Radiology, A. A. Martinos Center, Charlestown, MA, USA; [2]Neurology, Massachusetts General Hospital, Boston, MA, USA; [3]Radiation Oncology, Massachusetts General Hospital, Boston, MA, USA

18:06 **188**. **Multicentre Prospective Classification of Childhood Brain Tumours Based on Metabolite Profiles Derived from ^{1}H MRS**

Nigel Paul Davies[1,2], Simrandip Gill[2,3], Theodoros N. Arvanitis[3,4], Dorothee Auer[5], Richard Grundy[6,7], Franklyn A. Howe[8], Darren Hargrave[9], Tim Jaspan[7], Lesley MacPherson[3], Kal Natarajan[1,3], Geoffrey Payne[9,10], Dawn Saunders[11], Yu Sun[2,3], Martin Wilson[2,3], Andrew C. Peet[2,3]

[1]Medical Physics, University Hospitals Birmingham NHS Foundation Trust, Birmingham, United Kingdom; [2]Cancer Sciences, University of Birmingham, Birmingham, United Kingdom; [3]Birmingham Children's Hospital NHS Foundation Trust, Birmingham, United Kingdom; [4]Department of Electrical, Electronic & Computer Engineering, University of Birmingham, Birmingham, United Kingdom; [5]Academic Radiology, University of Nottingham, Nottingham, United Kingdom; [6]Children's Brain Tumour Research Centre, University of Nottingham, Nottingham, United Kingdom; [7]University Hospital Nottingham, Nottingham, United Kingdom; [8]St. George's University of London, London, United Kingdom; [9]Royal Marsden Hospital, London, United Kingdom; [10]Institute of Cancer Research, London, United Kingdom; [11]Great Ormond Street Hospital, London, England, United Kingdom

18:18 **189**. **Segmentation of Tumor Infiltrative & Vasogenic Edema in Brain Tumors using Voxel-Wise Analysis of 11C-Methinonine & FDG PET & its Comparison with Diffusion Tensor Imaging**

Manabu Kinoshita[1], Testu Goto[1], Hideyuki Arita[1], Naoki Kagawa[1], Yasunori Fujimoto[1], Haruhiko Kishima[1], Yoichi Saitoh[2], Jun Hatazawa[3], Naoya Hashimoto[1], Toshiki Yoshimine[1]

[1]Neurosurgery, Osaka University Graduate School of Medicine, Suita, Osaka, Japan; [2]Neuromodulation & Neurosurgery, Center for Advanced Science & Innovation, Osaka University, Suita, Osaka, Japan; [3]Nuclear Medicine & Tracer Kinetics, Osaka University Graduate School of Medicine, Suita, Osaka, Japan

Study Groups
Dynamic NMR Spectroscopy

Room 510 18:45-20:45

Study Groups
Hyperpolarized Media MR

Room 511A-C 18:45-20:45

Study Groups
MR Safety

Room 511D-F 18:45-20:45

Study Groups
White Matter

Room 512A-G 18:45-20:45

Study Groups
Susceptibility Weighted Imaging

Room 513A-D 18:45-20:45

Study Groups
Current Issues in Brain Function

Room 516A-C 18:45-20:45

Study Groups
Interventional MR

Room 518A-C 18:45-20:45

Study Groups
Motion Correction

Room 520 B-F 18:45-20:45

Study Groups
Diffusion

Room 710A 18:45-20:45

Study Groups
MR Engineering

Room 710B 18:45-20:45

Clinical Intensive Course
Sunrise Educational Course
Hot Topics in Body MRI

Room 510 07:00-08:00 *Moderators:* Dow-Mu Koh & Bachir Taouli

Diffusion Imaging: Body Applications

07:00 **Diffusion Imaging: Physics Applied to Body Applications**
Thomas L. Chenevert

07:20 **Liver Lesions: Added Value of Diffusion MRI**
Elizabeth M. Hecht

07:40 **Renal Lesions: Added Value of Diffusion MRI**
Hersh Chandarana

Clinical Intensive Course
Sunrise Educational Course
Neuro MRI from Start to Finish

Room 516A-C 07:00-08:00

Fetal

07:00 **Conventional MRI**
Orit Glenn

07:30 **Non-Conventional MRI**
Patricia Ellen Grant

Sunrise Educational Course
Image Analysis

Room 511A-C 07:00-08:00 *Moderator:* Simon K. Warfield

07:00 **Segmentation: Theory**
Marleen de Bruijne

07:30 **Segmentation: Practice**
Paul A. Yushkevich

Sunrise Educational Course
Translational Imaging: Animal Models in MSK

Room 511D-F 07:00-08:00 *Moderator*: Bernard J. Dardzinski

07:00 **Choosing the Best Animal Model**
Lisa A. Fortier

07:30 **Live Animal Imaging: Challenges & Longitudinal Analysis**
Richard P. Kennan

Sunrise Educational Course
Fast & Furious: The New Era of Rapid Imaging

Room 512A-G 07:00-08:00

Fast Cardiovascular Imaging

07:00 **Current Clinical Practices & Needs**
Frandics P. Chan

07:30 **Emerging Techniques**
Jeffrey Tsao

Sunrise Educational Course
Molecular Imaging & Contrast Agents

Room 513A-D 07:00-08:00

07:00 **Conventional Contrast Agents**
Val M. Runge

07:30 **Physico Chemical Principles & Applications of Fluorine**
Peter M. Jakob

Sunrise Educational Course
Cardiovascular MR Imaging: Bridging the Gap Between Research & Clinical Problems

Room 518A-C 07:00-08:00

Stress MRI for Evaluation of CAD

07:00 **Types of Stress MR Imaging**
Juerg Schwitter

07:20 **Acquisition Issues**
Peter Kellman

07:40 **Postprocessing Issues**
Michael Jerosch-Herold

Sunrise Educational Course
MRS - Metabolite Profiling & Metabolism

Room 520B-F 07:00-08:00 *Moderators:* Kevin M. Brindle & Ivan Tkac

07:00 **Requirements for Reliable Metabolite Profiling**
Ivan Tkac

07:30 **Strategies for Probing Metabolism**
Robin A. de Graaf

Sunrise Educational Course
Image Reconstruction

Room 710A 07:00-08:00

Non-Cartesian Trajectories & Off-Resonance Correction

07:00 **Fast Image Reconstruction from Non-Cartesian Data**
Craig H. Meyer

07:30 **Off-Resonance Effects & Correction**
Bradley P. Sutton

Sunrise Educational Course
Absolute Beginners' Guide to Anatomical & Functional MRI of the Brain

Room 710B 07:00-08:00 *Moderator:* Thomas M. Talavage

07:00 **Functional MRI**
Christina Triantafyllou

07:30 **Functional MRI Analysis**
Robert W. Cox

Plenary Lectures
Diagnosis & Triage of Acute Coronary Syndromes in the Emergency Room

Plenary Hall 08:15-09:30 *Organizers:* David E. Sosnovik & Matthias Stuber

08:15 **190**. **Diagnosis of Acute Coronary Syndromes: Scope of the Problem**
Warren J. Manning
Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA

Acute coronary syndrome (ACS) encompasses a heterogeneous subpopulation of patients presenting with non-traumatic chest pain. ACS includes the clinical syndromes of STEMI, NSTEMI, and unstable angina. Despite a careful history, physical examination, and conventional testing with biomarkers, many patients without ACS are unnecessarily admitted to the hospital, while others with ACS are sometimes discharged from the ED to experience high morbidity and mortality. For low and moderate risk ACS patients with inconclusive testing, cardiac imaging often plays a valuable role in the identification of those with ACS and safe discharge for those with non-life threatening conditions

08:25 **191**. **Cardiac CT: The Imaging Technique of Choice?**
Udo Hoffmann
Massachusetts General Hosptial, Boston, MA, USA

Cardiac CT provides new insights into cardiac and coronary morphology and function and may be an efficient triage tool for patients presenting with acute chest pain to the Emergency Department.

08:40 **192**. **Cardiac MRI in the Emergency Room**
Andrew E. Arai
National Institutes of Health/NHLBI, Bethesda, MD, USA

The diagnosis and triage of acute coronary syndrome (ACS) in the emergency room (ER) is a complex and expensive medical problem that can benefit from incorporation of imaging into clinical practice guidelines and treatment algorithms. Cardiac MRI can assess many parameters important in the diagnosis and risk stratification of patients with possible ACS. More importantly, several clinical trials have shown that cardiac MRI is feasible, diagnostically accurate, complimentary to conventional clinical tools, and even cost effective in the emergency room setting.

09:05 **193**. **Faster & Better: Emerging tools for Cardiovascular MRI in the Emergency Room**
Orlando P. Simonetti
Ohio State University, Columbus, OH, USA
Cardiovascular MRI technology continues to evolve in terms of its ability to rapidly and reliably produce accurate, functional, diagnostic information, and also in its capacity to provide quantitative results. a number of centers are beginning to explore the use of MRI as a means to triage patients presenting in the emergency room with acute chest pain. This presentation will explore the latest advances in cardiovascular MRI methods that are especially applicable to the diagnosis of Acute Coronary Syndrome (ACS).

Clinical Intensive Course
(Admission limited to Clinical Course registrants only)
Cortical Cartography: Case-Based Teaching

Room 510 08:15-09:30 *Moderator:* Jeffrey Joseph Neil

08:15 **Development**
Petra S. Hüppi

08:45 **Disease**
David van Essen

09:15 **Discussion & Meet the Teachers**

Clinical Intensive Course
(Admission limited to Clinical Course registrants only)
Liver MRI: How I Do It

Room 516A-C 08:15-10:15 *Moderator:* Shahid M. Hussain

08:15 **Liver MRI: Protocol Optimization**
Donald G. Mitchell

08:45 **Contrast Media for Liver MRI: Which One to Choose?**
Scott B. Reeder

09:15 **MRI of Focal Liver Lesions: A Step-by-Step Approach**
Claude B. Sirlin

09:45 **MRI of Diffuse Liver Disorders**
Hero K. Hussain

Clinical Intensive Course
MRI of Elbow, Wrist & Hand

Room 510 10:30-12:30 *Moderator:* Lynne S. Steinbach

10:30 **Elbow Tendons**
Christine Chung

11:10 **Wrist**
Laura W. Bancroft

11:50 **Hand**
Ronald C. Shnier

Clinical Intensive Course
MRI in Drug Abuse

Room 512A-G 10:30-12:30

10:30 **Drug Exposure in Utero**
Claire D. Coles

11:10 **Anatomical & Functional MRI of Cocaine & Nicotine Addiction**
Elliot A. Stein

11:50 **MRI of Ecstasy Addiction**
Ronald L. Cowan

Clinical Intensive Course
Artifacts in Body MRI: Case-Based Teaching

Room 516A-C 10:30-12:30 *Moderators:* Shahid M. Hussain & Caroline Reinhold

10:30 **Diffusion-Weighted Imaging: Artifacts & Remedies in Body MRI**
Thomas G. Perkins

11:00 **Artifacts in Clinical Practice: Physicist's Perspective**
Martin J. Graves

11:45 **Artifacts & Pitfalls: Radiologist's Perspective**
Donald G. Mitchell

Interventional MRI: Technical Developments & Clinical Applications

Room 511A-C 10:30-12:30 *Moderators:* Claudia M. Hillenbrand & Harald H. Quick

10:30 **194**. **Assessment & Completion of RF Ablation for the Treatment of Atrial Fibrillation using Real-Time MRI Guidance**
Sathya Vijayakumar[1,2], Eugene G. Kholmovski[1,2], Ravi Ranjan[2,3], Gaston Vergara[2,3], Joshua Blauer[2,4], Gene Payne[1,2], Nelly Volland[1,2], Kamal Vij[5], Gregory Gardner[2,4], Peter Piferi[5], Kimberly Johnson[2,3], Li Pan[6], Klaus Kirchberg[6], Rob MacLeod[2,4], Christopher J. McGann[2,3], Nassir F. Marrouche[2,3]
[1]UCAIR, Department of Radiology, University of Utah, Salt Lake City, UT, USA; [2]CARMA Center, University of Utah, Salt Lake City, UT, USA; [3]Department of Cardiology, University of Utah, Salt Lake City, UT, USA; [4]SCI,, University of Utah, Salt Lake City, UT, USA; [5]SurgiVision Inc., Irvine, CA, USA; [6]Center for Applied Medical Imaging, Siemens Corporate Research, Princeton, NJ

10:42 **195**. **An Integrated System for Catheter Tracking & Visualization in MR-Guided Cardiovascular Interventions**
Li Pan[1], Julien Barbot[2], Steven M. Shea[1], Sunil Patil[1], Klaus J. Kirchberg[2], Glenn Meredith[2], Tongbai Meng[1], Eugene G. Kholmovski[3,4], Sathya Vijayakumar[3,4], Kamal Vij[5], Mike Guttman[5], Peter G. Piferi[5], Kimble L. Jenkins[5], Christine H. Lorenz[1]
[1]Center for Applied Medical Imaging, Siemens Corporate Research, Baltimore, MD, USA; [2]Center for Applied Medical Imaging, Siemens Corporate Research, Princeton, NJ, USA; [3]UCAIR, Department of Radiology, University of Utah, Salt Lake City, UT, USA; [4]CARMA Center, University of Utah, Salt Lake City, UT, USA; [5]SurgiVision, Inc., Irvine, CA, USA

10:54 **196**. **Prospective High Resolution Respiratory Resolved Whole-Heart MRI for Image-Guided Cardiovascular Interventions**
Christoph Kolbitsch[1], Claudia Prieto[1], Christian Buerger[1], Reza Razavi[1], Jouke Smink[2], Tobias Schaeffter[1]
[1]Division of Imaging Sciences & Biomedical Engineering, King's College London, London, United Kingdom; [2]Philips Healthcare, Best, Netherlands

11:06 **197**. **Evaluation of a Novel MR-RF Ablation Catheter with Full Clinical Functionality**
Steffen Weiss[1], Bernd David[1], Kai-Michael Luedeke[1], Oliver Lips[1], Daniel Wirtz[1], Sascha Krueger[1], Peter Koken[1], Ronald Holthuizen[2], Tobias Schaeffter[3], Jas Gill[3], Reza Razavi[3]
[1]Philips Research Laboratories, Hamburg, Germany; [2]Philips Healthcare, Best, Netherlands; [3]Division of Imaging Sciences, King's College, London, United Kingdom

11:18 **198**. **MRI-Guided Sclerotherapy of Veno-Lymphatic Vascular Malformations: Evaluation of Procedure Safety & Long-term Efficacy**
Sherif G. Nour[1], Daniel P. Hsu[2], Jamal J. Derakhshan[3], Jonathan S. Lewin[4]
[1]Radiology, Emory University Hospital, Atlanta, GA, USA; [2]Radiology, Case Medical Center, Cleveland, OH; [3]Biomedical Engineering, Case Western Reserve University, Cleveland, OH, USA; [4]Radiology, Johns Hopkins School of Medicine, Baltimore, MA, USA

11:30 **199**. **Longitudinal High Resolution MRI to Evaluate a Novel Statin Loaded HDL Nanoparticle Therapy in Experimental Atherosclerosis.**
Raphael Duivenvoorden[1,2], Jun Tang[1], David Izquierdo-Garcia[3], David P. Cormode[1], Eric S. G. Stroes[2], Edward A. Fisher[4], Zahi A. Fayad[1,3], Willem J. M. Mulder[1]
[1]Translational & Molecular Imaging Institute, Mount Sinai School of Medicine, New York, NY, USA; [2]Vascular Medicine, Academic Medical Center, Amsterdam, NH, Netherlands; [3]Radiology, Mount Sinai School of Medicine, New York, NY, USA; [4]Department of Medicine, Division of Cardiology, New York University School of Medicine, New York, NY, USA

11:42 **200**. **Quantitative Transcatheter Intraarterial Perfusion MRI to Predict Drug Delivery during Chemoembolization for Hepatocellular Carcinoma**
Dingxin Wang[1,2], Brian Jin[3], Robert Lewandowski[3], Robert Ryu[3], Kent Sato[3], Ann Ragin[3], Laura Kulik[4], Mary Mulcahy[5,6], Frank Miller[3], Riad Salem[3,6], Andrew Larson[3,6], Reed Omary[3,6]
[1]Siemens Medical Solutions USA, Inc., Minneapolis, MN, USA; [2]Center for Magnetic Resonance Research, University of Minnesota, Minneapolis, MN, USA; [3]Department of Radiology, Northwestern University, Chicago, IL, USA; [4]Department of Hepatology, Northwestern University, Chicago, IL, USA; [5]Department of Medicine, Northwestern University, Chicago, IL, USA; [6]Robert H. Lurie Comprehensive Cancer Center, Northwestern University, Chicago, IL, USA

11:54 **201**. **Detection & Quantification of Holmium-166 Loaded Microspheres in Patients with Liver Metastases: Initial Experience within the Framework of a Phase I Study**
Gerrit Hendrik van de Maat[1], Mattijs Elschot[2], Peter Roland Seevinck[1], Hendrik de Leeuw[1], H.W. de Jong[3], M. L. Smits[3], M. A. van den Bosch[3], M. G. Lam[3], B. A. Zonnenberg[3], A. D. van het Schip[3], J. Frank Nijsen[3], Chris J. Bakker[1]
[1]Image Sciences Institute, University Medical Center, Utrecht, Netherlands; [2]Department of Radiology & Nuclear Medicine, University Medical Center, Utrecht , Netherlands; [3]Department of Radiology & Nuclear Medicine, University Medical Center, Utrecht, Netherlands

12:06 **202**. **Clinically Usable Tool For Dynamic Scan-Plane Tracking For Real-Time MRI-Guided Needle Interventions in a High-Field-Open MRI System**
Uta Wonneberger[1], Sascha Krüger[2], Daniel Wirtz[2], Christoph Leussler[2], Steffen Weiss[2], Kerstin Jungnickel[1], Matthias Ludewig[1], Jürgen Bunke[3], Jens Ricke[1], Frank Fischbach[1]
[1]Klinik für Radiologie & Nuklearmedizin, Otto-von-Guericke-Universität Magdeburg, D-39120 Magdeburg, Germany; [2]Imaging Systems & Intervention, Philips Research Europe, D-22335 Hamburg, Germany; [3]Healthcare, Philips, D-22335 Hamburg, Germany

12:18 **203**. **Pass-Through Piston Driver for MR Elastography Assessment of Percutaneous Laser Ablation**
David Arthur Woodrum[1], Jun Chen[1], Kevin J. Glaser[1], Krzysztof Gorny[1], Richard L. Ehman[1]
[1]Radiology, Mayo Clinic, Rochester, MN, USA

Parallel Transmission in Three Dimensions

Room 511D-F 10:30-12:30 *Moderators:* Kawin Setsompop & V. Andrew Stenger

10:30 **204**. **Exploiting Phase Encoding Capabilities of Parallel Excitation for Improved Spatial Selectivity in Inner-Volume Imaging**
Johannes Thomas Schneider[1,2], Martin Haas[3], Wolfgang Ruhm[1], Juergen Hennig[3], Peter Ullmann[1]
[1]Bruker BioSpin MRI GmbH, Ettlingen, Germany; [2]Dept. of Radiology, Medical Physics, University Medical Center Freiburg , Freiburg, Germany; [3]Dept. of Radiology, Medical Physics, University Medical Center Freiburg, Freiburg, Germany

10:42 **205**. **3D Parallel Excitation Pulse Design using Interleaved Sparse Approximation & Local Optimization**
William A. Grissom[1], Chen Dong[1], Laura Sacolick[1], Mika W. Vogel[1]
[1]GE Global Research, Munich, Germany

10:54 **206**. **Application of K_t-Points to Human Brain Imaging At 7 Tesla**
Martijn Anton Cloos[1,2], Nicolas Boulant[1], Guillaume Ferrand[2], Michel Luong[2], Christopher J. Wiggins[1], Denis Le Bihan[1], Alexis Amadon[1]
[1]LRMN, CEA, DSV, I2BM, NeuroSpin, Gif-Sur-Yvette, ile-de-France, France; [2]CEA, DSM, IRFU, Gif-Sur-Yvette, ile-de-France, France

11:06 **207**. **Parallel Transmit using 3D Spokes RF Pulses for Improved B_1^+ Homogeneity over 3D Volumes**
Mohammad Mehdi Khalighi[1], Manojkumar Saranathan[2], William Grissom[3], Adam B. Kerr[4], Ron Watkins[2], Brian K. Rutt[2]
[1]Global Applied Science Laboratory, GE Healthcare, Menlo Park, CA, USA; [2]Department of Radiology, Stanford University, Stanford, CA, USA; [3]Imaging Technologies Lab, General Electric Global Research, Garching B. Munchen, Germany; [4]Department of Electrical Engineering, Stanford University, Stanford, CA, USA

11:18 **208**. **Parallel Transmission Design of Multi-Pulse Sequences using Spatially Resolved Extended Phase Graphs (SREPG)**
Shaihan J. Malik[1], Hanno Homann[2], Peter Börnert[3], Joseph V. Hajnal[1]
[1]Robert Steiner MRI Unit, Imaging Sciences Department, MRC Clinical Sciences Centre, Hammersmith Hospital, Imperial College London, London, United Kingdom; [2]Institute of Biomedical Engineering, Karlsruhe Institute of Technology, Karlsruhe, Germany; [3]Philips Research, Hamburg, Germany

11:30 **209**. **Joint Optimization of Tip-Down & Tip-Up RF Pulses in Small-Tip (Non-Spin-Echo) Fast Recovery Imaging**
Jon-Fredrik Nielsen[1], Daehyun Yoon[2], Neal Anthony Hollingsworth[3], Katherine Lynn Moody[4], Mary Preston McDougall[3,4], Steven M. Wright[3,4], Douglas C. Noll[1]
[1]Biomedical Engineering, University of Michigan, Ann Arbor, MI, USA; [2]Electrical Engineering & Computer Science, University of Michigan; [3]Electrical & Computer Engineering, Texas A&M University; [4]Biomedical Engineering, Texas A&M University

11:42 **210**. **Parallel RF Pulse Design with Subject-Specific Global SAR Supervision**
Cem Murat Deniz[1,2], Leeor Alon[2,3], Ryan Brown[3], Hans-Peter Fautz[4], Daniel K. Sodickson[3], Yudong Zhu[3]
[1]Center for Biomedical Imaging , Department of Radiology, NYU School of Medicine, New York, NY, USA; [2]Sackler Institute of Graduate Biomedical Sciences, NYU School of Medicine, New York, NY, USA; [3]Center for Biomedical Imaging, Department of Radiology, NYU School of Medicine, New York, NY, USA; [4]Siemens Medical Solutions, Erlangen, Germany

11:54 **211**. **Parallel Spatially Selective Excitation using Nonlinear Non-Bijective PatLoc Encoding Fields: Experimental Realization & First Results**
Johannes Thomas Schneider[1,2], Martin Haas[2], Stéphanie Ohrel[1], Heinrich Lehr[1], Wolfgang Ruhm[1], Hans Post[1], Jürgen Hennig[2], Peter Ullmann[1]
[1]Bruker BioSpin MRI GmbH, Ettlingen, Germany; [2]Dept. of Radiology, Medical Physics, University Medical Center Freiburg, Freiburg, Germany

12:06 **212**. **Parallel Transmission with Spectral-Spatial Pulses for Susceptibility Artifact Correction**
Cungeng Yang[1], Weiran Deng[1], Vijayanand Alagappan[2], Lawrence L. Wald[3], Victor Andrew Stenger[1]
[1]University of Hawaii, Honolulu, HI, USA; [2]General Electric Medical Systems, Waukesha, WI, USA; [3]Athinoula A. Martinos Center for Biomedical Imaging, Charlestown, MA, USA

12:18 **213**. **Through-Plane Signal Loss Recovery & B_1 Inhomogeneity Reduction *In Vivo* at 7T using Parallel Transmission**
Hai Zheng[1], Tiejun Zhao[2], Yongxian Qian[3], Tamer Ibrahim[1,3], Fernando Boada[1,3]
[1]Bioengineering, University of Pittsburgh, Pittsburgh, PA, USA; [2]Siemens Medical Solutions, Pittsburgh, PA, USA; [3]Radiology, University of Pittsburgh, Pittsburgh, PA, USA

Myocardial Perfusion: Experimental Models & Human Studies

Room 513A-D 10:30-12:30 *Moderators:* Rohan Dharmakumar & Michael Jerosch-Herold

10:30 **214**. **Adenosine-Induced Stress Myocardial Perfusion MRI using SW-CG-HYPR with Whole Left Ventricular Coverage: Comparison of Results with X-Ray Angiography in Patients with Suspected Coronary Artery Disease**
Heng Ma[1], Lan Ge[2], Jing An[3], David Chen[2], Lixin Jin[4], Xiaoming Bi[5], Renate Jerecic[4], Kuncheng Li[1], Debiao Li[2,6]
[1]Xuanwu Hospital, Capital Medical University, Beijing, China, People's Republic of; [2]Northwestern University; [3]Siemens Healthcare, MR Collaboration NE Asia, Siemens Mindit Magnetic Resonance; [4]Siemens Healthcare, MR Collaboration NE Asia, Siemens Limited China; [5]Siemens Healthcare, Cardiovascular MR R&D, USA; [6]Cedars-Sinai Medical Center & UCLA

10:42 **215**. **Cardiac ASL: Optimisation & Validation in the Mouse Heart**
Adrienne E. Campbell[1,2], Anthony N. Price[3], Jack A. Wells[1], Roger J. Ordidge[2], Mark F. Lythgoe[1]
[1]Centre for Advanced Biomedical Imaging, Division of Medicine & Institute of Child Health, University College London, London, United Kingdom; [2]Department of Medical Physics & Bioengineering, University College London, London, United Kingdom; [3]Robert Steiner MRI Unit, Imaging Science Department, Hammersmith Hostpital, Imperial College London, London, United Kingdom

10:54 **216**. **Quantitative MRI of the Myocardial Microcirculation in Mice using FAIR Look-Locker Arterial Spin Labeling & a Gamma-Variate Model of Blood Transit Time Distribution**
Frederick H. Epstein[1,2], Nivedita K. Naresh[2], Patrick F. Antkowiak[2], Moriel H. Vandsburger[2], Xiao Chen[2]
[1]Radiology, University of Virginia, Charlottesville, VA, USA; [2]Biomedical Engineering, University of Virginia, Charlottesville, VA, USA

11:06 **217**. **Detecting Myocardial Ischemia at Rest with Cardiac Phase-Resolved BOLD MRI: Early Findings**
Sotirios Athanasios Tsaftaris[1,2], Veronica Rundell[2], Xiangzhi Zhou[2], Ying Liu[2], Richard Tang[2], Debiao Li[2], Rohan Dharmakumar[2]
[1]Electrical Engineering & Computer Science, Northwestern University, Evanston, IL, USA; [2]Radiology, Northwestern University, Chicago, IL, USA

11:18 **218**. **Methods for Quantification of Absolute Myocardial Oxygen Consumption with ^{17}O-CMR**
David Muccigrosso[1], Xiang He[2], Dana Abendschein[1], Adil Bashir[1], Pradeep Gupte[3], Wei Chen[4], Robert J. Gropler[1], Jie Zheng[1]
[1]Washington University School of Medicine, St. Louis, MO, USA; [2]University of Pittsburg; [3]Rockland Technimed, Ltd.; [4]University of Minnesota

11:30 **219**. **Rapid CINE Myocardial T_2^* Mapping at 7T**
Fabian Hezel[1], Peter Kellman[2], Christof Thalhammer[1], Wolfgang Renz[3], Thoralf Niendorf[1,4]
[1]Berlin Ultrahigh Field Facility, Max Delbrueck Center for Molecular Medicine, Berlin, Germany; [2]Laboratory of Cardiac Energetics, National Institutes of Health/NHLBI, Bethesda, MD, USA; [3]Siemens Medical Systems, Erlangen, Germany; [4]Experimental & Clinical Research Center (ECRC), Charité Campus Buch, Humboldt-University, Berlin, Germany

11:42 **220**. **Pyruvate is Superior to Glucose in Supporting Metabolism of Machine Perfused Donor Hearts for Transplantation**
Michael Cobert[1], Matthias Peltz[1], Matthew Merritt[2], LaShondra West[1], Michael E. Jessen[1]
[1]Cardiovascular & Thoracic Surgery, University of Texas Southwestern Medical Center at Dallas, Dallas, TX, USA; [2]Advanced Imaging Research Center, University of Texas Southwestern Medical Center at Dallas, Dallas, TX, USA

11:54 **221**. **Myocardial ASL Perfusion Reserve Test Detects Angiographic CAD in Initial Cohort of 29 Patients**
Zungho Zun[1], Terrence Jao[1], Padmini Varadarajan[2], Ramdas G. Pai[3], Eric C. Wong[4], Krishna S. Nayak[1]
[1]Department of Electrical Engineering, University of Southern California, Los Angeles, CA, USA; [2]Division of Cardiology, Loma Linda University Medical Center, Loma Linda, CA, USA; [3]Division of Cardiology, Loma Linda University Medical Center, Loma Linda , CA, USA; [4]Departments of Radiology & Psychiatry, University of California, San Diego, La Jolla, CA, USA

12:06 **222**. **Self-Gated Cardiac Perfusion MRI**
Edward DiBella[1], Ganesh Adluru[2], Liyong Chen[3], Chris McGann[4]
[1]University of Utah, Salt Lake City, UT, USA; [2]Radiology, University of Utah; [3]Bioengineering, University of Utah; [4]Cardiology, University of Utah

12:18 **223**. **Endothelial Progenitor Cells Mediated Improvements in Post-Infarct Left Ventricular Myocardial Blood Flow Estimated by Spin Labeling CMR**
Hua-Lei Zhang[1,2], Hui Qiao[1], Rachel S. Frank[1], Stephanie Eucker[2], Bin Huang[1], William M. Armstead[3], Victor A. Ferrari[4], Jonathan A. Esptein[4], Rong Zhou[1]
[1]Laboratories of Molecular Imaging, Department of Radiology, University of Pennsylvania, Philadelphia, PA, USA; [2]Department of Bioengineering, School of Engineering & Applied Science, University of Pennsylvania, Philadelphia, PA, USA; [3]Department of Anesthesia, University of Pennsylvania, Philadelphia, PA, USA; [4]Department of Medicine (Division of Cardiovascular Medicine), University of Pennsylvania, Philadelphia, PA, USA

Endogenous Contrast Mechanisms: MT & Relaxometry

Room 518-A-C 10:30-12:30 *Moderators:* Karla L. Miller & Bruce Pike

10:30 **224**. **Fast Bound Pool Fraction Imaging of the *In Vivo* Rat Brain: Assocation with Myelin Content & Validation in the C_6 Glioma Model**
Hunter R. Underhill[1], Robert C. Rostomily[1], Andrei M. Mikheev[1], Chun Yuan[1], Vasily L. Yarnykh[1]
[1]University of Washington, Seattle, WA, USA

10:42 **225**. **Modeling & Measuring the Myelin G-Ratio**
Nikola Stikov[1], Lee M. Perry[2], Aviv Mezer[2], John M. Pauly[3], Brian A. Wandell[2], Robert F. Dougherty[2]
[1]Montreal Neurological Institute, McGill University, Montreal, QC, Canada; [2]Psychology, Stanford University, Stanford, CA, USA; [3]Electrical Engineering, Stanford University, Stanford, CA, USA

10:54 **226**. **Paradoxical Changes in Magnetization Transfer Ratio & Susceptibility Contrast in the Motor Cortex**
Olivier E. Mougin[1], Samuel J. Wharton[1], Rosa M. Sanchez Panchuelo[1], Richard W. Bowtell[1], Penny A. Gowland[1]
[1]Sir Peter Mansfield Magnetic Resonance Centre, University of Nottingham, Nottingham, Nottinghamshire, United Kingdom

11:06 **227**. **Fast Macromolecular Proton Fraction Mapping From a Single Off-Resonance Magnetization Transfer Measurement**
Vasily L. Yarnykh[1]
[1]Radiology, University of Washington, Seattle, WA, USA

11:18 **228**. **Origins of the Ultrashort-T_2 ^{1}H NMR Signals in Myelinated Nerve: A Direct Measure of Myelin Content?**
Robert Adam Horch[1,2], *John C. Gore*[2,3], *Mark D. Does*[1,2]
[1]Biomedical Engineering, Vanderbilt University, Nashville, TN, USA; [2]Vanderbilt University Institute of Imaging Science, Vanderbilt University, Nashville, TN, USA; [3]Radiology & Radiological Sciences, Vanderbilt University, Nashville, TN, USA

11:30 **229**. **New MRI Contrasts in Experimental Stroke: What Do We Measure with RAFF & ZAPI?**
Johanna Närväinen[1], *Kimmo Jokivarsi*[2], *Timo Liimatainen, Olli Gröhn, Risto A. Kauppinen*[3]
[1]A. I. Virtanen Institute, University of Eastern Finland, Kuopio, Finland; [2]Massachusetts General Hospital; [3]Dartmouth College, USA

11:42 **230**. **Observation of Myelin Water at Ultra-Short Echo Time by Longitudinal Relaxographic Imaging with Spin-Echo Center-Out EPI (DEPICTING)**
Christian Labadie[1,2], *William D. Rooney*[3], *Charles S. Springer, Jr.*[3], *Jing-Huei Lee*[4], *Monique Aubert-Frécon*[2], *Stefan Hetzer*[5], *Toralf Mildner*[1], *Harald E. Möller*[1]
[1]Max Planck Institute for Human Cognitive & Brain Sciences, Leipzig, Germany; [2]Laboratoire de Spectrométrie Ionique et Moléculaire, Université Claude Bernard Lyon 1, France; [3]Oregon Health & Science University, Portland, OR, USA; [4]Biomedical Engineering, University of Cincinnati, OH, USA; [5]Bernstein Center for Computational Neuroscience, Berlin, Germany

11:54 **231**. **3D Quantitative Imaging of T_1rho & T_2**
Weitian Chen[1], *Atsushi Takahashi*[1], *Eric Han*[1]
[1]Global Applied Science Laboratory, GE Healthcare, Menlo Park, CA, USA

12:06 **232**. **Is Iron the Source of Post Mortem Susceptibility Contrast in the Brain?**
Ferdinand Schweser[1,2], *Christian Langkammer*[3,4], *Andreas Deistung*[1], *Nikolaus Krebs*[4], *Walter Goessler*[5], *E. Scheurer*[4], *K. Yen*[4], *Franz Fazekas*[3], *Jürgen R. Reichenbach*[1], *Stefan Ropele*[3]
[1]Medical Physics Group, Dept. of Diagnostic & Interventional Radiology 1, Jena University Hospital, Jena, Germany; [2]School of Medicine, Friedrich Schiller University of Jena, Jena, Germany; [3]Dept. of Neurology, Medical University of Graz, Graz, Austria; [4]Ludwig Boltzmann Institute for Clinical-Forensic Imaging, Graz, Austria; [5]Institute of Chemistry, Analytical Chemistry, University of Graz, Graz, Austria

12:18 **233**. **Three Dimensional T_2prep Spiral Imaging with Efficient Brain Coverage For Myelin Water Quantification: Validation At 1.5 Tesla**
Thanh D. Nguyen[1], *Cynthia Wisnieff*[2], *Mitchell Cooper*[2], *Dushyant Kumar*[1], *Ashish Raj*[1], *Martin R. Prince*[1], *Yi Wang*[1], *Tim Vartanian*[3], *Susan A. Gauthier*[3]
[1]Radiology, Weill Cornell Medical College, New York, NY, USA; [2]Biomedical Engineering, Cornell University, Ithaca, NY, USA; [3]Neurology, Weill Cornell Medical College, New York, NY, USA

Bridging the Gap between MR & ER

Room 520B-F 10:30-12:30 *Moderators:* Jalal B. Andre & Daniela Prayer

10:30 **Imaging Requirements in the Emergency Room**
James V. Quinn

11:00 **Neurological Emergencies: MR vs CT**
Nancy J. Fischbein

11:30 **From the ER to the MR Suite at a Major Academic Hospital: A Body Imager's Perspective**
Elmar M. Merkle

12:00 **ER: A Challenge for MR Technology**
Steven M. Conolly

Manganese Enhanced MRI - Advances & Applications

Room 710A 10:30-12:30 *Moderators:* Nicholas A. Bock & Daniel H. Turnbull

10:30 **234**. ***In Vivo* Manganese-Enhanced MRI of Conditioned Fear Response**
Iris Yuwen Zhou[1,2], Abby Y. Ding[1,2], Qi Li[3,4], Frank Yik Hin Lee[1,2], Shujuan J. Fan[1,2], Kevin Chuen Wing Chan[1,2], Grainne M. McAlonan[3,4], Ed Xuekui Wu[1,2]
[1]Laboratory of Biomedical Imaging & Signal Processing, the University of Hong Kong, Hong Kong SAR, China, People's Republic of; [2]Department of Electrical & Electronic Engineering, the University of Hong Kong, Hong Kong SAR, China, People's Republic of; [3]Department of Psychiatry, the University of Hong Kong; [4]Centre for Reproduction Growth & Development, the University of Hong Kong

10:42 **235**. **Mapping CNS Response to Leptin by MEMRI**
A-B-M-A Asad[1], Serene Y. L. Tong[1], Ma Wei[2], Weiping Han[2], Kai-Hsiang Chuang[1]
[1]Magnetic Resonance Imaging Group, Singapore Bioimaging Consortium, A*STAR, Singapore, Singapore; [2]Lab of Metabolic Medicine, Singapore Bioimaging Consortium, A*STAR, Singapore, Singapore

10:54 **236**. **Biocompatible & pH Sensitive PLGA Encapsulated Mno Nanocrystals for Molecular & Cellular MRI**
Margaret F. Bennewitz[1], Michael K. Nkansah[1], Tricia L. Lobo[2], Erik M. Shapiro[1,2]
[1]Department of Biomedical Engineering, Yale University, New Haven, CT, USA; [2]Department of Diagnostic Radiology, Yale University School of Medicine, New Haven, CT, USA

11:06 **237**. ***In-Vivo* Detection of Cell Cycle Arrest using Manganese-Enhanced MRI (MEMRI)**
Shigeyoshi Saito[1], Sumitaka Hasegawa[1], Takako Furukawa[1], Tsuneo Saga[1], Ichio Aoki[1]
[1]Molecular Imaging Center (MIC), National Institute of Radiological Sciences (NIRS), Chiba, Japan

11:18 **238**. **MEMRI Atlas of Neonatal Mouse Brain Development**
Kamila Urszula Szulc[1], Brian J. Nieman[2], Edward Jospeh Houston[1], Alexandra L. Joyner[3], Daniel H. Turnbull[1,4]
[1]Kimmel Center for Biology & Medicine at the Skirball Institute of Biomolecular Medicine, NYU School of Medicine, New York, NY, USA; [2]Mouse Imaging Center, Hospital for Sick Children, Toronto, Canada; [3]Developmental Biology Program, Sloan-Kettering Institute, New York, NY, USA; [4]Radiology, NYU School of Medicine, New York, NY, USA

11:30 **239**. **Brain Regions Showing Manganese Accumulation in the Human versus the Rat Brain**
Ulrike Dydak[1,2], Jun Xu[1,2], Ashritha Epur[2], Xiangrong Li[3], Seth Streitmatter[1], Li-Ling Long[3], Wei Zheng[1], Yue-Ming Jiang[4]
[1]School of Health Sciences, Purdue University, West Lafayette, IN, USA; [2]Department of Radiology & Imaging Sciences, Indiana University School of Medicine, Indianapolis, IN, USA; [3]Department of Radiology, Guangxi Medical University, Nanning, China, People's Republic of; [4]Department of Health Toxicology, Guangxi Medical University, Nanning, China, People's Republic of

11:42 **240**. **Mn Distribution in Rat Hippocampus: Correlative use of Synchrotron X-Ray Microprobe & MEMRI**
Alexia Daoust[1,2], Emmanuel Luc Barbier[1,2], Sylvain Bohic[1,3]
[1]INSERM U836, Grenoble, France; [2]Grenoble Institut des Neurosciences, Université Joseph Fourier, Grenoble, France; [3]European Synchrotron Radiation Facility (ESRF), Grenoble, France

11:54 **241**. **Detection of Altered Axonal Transport a Mouse Model of Neurofibromatosis using Manganese Enhanced MRI**
Kevin M. Bennett[1], Shannon S. Olfers[2], Vinodh Narayanan[2]
[1]School of Biological & Health Systems Engineering, Arizona State University, Tempe, Az, USA; [2]Developmental Neurogenetics Laboratory, Barrow Neurological Institute, Phoenix, Az, USA

12:06 **242**. **Aging Impacts Significantly on Neuronal Transport in Normal Mice but Not in an Accelerated Mouse Model of Amyloid Beta Pathology**
Umer Abdur Rahim Khan[1], Anne Bertrand[1,2], Hoang Minh Dung[1], Dmitry Novikov[1], Lindsay Kathleen Hill[1], Benjamin Winthrope Little[1], Hameetha B. Rajamohamed Sait[3], Mesha Shamsie[1], Einar M. Sigurdsson[3], Youssef Zaim Wadghiri[1]
[1]Radiology, New York University Langone Medical Center, New York, NY, USA; [2]URA CEA-CNRS 2210, Mircen, Fontenay-Aux-Roses, France; [3]Physiology & Neuroscience, New York University Langone Medical Center, New York, NY, USA

12:18 **243**. **Paraformaldehyde & Glutaraldehyde Fixations Preserve Manganese Enhancement in *Ex Vivo* Mouse Brain MRI**
Yutong Liu[1], Larisa Poluektova[2], Balasrinivasa Sajja[1], Howard Gendelman[2], Boska Michael[1]
[1]Radiology, UNMC, Omaha, NE, USA; [2]Pharmacology/Exp Neuroscience, UNMC, Omaha, NE, USA

Human Brain Tumors: Response to Therapy

Room 710B 10:30-12:30 *Moderators:* Meng Law & Brian D. Ross

10:30 **244**. **Graded Functional Diffusion Maps (Fdms) Predict Survival in Recurrent Glioblastoma Treated with Bevacizumab**
Benjamin M. Ellingson[1], Timothy F. Cloughesy[2], Albert Lai[2], Phioanh L. Nghiemphu[2], Whitney B. Pope[1]
[1]Radiological Sciences, University of California Los Angeles, Los Angeles, CA, USA; [2]Neurology, University of California Los Angeles, Los Angeles, CA, USA

10:42 **245**. **Combined ^{31}P & ^{1}H MRSI in Recurrent Glioblastomas Prior & Post Antiangiogenetic Therapy**
Ulrich Pilatus[1], Oliver Bähr[2], Joachim Steinbach[2], Elke Hattingen[1]
[1]Institute of Neuroradiology, Goethe University Frankfurt, Frankfurt/Main, Germany; [2]Senckenbergisches Institut für Neuroonkologie, Goethe University Frankfurt, Frankfurt/Main, Germany

10:54 **246**. **MR Spectroscopy as a Biomarker to Predict the Responses of Glioblastoma to an Anti-Angiogenic Treatment**
Heisoog Kim[1], Ciprian Catana[1], Eva-Maria Ratai[1], Ovidiu C. Andronesi[1], Tracy T. Batchelor[2], Rakesh K. Jain[3], A. Gregory Sorensen[1]
[1]Radiology, A. A. Martinos Center, Charlestown, MA, USA; [2]Neurology, Massachusetts General Hospital, Boston, MA, USA; [3]Radiation Oncology, Massachusetts General Hospital, Boston, MA, USA

11:06 **247**. **Increased Blood Flow during Anti-VEGF Induced Vascular Normalization**
Kyrre E. Emblem[1], Pavlina Polaskova[1], Dominique L. Jennings[1], Elizabeth R. Gerstner[2], Tracy T. Batchelor[2], Rakesh K. Jain[3], A. Gregory Sorensen[1]
[1]A. A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Boston, MA, USA; [2]Pappas Center for Neuro-Oncology, Massachusetts General Hospital, Boston, MA, USA; [3]Department of Radiation Oncology, Massachusetts General Hospital, Boston, MA, USA

11:18 **248**. **Improved Localization of BOLD Activation in Patients with Brain Tumors using Vasoreactivity Maps**
Henning U. Voss[1], Kyung K. Peck[2], Nicole M. Petrovich Brennan[2], Amir Iranmahboob[2], Bob L. Hou[3], Andrei I. Holodny[2]
[1]Dept. of Radiology, Weill Cornell Medical College, New York, NY, USA; [2]Dept. of Radiology, Memorial Sloan-Kettering Cancer Center, New York, NY, USA; [3]Dept. of Radiology, West Virginia University, Morgantown, VA, USA

11:30 **249**. **Serial Changes in Diffusion Imaging Parameters Vary with Treatment Regimen for Patients with Newly Diagnosed Glioblastoma Multiforme**
Laleh Jalilian[1], Emma Essock-Burns[2], Yan Li[1], Soonmee Cha[1,3], Susan Chang[3], Michael Prados[3], Nicholas Butowski[3], Sarah J. Nelson[1,2]
[1]Radiology & Biomedical Imaging, UCSF, San Francisco, CA, USA; [2]Bioengineering, UCSF, San Francisco, CA, USA; [3]Neurological Surgery, UCSF, San Francisco, CA, USA

11:42 **250**. **How Blood Perfusion Maps are Analyzed Can Greatly Improve the Predictive Potential For Assessing Survival in Patients Treated For Gliomas**
Benjamin Lemasson[1], Stefanie Galbán[2], Christina Tsien[2], Charles R. Meyer[1,3], Timothy D. Johnson[4], Thomas Leonard Chenevert[1], Alnawaz Rehemtulla[1,2], Brian Dale Ross[1], Craig J. Galbán[1]
[1]Radiology, University of Michigan, Ann Arbor, MI, USA; [2]Radiation Oncology, University of Michigan, Center for Molecular Imaging, Ann Arbor, MI, USA; [3]Biomedical, University of Michigan, Center for Molecular Imaging, Ann Arbor, MI, USA; [4]Biostatistics, University of Michigan, Ann Arbor, MI, USA

11:54 **251**. **Treatment Effects of Diffuse Intrinsic Pontine Gliomas On Tumor & Normal Appearing Cortical Gray Matter Assessed By Arterial Spin Labeling Perfusion & 3D Volumetric Measurements**

Jan Sedlacik[1,2], Claudia M. Hillenbrand[1], Alberto Broniscer[3]

[1]Radiological Sciences, St. Jude Children's Research Hospital, Memphis, TN, USA; [2]Neuroradiology, University Medical Center Hamburg-Eppendorf, Hamburg, Germany; [3]Oncology, St. Jude Children's Research Hospital, Memphis, TN, USA

12:06 **252**. **UDP-GlcNAc & UDP-GalNAc, as Detected By ^{1}H MRS, Increase in the Early Phase of Cisplatin –Induced Cell Death in Brain Tumour Cells**

Xiaoyan Pan[1,2], Martin Wilson[1,2], Carmel McConville[1], Julian L. Griffin[3], Theodoros N. Arvanitis[2,4], Andrew C. Peet[1,2], Risto A. Kauppinen[5]

[1]Cancer Sciences, University of Birmingham, Birmingham, United Kingdom; [2]Oncology, Birmingham Children's Hospital NHS Foundation Trust, Birmingham, United Kingdom; [3]Biochemistry, University of Cambridge, Cambridge, United Kingdom; [4]School of Electronic, Electrical & Computer Engineering, University of Birmingham, Birmingham, United Kingdom; [5]Department of Radiology, Dartmouth College, Hanover, NH, USA

12:18 **253**. **Characterization of Microbleed Formation from Normal Brain Microvasculature After Radiation Therapy**

Janine M. Lupo[1], Susan M. Chang[2], Soonmee Cha[1,2], Sarah J. Nelson[1,3]

[1]Department of Radiology & Biomedical Imaging, University of California, San Francisco, CA, USA; [2]Department of Neurological Surgery, University of California, San Francisco, CA, USA; [3]Department of Bioengineering & Therapeutic Sciences, University of California, San Francisco, CA, USA

Gold Corporate Member Lunchtime Symposium
GE Healthcare

Room Plenary Hall 12:30-13:30

Clinical Intensive Course
Nouvelle Techniques in Current Clinical Use

Room 520B-F 13:30-15:30 *Moderators:* Robert C. McKinstry & Kenneth L. Weiss

13:30 **Clinical Imaging of Short T_2/T_2* Tissues**
Graeme M. Bydder

13:55 **High Field**
Keith R. Thulborn

14:20 **New Contrast Agents**
Marco Essig

14:45 **Models for Predicting Outcome**
Ruth C. Carlos

15:10 **Discussion & Meet the Teachers**

Clinical Intensive Course
Commonly Missed Diagnoses in Shoulder & Knee MR

Room 510 13:30-15:30 *Moderator:* Hollis G. Potter

13:30 **Commonly Missed Diagnoses in the Shoulder**
Thomas W. Hash

14:20 **Questions**

14:30 **Commonly Missed Diagnoses in the Knee**
Gustav Andreisek

15:20 **Questions**

Clinical Decision Making with Advanced Techniques

Room 516A-C 13:30-15:30

13:30 **fMRI**
Stefan Sunaert

14:00 **Perfusion MRI (ASL)**
Joseph A. Maldjian

14:30 **Diffusion Tensor Imaging**
Aaron S. Field

15:00 **Perfusion MRI (DSC-MRI & DCE-MRI)**
A. Gregory Sorensen

Cardiovascular MRI - Exploring the Boundaries Part 1: Cardiovascular Molecular Imaging

Room 512A-G 13:30-15:30 *Moderators:* Paula J. Foster & David E. Sosnovik

13:30 **Contrast Agents & Platforms**
Peter Caravan

13:50 **Imaging Techniques & Quantification**
René M. Botnar

14:10 **Cell Therapy**
Dara L. Kraitchman

14:30 **Atherosclerosis**
Patrick M. Winter

14:50 **Myocardium**
David E. Sosnovik

15:10 **Hybrid Systems**
Ciprian Catana

Body Diffusion: Beyond ADC?

Room 518-A-C 13:30-15:30 *Moderators:* Dow-Mu Koh & Thomas C. Kwee

13:30 **254**. **Introduction**
David J. Collins

13:42 **255**. **Short Term Measurement Reproducibility of Perfusion Fraction (F), Pseudo-Diffusion Coefficient (D*) & Diffusion Coefficient (D) in Colorectal Liver Metastases Derived By Intravoxel Incoherent Motion Analysis of Respiratory-Triggered Diffusion-Weighted MR Imaging**
Adrian Andreou[1], Matthew Orton[2], David J. Collins[1,2], Martin O. Leach[2], Dow-Mu Koh[1]
[1]Department of Radiology, Royal Marsden Hospital, Sutton, Surrey, United Kingdom; [2]CRUK-EPSRC Cancer Imaging Centre, Institute of Cancer Research, Sutton, Surrey, United Kingdom

13:54 **256**. **Intravoxel Incoherent Motion (IVIM) Analysis of Liver Fibrosis in an Experimental Mouse Model**
April M. Chow[1,2], Darwin S. Gao[1,3], Shu Juan Fan[1,3], Gladys G. Lo[4], Siu Ki Yu[2], Ed X. Wu[1,3]
[1]Laboratory of Biomedical Imaging & Signal Processing, the University of Hong Kong, Pokfulam, Hong Kong SAR, China, People's Republic of; [2]Medical Physics & Research Department, Hong Kong Sanatorium & Hospital, Happy Valley, Hong Kong SAR, China, People's Republic of; [3]Department of Electrical & Electronic Engineering, the University of Hong Kong, Pokfulam, Hong Kong SAR, China, People's Republic of; [4]Department of Diagnostic & Interventional Radiology, Hong Kong Sanatorium & Hospital, Happy Valley, Hong Kong SAR, China, People's Republic of

14:06 **257**. **Assessment of Hepatocellular Carcinoma in Fresh Liver Explants using a Non-Gaussian Diffusion Kurtosis Model.**
Andrew B. Rosenkrantz[1], Eric E. Sigmund[1], Benjamin E. Niver[1], Glyn R. Morgan[2], Bradley Spieler[1], Anthony G. Gilet[1], Cristina H. Hajdu[3]
[1]Radiology, NYU Langone Medical Center, New York, USA; [2]Transplant Surgery, NYU Langone Medical Center, New York, USA; [3]Pathology, NYU Langone Medical Center, New York, NY, USA

14:18 **258**. **Histopathological Correlation of IVIM-Derived True Diffusion Constant in Patients with Pancreatic Carcinoma & Chronic Pancreatitis**
Miriam Klauss[1], Matthias Gaida, Andreas Lemke[2], Katharina Grünberg[2], Dirk Simon[2], Stefan Delorme[2], Hans-Ulrich Kauczor, Lars Grenacher, Bram Stieltjes[2]
[1]Diagnostic Radiology, University of Heidelberg, Heidelberg, Baden-Württemberg, Germany; [2]DKFZ

14:30 **259**. **Association of the Apparent Diffusion Coefficient of Bladder Cancer with Metastatic Disease: Preliminary Results**
Thais C. Mussi[1], Bradley Spieler[1], Andrew B. Rosenkrantz[1]
[1]Radiology, NYU Langone Medical Center, New York, USA

14:42 **260**. **Towards Repeatable ADC Mapping of the Liver: Some Guidance for Clinical Use**
Paul Summers[1], Antonio Gregoraci[2], Giuseppe Petralia[1], Anna Caroli[3], Roberto Di Filippi[1], Luca Antiga[3], Massimo Bellomi[1]
[1]Department of Radiology, European Institute of Oncology, Milan, Italy; [2]Faculty of Medicine & Surgery, University of Milan, Milan, Italy; [3]Mario Negri Institute, Bergamo, Italy

14:54 **261**. **Quantitative Analysis of the Diffusion-Weighted Steady-State Free-Precession Signal in Vertebral Bone-Marrow Lesions**
Olaf Dietrich[1], Andreas Biffar[1], Andrea Baur-Melnyk, Gerwin Schmidt, Maximilian F. Reiser[1]
[1]Josef Lissner Laboratory for Biomedical Imaging, Department of Clinical Radiology, Ludwig Maximilian University of Munich, Munich, Germany

15:06 **262**. **Parallel RF Excitation For Diffusion-Weighted Whole Body MR Imaging with Background Body Signal Suppression At 3.0 Tesla**
G. M. Kukuk[1], M. Kaschner[1], F. Träber[1], D. Skowasch[2], J. Gieseke[1,3], H. H. Schild[1], W. A. Willinek[1], P. Mürtz[1]
[1]Department of Radiology, University of Bonn, Bonn, NRW, Germany; [2]Department of Pneumology, University of Bonn, Bonn, Germany; [3]Philips Healthcare, Best, Netherlands

15:18 **263**. **Diffusion-Prepared Fast Imaging with Steady-State Free Precession (DP-FISP): A Rapid Diffusion MRI Technique at 7T**
Lan Lu[1], Bernadette Erowku[1], Gregory R. Lee[1], Katherine Dell[2,3], Chris A. Flask[1,4]
[1]Radiology, Case Western Reserve University, Cleveland, OH, USA; [2]Pediatrics, Case Western Reserve University, Cleveland, OH, USA; [3]MetroHealth Medical Center, Cleveland, OH, USA; [4]Biomedical Engineering, Case Western Reserve University, Cleveland, OH, USA

Clinical Intensive Course
MR Physics & Techniques for Clinicians

Room 516A-C 16:00-18:00

16:00 **Spin Echo Imaging**
Bernd A. Jung

16:40 **Gradient Echo Imaging**
Brian A. Hargreaves

17:20 **Fast Spin Echo Imaging**
Frank R. Korosec

You Are what You Eat

Room 510 16:00-18:00 *Moderators:* Bruce M. Damon & Bernard J. Dardzinski

16:00 **264**. **^{31}P MRS at 7T Shows a Relation Between the Alkaline Ph Compartment Content Compared to Phosphocreatine Recovery Kinetics At 1.5T**
Joep van Oorschot[1], Hermien Kan[2], Andrew Webb[2], Klaas Nicolay[1], Jeroen Jeneson[1]
[1]Biomedical NMR, University of Technology Eindhoven, Eindhoven, Noord-Brabant, Netherlands; [2]C. J. Gorter Center for High Field MRI, Dept. of Radiology, Leiden University Medical Center, Leiden, Netherlands

16:12 **265**. **Quantification of Susceptibility-Induced Fat Resonance Shift On Chemical Shift-Based Water/Fat Separation of Skeletal Muscle**
Dimitrios C. Karampinos[1], Huanzhou Yu[2], Ann Shimakawa[2], Thomas M. Link[1], Sharmila Majumdar[1]
[1]Department of Radiology & Biomedical Imaging, University of California, San Francisco, San Francisco, CA, USA; [2]Global Applied Science Laboratory, GE Healthcare, Menlo Park, CA, USA

16:24 **266**. **Mitochondrial Dysfunction in Patients with Primary Congenital Insulin Resistance**
Alison Sleigh[1], Philippa Raymond-Barker[2], David Porter[3], Kerrie Thackray[4], Louise McGrath[1], Soren Brage[4], Mensud Hatunic[4], T. A. Carpenter[1], Kevin M. Brindle[5,6], Graham J. Kemp[7], Steve O'Rahilly[4], Rob K. Semple[4], David B. Savage[4]
[1]Wolfson Brain Imaging Centre, University of Cambridge, Cambridge, United Kingdom; [2]Wellcome Trust Clinical Research Facility, Addenbrooke's Hospital, Cambridge, United Kingdom; [3]Siemens AG Healthcare Sector, Erlangen, Germany; [4]Institute of Metabolic Science, University of Cambridge, Cambridge, United Kingdom; [5]Dept. of Biochemistry, University of Cambridge, Cambridge, United Kingdom; [6]Cancer Research UK Cambridge Research Institute, Cambridge, United Kingdom; [7]Magnetic Resonance & Image Analysis Research Centre, University of Liverpool, Liverpool, United Kingdom

16:36 **267**. **Combination of DEPT & PRESS for Detection of UFA in Posterior & Medial Thigh Muscle By ^{13}C MRS At 7T**
Xing Chen[1], Anke Henning[1], Peter Boesiger[1]
[1]Institute for Biomedical Engineering, University & ETH Zurich, Zürich, Switzerland

16:48 **268**. **Diffusion Measurements Reveal a Difference in Apparent Diffusion Coefficients of Intra- & Extramyocellular Lipids**
Vaclav Brandejsky[1], Roland Kreis[1], Christine Sandra Bolliger[2], Chris Boesch[1]
[1]Dept. of Clinical Research, University of Bern , Bern, Switzerland; [2]Dept. of Clinical Research, University of Bern, Bern, Switzerland

17:00 **269**. **Quantitative Assessment of the Inter- & Intra-Muscle Fat Fraction Variability in Duchenne Muscular Dystrophy Patients**
Beatrijs Wokke[1], Janneke van den Bergen[1], Annemieke Aartsma-Rus[2], Andrew Webb[3], Jan Verschuuren[1], Hermien Kan[3]
[1]Neurology, Leiden University Medical Centre, Leiden, Netherlands; [2]Human genetics, Leiden University Medical Centre; [3]Radiology, Leiden University Medical Centre

17:12 **270**. **Lipid Accumulation & Mitochondrial Function in Skeletal Muscle of ATGL Knockout Mice: A ^{31}P MRS Study**
Patricia M. Nunes[1], Andor Veltien[1], Henk Arnts[2], Tineke van de Weijer[3], Patrick Shrauwen[3], Cees J. Tack[4], Arend Heerschap[1]
[1]Radiology, Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands; [2]Central Animal Laboratory, Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands; [3]Human Biology, NUTRIM, School of Nutrition, Toxicology & Metabolism, Maastricht University Medical Centre, Maastricht, Netherlands; [4]Internal Medicine, Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands

17:24 **271**. **Quantification of Adipose Tissue Depots in the Thigh with Two-Point Dixon Imaging: Effect of Fitness Level on Adiposity in Elderly Women**
Danchin Daniel Chen[1], Diego Hernando[2], Curtis Laurence Johnson[1], Armen Alex Gharibans[1], Dolores D. Guest[3], Christie Ward[4], Bhibha Das[3], Ellen M. Evans[4], John G. Georgiadis[1]
[1]Mechanical Science & Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA; [2]Department of Radiology, University of Wisconsin, Madison, WI, USA; [3]Department of Kinesiology & Community Health, University of Illinois at Urbana-Champaign, Urbana, IL, USA; [4]Department of Kinesiology, University of Georgia, Athens, GA, USA

17:36 **272**. **Diffusion Weighted Spectroscopy: A Novel Approach to Investigate Intramyocellular Lipids**
Li Xiao[1,2], Ed X. Wu[1,2]
[1]Laboratory of Biomedical Imaging & Signal Processing, the University of Hong Kong, Hong Kong, Hong Kong SAR, China, People's Republic of; [2]Department of Electrical & Electronic Engineering, the University of Hong Kong, Hong Kong, Hong Kong SAR, China, People's Republic of

17:48 **273**. **Using DTI to Assess the Effect of Obesity & Physical Activity on Muscle Quality in Elderly Women**
Armen Alex Gharibans[1], Danchin Daniel Chen[1], Curtis Laurence Johnson[1], Dolores D. Guest[2], Christie Ward[3], Bhibha Das[2], Ellen M. Evans[3], John G. Georgiadis[1]
[1]Mechanical Science & Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA; [2]Department of Kinesiology & Community Health, University of Illinois at Urbana-Champaign, Urbana, IL, USA; [3]Department of Kinesiology, University of Georgia, Athens, GA, USA

Myocardial Function: Experimental Models & Human Studies

Room 511A-C 16:00-18:00 *Moderators:* Thoralf Niendorf & Mihaela Pop

16:00 **274**. **A Feasibility Study: MR Elastography as a Method to Compare Stiffness Estimates in Hypertrophic Obstructive Cardiomyopathy & in Normal Volunteers**
Arunark Kolipaka[1], Kiaran McGee[1], Shivani Aggarwal[1], Nandan Anavekar[1], Armando Manduca[1], Richard Ehman[1], Philip Araoz[1]
[1]Mayo Clinic, Rochester, MN, USA

16:12 **275**. **Direct Elastography of *In Vivo* Human Heart**
Heiko Tzschätzsch[1], Thomas Elgeti[1], Sebastian Hirsch[1], Thoralf Niendorf[2], Jürgen Braun[3], Ingolf Sack[1]
[1]Department of Radiology, Charité University Medicine, Berlin, Germany; [2]Berlin Ultrahigh Field Facility, Charité University Medicine, Berlin, Germany; [3]Institute of Medical Informatics, Charité University Medicine, Berlin, Germany

16:24 **276**. **Anatomic & Functional Cardiac MR at 7T: A Comparison of 4, 8 & 16-Element Transceive RF Coil Designs**
Lukas Winter[1], Christof Thalhammer[1], Matthias Dieringer[1,2], Celal Özerdem[1], Jan Rieger[1], Fabian Hezel[1], Wolfgang Renz[3], Thoralf Niendorf[1,2]
[1]Berlin Ultrahigh-Field Facility, Max Delbrueck Center for Molecular Medicine, Berlin, Germany; [2]Experimental & Clinical Research Center (ECRC), Charité Campus Buch, Humboldt-University, Berlin, Germany; [3]Siemens AG, Erlangen, Germany

16:36 **277**. **Free-Breathing 3D Whole Heart Black Blood Imaging with Motion Sensitized Driven Equilibrium**
Subashini Srinivasan[1,2], Peng Hu[2], Kraig V. Kissinger[2], Beth Goddu[2], Lois Geopfert[2], Ehud J. Schmidt[3], Sebastian Kozerke[1], Reza Nezafat[2]
[1]Institute of Biomedical Engineering, ETH, Zurich, Switzerland; [2]Department of Medicine (Cardiovascular Division), Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, USA; [3]Department of Radiology, Brigham & Women's Hospital, Harvard Medical School, Boston, MA, USA

16:48 **278**. **Temporal Evolution of Cardiac Function in Mice with Myocardial Hypertrophy & Heart Failure**
Bastiaan J. van Nierop[1], Elza D. van Deel[2], Dirk J. Duncker[2], Gustav J. Strijkers[1], Klaas Nicolay[1]
[1]Biomedical NMR, Department of Biomedical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands; [2]Department of Cardiology, Thoraxcenter, Erasmus MC, University Medical Center Rotterdam, Rotterdam, Netherlands

17:00 **279**. **Molecular & Microstructural Changes Accompanying Left Ventricular Hypertrophy Revealed with *In-Vivo* Diffusion Tensor MRI (DTI) & Molecular Imaging of the Mouse Heart**
Shuning Huang[1], Choukri Mekkaoui[1], Miloslav Polasek[1], Howard H. Chen[1], Ruopeng Wang[1], Soeun Ngoy[2], Ronglih Liao[2], Van J. Wedeen[1], Guangping Dai[1], Peter Caravan[1], David E. Sosnovik[1,3]
[1]Martinos Center for Biomedical Imaging, Mass General Hospital, Charlestown, MA, USA; [2]Cardiology, Brigham & Woman's Hospital, Boston, MA, USA; [3]Cardiology, Mass General Hospital, Boston, MA, USA

17:12 **280**. **Human Statistical Atlas of Cardiac Fiber Architecture from DT-MRI**
Herve Lombaert[1,2], Jean-Marc Peyrat[3], Stanislas Rapacchi[4], Laurent Fanton[5], Herve Delingette[2], Nicholas Ayache[2], Pierre Croisille[4]
[1]Ecole Polytechnique, Montreal, QC, Canada; [2]Asclepios, INRIA, Sophia-Antipolis, France; [3]Siemens Molecular Imaging, Oxford, United Kingdom; [4]Creatis-LRMN, HCL, Lyon, France; [5]Institut Universitaire de Médecine Légale, Lyon, France

17:24 **281**. ***In Vivo* Characterization of Myocardial Microstructure in Normal & Infarcted Hearts using the Supertoroidal Model**
Choukri Mekkaoui[1], Shuning Huang[1], Guangping Dai[1], Timothy G. Reese[1], Marcel P. Jackowski[2], David Sosnovik[3]
[1]Radiology, Harvard Medical School, Massachusetts General Hospital, Martinos Center For Biomedical Imaging, Charlestown, MA, USA; [2]Computer Science, University of São Paulo, Institute of Mathematics & Statistics, São Paulo, Brazil; [3]Cardiology, Harvard Medical School, Massachusetts General Hospital, Martinos Center For Biomedical Imaging, Charlestown, MA, USA

17:36 **282**. **Sequence Timing Optimization in Multi-Slice Diffusion Tensor Imaging of the Beating Heart**
Christian Torben Stoeck[1], Nicolas Toussaint[2], Peter Boesiger[1], Philip G. Batchelor[2], Sebastian Kozerke[1,2]
[1]Institute for Biomedical Engineering, University & ETH Zurich, Zurich, Switzerland; [2]Imaging Sciences, King's College London, London, United Kingdom

17:48 **283**. **Imaging Three-Dimensional Myocardial Mechanics in Mice using Volumetric Spiral Cine DENSE**
Xiaodong Zhong[1], Lauren B. Gibberman[2], Andrew D. Gilliam[3], Craig H. Meyer[2,4], Brent A. French[4], Frederick H. Epstein[2,4]
[1]MR R&D Collaborations, Siemens Healthcare, Atlanta, GA, USA; [2]Radiology Department, University of Virginia, Charlottesville, VA, USA; [3]Andrew D. Gilliam Consulting, Providence, RI, USA; [4]Biomedical Engineering Department, University of Virginia, Charlottesville, VA, USA

Static & Dynamic B_0

Room 511D-F 16:00-18:00 *Moderators:* Christoph Juchem & Kevin M. Koch

16:00 **284**. **Correction of Breathing-Induced Artefacts in High-Field Brain MRI using Concurrent Field Monitoring**
Johanna Vannesjö[1], David Brunner[1], Christoph Barmet[1], Klaas Paul Pruessmann[1]
[1]Institute for Biomedical Technology, University & ETH Zurich, Zurich, Switzerland

16:12 **285**. **Theoretical Basis of Projection Based Shim Estimation**
Daniel Nicolas Splitthoff[1], Maxim Zaitsev[1]
[1]Dept. of Radiology, Medical Physics, Unversity Medical Center Freiburg, Freiburg, Germany

16:24 **286**. **Instant Measurement of Point Spread Functions using an NMR Field Probe**
Lars Kasper[1,2], Bertram Jakob Wilm[1], Christoph Barmet[1], Klaas Paul Prüssmann[1]
[1]University & ETH Zurich, Institute for Biomedical Engineering, Zurich, Switzerland; [2]University of Zurich, Laboratory for Social & Neural Systems Research, Zurich, Switzerland

16:36 **287**. **Accelerated Point Spread Function Mapping using Signal Modelling for Accurate EPI Geometric Distortion Correction**
Iulius Dragonu[1], Thomas Lange[1], Nicoleta Baxan[1], Jürgen Hennig[1], Maxim Zaitsev[1]
[1]Dept. of Radiology, Medical Physics, University Medical Center Freiburg, Freibug, Baden-Wuerttemberg, Germany

16:48 **288**. **Comprehensive Correction of Artifacts due to Eddy Current-Induced Echo Shifts in Partial Fourier DTI**
Trong-Kha Truong[1], Nan-kuei Chen[1], Allen W. Song[1]
[1]Brain Imaging & Analysis Center, Duke University, Durham, NC, USA

17:00 **289**. **Magnetic Resonance Imaging of Arthroplasty: Comparison of MAVRIC & Conventional Fast Spin Echo Techniques**
Matthew F. Koff[1], Catherine Lee Hayter[1], Parina Shah[1], Kevin M. Koch[2], Theodore T. Miller[1,3], Hollis G. Potter[1,3]
[1]Department of Radiology & Imaging, Hospital for Special Surgery, New York, NY, USA; [2]Applied Science Laboratory, General Electric Healthcare, Waukesha, WI, USA; [3]Weill Cornell Medical College of Cornell University, New York, NY, USA

17:12 **290**. **MRI Assessment of Wear-induced Synovitis**
Catherine Lee Hayter[1], Hollis G. Potter[1,2], Douglas E. Padgett[3], Giorgio Perino[4], Bryan J. Nestor[3]
[1]Department of Radiology & Imaging, Hospital for Special Surgery, New York, NY, USA; [2]Weill Cornell Medical College of Cornell University, New York, NY, USA; [3]Department of Orthopedic Surgery, Hospital for Special Surgery, New York, NY, USA; [4]Department of Pathology, Hospital for Special Surgery, New York, NY, USA

17:24 **291**. **New MR Imaging Methods for Metallic Implants in the Knee: Artifact Correction & Clinical Impact**
Christina A. Chen[1], Weitian Chen[2], Stuart B. Goodman, Brian A. Hargreaves, Kevin M. Koch[2], Wenmiao Lu[3], Anja C. Brau[2], Hillary J. Braun, Garry E. Gold
[1]Radiology, Stanford University, Stanford, CA, USA; [2]GE Healthcare Applied Science Lab; [3]Nanyang Technological University

17:36 **292**. **Metal Artifact Reduction using Slice Encoding with Shear Correction**
Pauline Wong Worters[1], Kim Butts Pauly[1], Brian A. Hargreaves[1]
[1]Stanford University, Stanford, CA, USA

17:48 **293**. **Frequency Encoding in the Presence of Extreme Static Field Gradients**
Kevin M. Koch[1], Kevin F. King[1], Weitian Chen[2], Garry E. Gold[3], Brian A. Hargreaves[3]
[1]Global Applied Science Laboratory, GE Healthcare, Waukesha, WI, USA; [2]Global Applied Science Laboratory, GE Healthcare, Menlo Park, CA, USA; [3]Department of Radiology, Stanford University, Stanford, CA, USA

Arterial Spin Labeling

Room 512A-G 16:00-18:00 *Moderators:* David C. Alsop & Wen-Chau Wu

16:00 **294**. **Blind Detection of Source Vessel Locations & Resonance Offsets using Randomly Encoded VEASL**
Eric Wong[1], Jia Guo[2]
[1]Radiology/Psychiatry, UC San Diego, La Jolla, CA, USA; [2]Bioengineering, UC San Diego, La Jolla, CA, USA

16:12 **295**. **Mapping Cerebral Blood Flow Territories using Harmonic Encoding Pseudocontinuous Arterial Spin Labeling, Fuzzy Clustering & Independent Component Analysis**
Wen-Chau Wu[1,2]
[1]Graduate Institute of Oncology, National Taiwan University, Taipei, Taiwan; [2]Graduate Institute of Clinical Medicine, National Taiwan University, Taipei, Taiwan

16:24 **296**. **Increased Tagging Efficiency in Velocity Selective ASL using Multiple Velocity Selective Saturation Modules**
Jia Guo[1], Eric C. Wong[2]
[1]Bioengineering, University of California San Diego, La Jolla, CA, USA; [2]Department of Radiology & Psychiatry, University of California San Diego, La Jolla, CA, USA

16:36 **297**. **Arrival Time Changes Demonstrate Active Cerebral Autoregulation in Normal Subjects using Lower Body Negative Pressure & Arterial Spin Labeling MRI**
John Robert Cain[1], Gerard Thompson[1], Laura M. Parkes[1], Alan Jackson[1]
[1]Imaging Science, University of Manchester, Manchester, United Kingdom

16:48 **298**. **Modelling Dispersion in Arterial Spin Labelling with Validation from ASL Dynamic Angiography**
Michael A. Chappell[1,2], Bradley J. MacIntosh[2,3], Mark W. Woolrich[2], Peter Jezzard[2], Stephen J. Payne[1]
[1]Institute of Biomedical Engineering, University of Oxford, Oxford, United Kingdom; [2]FMRIB Centre, University of Oxford, Oxford, United Kingdom; [3]Department of Medical Biophysics, University of Toronto, Toronto, Ontario, Canada

17:00 **299**. **Cardiac Triggering & Label-Control Transition Profiles in Hadamard Encoded Pseudo-Continuous Arterial Spin Labeling**
Wouter Teeuwisse[1], Michael Helle[2], Susanne Rüfer[2], Matthias J. P. van Osch[1]
[1]Radiology, C. J. Gorter Center for High Field MRI, Leiden University Medical Center, Leiden, Netherlands; [2]Institute for Neuroradiology, Christian-Albrechts-Universität, UK-SH, Kiel, Germany

17:12 **300**. **Impact of Equilibrium Magnetization of Blood On ASL Quantification**
Yufen Chen[1], Ze Wang[1,2], John A. Detre[1]
[1]Center for Functional Neuroimaging, University of Pennsylvania, Philadelphia, PA, USA; [2]Department of Psychiatry, University of Pennsylvania, Philadelphia, PA, USA

17:24 **301**. **Quantification of Cerebellar Blood Flow using Arterial Spin Labeling**
Alan Jerry Huang[1,2], Jun Hua[1], Jonathan Farrell[1], Qin Qin[1], James J. Pekar[1], Matthias van Osch[3], John E. Desmond[4], Peter van Zijl
[1]FM Kirby Research Center, Johns Hopkins University, Baltimore, MD, USA; [2]Department of Biomedical Engineering, Johns Hopkins University, Baltimore, MD, USA; [3]Department of Radiology, Leiden University Medical Center, Leiden, Netherlands; [4]Department of Neurology, Johns Hopkins University, Baltimore, MD, USA

17:36 **302**. **Comparison of Pseudocontinuous & Velocity Selective Arterial Spin Labeling with Gold Standard Xenon CT: A Study in Patients with Moyamoya Disease**
Deqiang Qiu[1], Michael E. Moseley[1], Greg Zaharchuk[1]
[1]Lucas Imaging Center, Stanford University, Stanford, CA, USA

17:48 **303**. **SPECT Validation of Pseudo-Continuous Arterial Spin Labeling MRI**
Peiying Liu[1], Jinsoo Uh[1], Michael D. Devous[2], Bryon Adinoff[3,4], Hanzhang Lu[1]
[1]Advanced Imaging Research Center, University of Texas Southwestern Medical Center, Dallas, TX, USA; [2]Department of Radiology, University of Texas Southwestern Medical Center, Dallas, TX, USA; [3]Department of Psychiatry, University of Texas Southwestern Medical Center, Dallas, TX, USA; [4]VA North Texas Health Care System, Dallas, TX, USA

Spectroscopy Quantification & Metabolism

Room 513A-D 16:00-18:00 *Moderators:* Ulrike Dydak & Richard A. Edden

16:00 **304**. **Measurement of Elevated 2-Hydroxyglutaric Acid in Brain Tumors By Difference Editing At 3T *In Vivo***
Changho Choi[1], Sandeep Ganji[1], Zoltan Kovacs[1], Ralph DeBerardinis[1], Elizabeth Maher[1]
[1]University of Texas Southwestern Medical Center, Dallas, TX, USA

16:12 **305**. **Elucidating Brain Metabolism by Dynamic ^{13}C Isotopomer Analysis**
Alexander A. Shestov[1], Dinesh K. Deelchand[1], Kamil Ugurbil[1], Pierre-Gilles Henry[1]
[1]Center for Magnetic Resonance Research, University of Minnesota, Minneapolis, MN, USA

16:24 **306**. **Increased Brain Monocarboxylic Acid Transport & Metabolism in T_1DM Patients with Hypoglycemia Unawareness**
Henk M. De Feyter[1], Barbara I. Gulanski[2], Kathleen A. Page[3], Anne Howard O'Connor, Ellen V. Hintz, Susan M. Harman, Renata Belfort De Aguiar, Graeme F. Mason, Douglas L. Rothman, Robert S. Sherwin
[1]Diagnostic Radiology, Yale University, New Haven, CT, USA; [2]VA Connecticut Healthcare System, West Haven; [3]USC Keck School of Medicine, Los Angeles, USA

16:36 **307**. **Brain Glycogen Content & Metabolism in Type 1 Diabetes**
Gulin Oz[1], Nolawit Tesfaye[1], Anjali Kumar[1], Dinesh K. Deelchand[1], Elizabeth R. Seaquist[1]
[1]University of Minnesota, Minneapolis, MN, USA

16:48 **308**. **Definition of the Macromolecular Baseline Based On T_1 As Well As T_2 Properties**
Daniel Guo Quae Chong[1], Christine S. Bolliger[2], Johannes Slotboom[3], Chris Boesch[2], Roland Kreis[2]
[1]Dept. of Diagnostic, Interventional & Pediatric Radiology (DIPR), Inselspital, Bern, Switzerland; [2]Dept. of Clinical Research, University of Bern, Bern, Switzerland; [3]Institute for Diagnostic & Interventional Neuroradiology, Inselspital, Bern, Switzerland

17:00 **309**. **Metabolite Concentration Changes during Visual Stimulation using Functional Magnetic Resonance Spectroscopy (Fmrs) on a Clinical 7T Scanner**
Benoit Michel Schaller[1], Ralf Mekle[2], Lijing Xin[3], Rolf Gruetter[1,4]
[1]Laboratory of Functional & Metabolic Imaging, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Vaud, Switzerland; [2]Physikalisch-Technische Bundesanstalt, Berlin, Germany; [3]Department of Radiology, University of Lausanne, Lausanne, Switzerland; [4]Department of Radiology, Universities of Lausanne and Geneva, Switzerland

17:12 **310**. **Classification of Single Voxel ^{1}H Spectra of Brain Tumours using Lcmodel**
Felix Raschke[1], Elies Fuster-Garcia[2,3], Kirstie Suzanne Opstad[1], Franklyn Arron Howe[1]
[1]Division of Clinical Science, St George's University of London, London, United Kingdom; [2]IBIME & ITACA, Universidad Politécnica de Valencia, Valencia, Spain; [3]Universitat Internacional Valenciana, Valencia, Spain

17:24 **311**. **Investigating the Metabolic Changes Due to Visual Stimulation using Functional Proton Magnetic Resonance Spectroscopy At 7T**
Yan Lin[1,2], Mary C. Stephenson[1], Samuel J. Wharton[1], Lijing Xin[3], Olivier E. Mougin[1], Antonio Napolitano[4], Peter G. Morris[1]
[1]Sir Peter Mansfield Magnetic Resonance Centre, University of Nottingham, Nottingham, Nottinghamshire, United Kingdom; [2]Medical Imaging Department, Second Affiliated Hospital, Shantou University Medical College, Shantou, Guangdong, China, People's Republic of; [3]Laboratory of Functional & Metabolic Imaging, Ecole Poly technique Federale de Lausanne, Lausanne, Switzerland; [4]Academic Radiology, University of Nottingham, Nottingham, Nottinghamshire, United Kingdom

17:36 **312**. **Quantitative MRS of Ovaries & Ovarian Masses at 3T: Methodology & Initial Findings**
Patrick J. Bolan[1], Jori S. Carter[2], Navneeth Lakkadi[1], Levi S. Downs Jr.[2]
[1]Radiology/CMRR, University of Minnesota, Minneapolis, MN, USA; [2]Obstetrics, Gynecology & Women's Health, University of Minnesota, Minneapolis, MN, USA

17:48 **313**. **Hepatic Glycogen Metabolism in Mice by *In Vivo* ^{13}C MRS at 14T**
Christine Nabuurs[1], Frederic Preitner[2], Bernard Thorens[2], Rolf Gruetter[3]
[1]CIBM, Hôpitaux Universitaires de Genève (HUG), Lausanne, Switzerland; [2]Mouse Metabolic Facility, Center for Integrative Genomics, UNIL, Lausanne, Switzerland; [3]Laboratory of Functional & Metabolic Imaging (LIFMET), l'Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland

Novel Contrast Agents & Labels

Room 518-A-C 16:00-18:00 *Moderators:* David P. Cormode & Mark D. Pagel

16:00 **314**. ***In Vivo* MR CEST Imaging of the Viability of Microencapsulated Cells**
Kannie Wai Yan Chan[1,2], Xiaolei Song[1,2], Guanshu Liu[1,3], Dian Arifin[1,2], Heechul Kim[1,2], Chulani Galpoththawela[1,2], Ming Yang[4], Justin Hanes[4,5], Assaf Gilad[1,2], Piotr Walczak[1,2], Jeff W. M. Bulte[1,2], Michael T. McMahon[1,3]
[1]Russell H. Morgan Department of Radiology & Radiological Sciences, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [2]Cellular Imaging Section & Vascular Biology Program, Institute for Cell Engineering, Baltimore, MD, USA; [3]F.M. Kirby Research Center for Functional Brain Imaging, Kennedy Krieger Institute, Baltimore, MD, USA; [4]Department of Biomedical Engineering, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [5]Department of Oncology & the Sidney Kimmel Comprehensive Cancer Center, Johns Hopkins University School of Medicine, Baltimore, MD, USA

16:12 **315**. **Measuring *In Vivo* Tumor Phe with a DIACEST MRI Contrast Agent**
Liu Qi Chen[1], Vipul R. Sheth[2], Christine A. Howison[3], Phillip H. Kuo[4], Mark D. Pagel[5]
[1]Chemistry & Biochemistry, University of Arizona, Tucson, AZ, USA; [2]Biomedical Engineering, Case Western Reserve University, Cleveland, OH, USA; [3]Arizona Research Laboratories, University of Arizona, Tucson, AZ, USA; [4]Radiology, Medicine, Biomedical Engineering, University of Arizona, Tucson, AZ, USA; [5]Biomedical Engineering & Chemistry & Biochemistry, University of Arizona, Tucson, AZ, USA

16:24 **316**. **CEST Imaging Reveals Dynamic Changes of Implanted Hydrogel Scaffold *In Vivo***
Yajie Liang[1,2], Amnon Bar-Shir[1,2], Xiaolei Song[1,2], Assaf A. Gilad[1,2], Jeff W. M. Bulte[1,2], Piotr Walczak[1,2]
[1]Division of MR Research, Russell H. Morgan Dept. of Radiology , the Johns Hopkins University School of Medicine, Baltimore, MD, USA; [2]Cellular Imaging Section, Institute for Cell Engineering, the Johns Hopkins University School of Medicine, Baltimore, MD, USA

16:36 **317**. **Study Axonal Transport Rate & Neuronal Turnover Rate of the Olfactory System using Novel MRI Anatomical Contrast Agent Gddota-CTB**
Carolyn W.-H. WU[1], Olga Vasalatiy[2], Leslie G. Ungerleider[3], Gary Griffiths[2]
[1]NeuroSpin / CEA, Gif Sur Yvette, Île-de-France, France; [2]IPDC /NHLBI / NIH, Rockville, MD, USA; [3]LBC /NIMH /NIH, Bethesda, MD, USA

16:48 **318**. **Direct Albumin Imaging in Mouse Tumour Model**
Jamu K. Alford[1], Christian T. Farrar[1], Yan Yang[1], William Bradfield Handler[2], Blaine A. Chronik[2], Timothy J. Scholl[3], Gunjan Madan[4], Peter Caravan[1]
[1]Radiology, A. A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Charlestown, MA, USA; [2]Physics & Astronomy, the University of Western Ontario, London, ON, Canada; [3]Department of Medical Biophysics, the University of Western Ontario, London, ON, Canada; [4]Siemens Medical Solutions Inc., Malvern, PA, USA

17:00 **319**. **A Novel Fluorine Relaxation Switch for Tracking the Binding & Intracellular Processing of Molecularly Targeted Nanoparticle Contrast Agents**
Lingzhi Hu[1], Junjie Chen[1], Shelton D. Caruthers[1], Gregory M. Lanza[1], Samuel A. Wickline[1]
[1]Washington University in St. Louis, St. Louis, MO, USA

17:12 **320**. **Specific Targeting of EGF Receptor Expression with Monoclonal Antibody Conjugates in Human Gliomas using MRI**
Mohammed Salman Shazeeb[1,2], Christopher Howard Sotak[1,3], Alexei Bogdanov, Jr.[3,4]
[1]Biomedical Engineering, Worcester Polytechnic Institute, Worcester, MA, USA; [2]Graduate School of Biomedical Sciences, University of Massachusetts Medical School, Worcester, MA, USA; [3]Radiology, University of Massachusetts Medical School, Worcester, MA, USA; [4]Cell Biology, University of Massachusetts Medical School, Worcester, MA, USA

17:24 **321**. **High R_1 of Mn^{2+} Adsorbed to Hydrophilic Pores of Magnetoferritin Nanoparticles**
Veronica Clavijo Jordan[1], Kevin M. Bennett[1]
[1]School of Biological & Health Systems Engineering, Arizona State University, Tempe, AZ, USA

17:36 **322**. **Quantitative Assessment of Macrophage Activity in Inflammatory Bowel Disease using Fluorine-19 MRI & the Response to Treatment**
Deepak K. Kadayakkara[1,2], Eric T. Ahrens[1,2]
[1]Carnegie Mellon University, Pittsburgh, PA, USA; [2]Pittsburgh NMR Center for Biomedical Research, Pittsburgh, PA, USA

17:48 **323**. ***In Vivo* MR Imaging of Macrophages in Cardiac Ischemia/Reperfusion Injury with Paramagnetic Phosphatidylserine-Containing Liposomes**
Tessa Geelen[1], Sin Yuin Yeo[1], Leonie E. Paulis[1], Bram F. Coolen[1], Klaas Nicolay[1], Gustav J. Strijkers[1]
[1]Biomedical NMR, Department of Biomedical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands

Transmit RF Arrays

Room 520B-F 16:00-18:00 *Moderators:* Stuart R. Crozier & Greig C. Scott

16:00 **324**. **Evaluating Further Benefits of B_1^+ Homogenity When More Transmit Chnnels Are Used**
Niravkumar Darji[1], Kyoung-Nam Kim[2], Gopesh Patel[1], Hans-Peter Fautz[3], Johannes Bernarding[2], Oliver Speck[1]
[1]Biomedical Magnetic Resonance, Otto-von-Guericke University, Magdeburg, Saxony Anhalt, Germany; [2]Institute for Biometry & Medicine Informatics, Otto-von-Guericke University, Magdeburg, Saxony Anhalt, Germany; [3] Siemens Healthcare, Erlangen, Germany

16:12 **325**. **Dual-channel Transmit-SENSE For Flip-Angle Homogenization in the Human Brain At 7 Tesla: A Feasibility Study**
Martijn Anton Cloos[1,2], Guillaume Ferrand[2], Nicolas Boulant[1], Michel Luong[2], Christopher J. Wiggins[1], Denis Le Bihan[1], Alexis Amadon[1]
[1]LRMN, CEA, DSV, I2BM, NeuroSpin, Gif-Sur-Yvette, ile-de-France, France; [2]CEA, DSM, IRFU, Gif-Sur-Yvette, ile-de-France, France

16:24 **326**. **Design, Evaluation & Application of a Sixteen-Channel Transmit/Receive Surface Coil Array for Cardiac MRI at 7T**
Christof Thalhammer[1,2], Wolfgang Renz[1,3], Harald Pfeiffer[4], Jan Rieger[1], Lukas Winter[1], Fabian Hezel[1], Frank Seifert[4], Werner Hoffmann[4], Reiner Seemann[4], Thoralf Niendorf[1,5]
[1]Berlin Ultrahigh Field Facility, Max-Delbrueck Center for Molecular Medicine, Berlin, Germany; [2]University of Regensburg, Regensburg, Germany; [3]Siemens Healthcare, Erlangen, Germany; [4]Physikalisch-Technische Bundesanstalt (PTB), Braunschweig & Berlin, Germany; [5]Experimental & Clinical Research Center (ECRC), Charité Campus Buch, Berlin, Germany

16:36 **327**. **6-Channel Radiative Transmit Array with a 16-Channel Surface Receiver Array for Improved Carotid Vessel Wall Imaging At 7T**
Wouter Koning[1], Erwin Langenhuizen[1], Alexander J. E. Raaijmakers[1], Cornelis A. T. van den Berg[1], Jaco J. M. Zwanenburg[1], Peter R. Luijten[1], Dennis W. J. Klomp[1]
[1]University Medical Center, Utrecht, Netherlands

16:48 **328**. **Improved Longitudinal Coverage For Human Brain At 7T: A 16 Element Transceiver Array**
Nikolai I. Avdievich[1], Jullie W. Pan[1], Hoby P. Hetherington[1]
[1]Neurosurgery, Yale University, New Haven, CT, USA

17:00 **329**. **A 16-Channel Conformal Transceive Coil for 7-T Neuroimaging**
Kyle Michael Gilbert[1], Andrew T. Curtis[1], Joseph S. Gati[1], L Martyn Klassen[1], Ravi S. Menon[1]
[1]Robarts Research Institute, The University of Western Ontario, London, Ontario, Canada

17:12 **330**. **Consistent High Acceleration Factor *In-Vivo* Tx SENSE with Generic (Measured or Simulated) Set of B_1+ Maps on Load Independent Whole-Head Tx Arrays**
Tamer S. Ibrahim[1], Tiejun Zhao[2], Fernando E. Boada
[1]University of Pittsburgh, Pittsburgh , PA, USA; [2]Siemens Medical Solutions

17:24 **331**. **Distribution Errors in 8×8 & 16×16 Butler-Matrices Multi-Coil Excitation for 7T MRI**
Pedram Yazdanbakhsh[1], Klaus Solbach[1]
[1]HFT, Duisburg-Essen University, Duisburg, NRW, Germany

17:36 **332**. **Active Coil Decoupling by Impedance Synthesis using Frequency-Offset Cartesian Feedback**
Pascal P. Stang[1], Marta Gaia Zanchi[1], Adam Kerr[1], John Mark Pauly[1], Greig C. Scott[1]
[1]Electrical Engineering, Stanford University, Stanford, CA, USA

17:48 **333**. **Transmit / Receive Single Echo Imaging**
Ke Feng[1], Mary P. McDougall[2], Steven M. Wright[1,2]
[1]Electrical & Computer Engineering, Texas A&M University, College Station, TX, USA; [2]Biomedical Engineering, Texas A&M University, College Station, TX, USA

Therapy Response

Room 710A 16:00-18:00 *Moderators:* Hagit Dafni & Evis Sala

16:00 **334**. **Assessing Chemotherapy Response in Metastatic Ovarian Cancer: The Value of Histogram Analysis of Apparent Diffusion Coefficients**
Stavroula Kyriazi[1], David J. Collins[1], Robert L. Davidson[1], Veronica A. Morgan[1], Sharon L. Giles[1], Catherine J. Simpkin[1], Stan B. Kaye[2], Nandita M. deSouza[1]
[1]Cancer Imaging Centre, Institute of Cancer Research & The Royal Marsden NHS Foundation Trust, Sutton, Surrey, United Kingdom; [2]Gynaecological Oncology, Institute of Cancer Research & The Royal Marsden NHS Foundation Trust, Sutton, Surrey, United Kingdom

16:12 **335**. **Reversal of ADC Changes in Tumors after Treatment at Short Diffusion Times**
Junzhong Xu[1], Ke Li[1], Ralph Adam Smith[1], Ping Zhao[1], Mark D. Does[1], Henry Charles Manning[1], John C. Gore[1]
[1]Institute of Imaging Science, Vanderbilt University, Nashville, TN, USA

16:24 **336**. **Assessing Response in Bone Metastases in Prostate Cancer with Diffusion Weighted MRI**
Christina Messiou[1], David J. Collins[1], Sharon Giles[1], Veronica A. Morgan[1], Johann S. de Bono[2], Diletta Bianchini[2], Nandita M. deSouza[1]
[1]CRUK & EPSRC Cancer Imaging Centre, Institute of Cancer Research & Royal Marsden NHS Foundation Trust, Sutton, Surrey, United Kingdom; [2]Medicine, Institute of Cancer Research & Royal Marsden NHS Foundation Trust, Sutton, Surrey, United Kingdom

16:36 **337**. **Assessment of Drug-Induced Vessel Remodeling in Experimental Bone Metastases By DCE MRI**
Maren Bretschi[1], Maximilian Merz[1], Dorde Komljenovic[1], Woflhard Semmler[1], Tobias Bäuerle[1]
[1]Medical Physics in Radiology, DKFZ German Cancer Research Center, Heidelberg, Germany

16:48 **338**. **DCE-MRI Biomarkers of Microvascular Structure & Function Predict CRC Liver Metastasis Shrinkage Induced By Bevacizumab & FOLFOX6**
Chris James Rose[1,2], James P. O'Connor[1,2], Alan Jackson[1,2], Yvon Watson[1,2], Fran Maders[3], Brandon J. Whitcher[4], Caleb Roberts[1,2], Giovanni A. Buonaccorsi[1,2], Gerard Thompson[1,2], Andrew R. Clamp[3,5], Gordon C. Jayson[5], Geoffrey J. Parker[1,2]
[1]The University of Manchester Biomedical Imaging Institute, The University of Manchester, Manchester, Greater Manchester, United Kingdom; [2]Manchester Academic Health Science Centre, The University of Manchester, Manchester, Greater Manchester, United Kingdom; [3]Department of Radiology, Christie Hospital, Manchester, Greater Manchester, United Kingdom; [4]GlaxoSmithKline Clinical Imaging Centre, Hammersmith Hospital, Imperial College London, London, Greater London, United Kingdom; [5]Cancer Research UK Department of Medical Oncology, Christie Hospital, Manchester, Greater Manchester, United Kingdom

17:00 **339**. **Serial R_2* MRI to Evaluate Response to Tumour Vascular Disruptive Treatment: Final Results of a Clinical Phase I Trial**
Martin Zweifel[1], Daniel Patterson[1], N. Jane Taylor[2], J. James Stirling[2], Ian C. Simcock[2], David J. Collins[3], James A. d'Arcy[3], Martin O. Leach[3], Gordon J. Rustin[1], Anwar R. Padhani[2]
[1]Dept of Medical Oncology, Mount Vernon Hospital, Northwood, Middlesex HA6 2RN, United Kingdom; [2]Paul Strickland Scanner Centre, Mount Vernon Hospital, Northwood, Middlesex HA6 2RN, United Kingdom; [3]CRUK-EPSRC Cancer Imaging Centre, Institute of Cancer Research & Royal Marsden Hospital, Sutton, Surrey SM2 5PT, United Kingdom

17:12 **340**. **Can DCE-MRI Predict Pathological Complete Response After Neoadjuvant Chemoradiation Therapy in Rectal Cancer Patients? Initial Observations in 38 Patients**
Giuseppe Petralia[1], Paul Summers[1], Stefano Viotti[2], Luke Bonello[2], Moreno Pasin[1], Maria Giulia Zampino[3], Maria Cristina Leonardi[4], Laura Travaini[5], Valeria Panebianco[6], Massimo Bellomi[1,2]
[1]Radiology, European Institute of Oncology, Milan, Italy; [2]School of Radiology, University of Milan, Milan, Italy; [3]Medical Care Unit, Medicine, European Institute of Oncology, Milan, Italy; [4]Radiotherapy, European Institute of Oncology, Milan, Italy; [5]Nuclear Medicine, European Institute of Oncology, Milan, Italy; [6]Radiological Sciences, Policlinico Umberto I, University "Sapienza", Rome, Italy

17:24 **341**. **Intra-Procedural Transcatheter Intraarterial Perfusion MRI as a Predictor of Tumor Response to Chemoembolization for Hepatocellular Carcinoma**
Dingxin Wang[1,2], Ron Gaba[3], Brian Jin[4], Ahsun Riaz[4], Robert Lewandowski[4], Robert Ryu[4], Kent Sato[4], Ann Ragin[4], Laura Kulik[5], Mary Mulcahy[6,7], Riad Salem[4,7], Andrew Larson[4,7], Reed Omary[4,7]
[1]Siemens Medical Solutions USA, Inc., Minneapolis, MN, USA; [2]Center for Magnetic Resonance Research , University of Minnesota, Minneapolis, MN, USA; [3]Department of Radiology, University of Illinois at Chicago, Chicago, IL, USA; [4]Department of Radiology, Northwestern University, Chicago, IL, USA; [5]Department of Hepatology, Northwestern University, Chicago, IL, USA; [6]Department of Medicine, Northwestern University, Chicago, IL, USA; [7]Robert H. Lurie Comprehensive Cancer Center, Northwestern University, Chicago, IL, USA

17:36 **342**. **Evaluating the Early Effects of Anti-angiogenic Treatment in Human Breast Cancer with Intrinsic Susceptibility-Weighted & Diffusion-Weighted MRI: Initial Observations**
Sonia P. Li[1], N. Jane Taylor[2], Shaveta Mehta[3], Nicholas P. Hughes[4], J. James Stirling[2], Ian C. Simcock[2], David J. Collins[5], James A. d'Arcy[5], Martin O. Leach[5], Adrian L. Harris[3], Andreas Makris[1], Anwar R. Padhani[2]
[1]Mount Vernon Hospital, Northwood, Middlesex HA6 2RN, United Kingdom; [2]Paul Strickland Scanner Centre, Mount Vernon Hospital, Northwood, Middlesex HA6 2RN, United Kingdom; [3]University Department of Medical Oncology, Churchill Hospital, Oxford OX3 7LJ, United Kingdom; [4]Department of Radiology, Stanford University School of Medicine, Stanford, CA 94305-5427, USA; [5]CRUK-EPSRC Cancer Imaging Centre, Institute of Cancer Research & Royal Marsden Hospital, Sutton, Surrey SM2 5PT, United Kingdom

17:48 **343**. **^{31}P MRS at 7T Can be More Sensitive & Specific Than ^{1}H MRS in Monitoring Breast Cancer Treatment**
Dennis Klomp[1], Wybe van der Kemp[1], Mies Korteweg[1], Jannie Wijnen[1], Maurice van de Bosch[1], Peter Luijten[1]
[1]University Medical Center Utrecht, Utrecht, Netherlands

Clinical Application of Diffusion Tensor Imaging

Room 710B 16:00-18:00 *Moderators:* Marco Essig & Majda M.Thurnher

16:00 **344**. **Investigating the Role of ICBM-Space Human Brain Diffusion Tensor Templates in Inter-Subject Spatial Normalization**
Shengwei Zhang[1], Konstantinos Arfanakis[1]
[1]Biomedical Engineering, Illinois Institute of Technology, Chicago, IL, USA

16:12 **345**. **Cerebral Viscoelasticity in Normal Pressure Hydrocephalus: Disorder & Softening of the Mechanical Matrix of the Brain & Its Reorganization After Shunt Treatment**
Ingolf Sack[1], Sebastian Hirsch[1], Dieter Klatt, Kaspar Josche Streitberger, Florian Freimann[2], Christian Sprung[2], Jürgen Braun[3]
[1]Department of Radiology, Charité University Medicine, Berlin, Germany; [2]Department of Neurosurgery, Charité University Medicine; [3]Institute of Medical Informatics, Charité University Medicine, Berlin, Germany

16:24 **346**. **A Longitudinal Study of Microstructural White Matter Changes After Mild Traumatic Brain Injury**
Fan-pei Gloria Yang[1], Charvi Shetty[1], Hana Lee[1], Sara Lahue[1], Shelly Cooper[1], Chirstopher Nguyen[1], Mehul Sampat[1], Jamshid Ghajar[2], Geoffrey Manley[3,4], Sandya Venugopal[1], Pratik Mukherjee[1,4]
[1]Radiology & Bioengineering, University of California San Francisco, San Francisco, CA, USA; [2]Brain Trauma Foundation, New York, USA; [3]Department of Neurological Surgery, University of California San Francisco, San Francisco, CA, USA; [4]Brain & Spinal Injury Center, University of California San Francisco, USA

16:36 **347**. **Disrupted Anatomical Brain Connectivity in Retired Professional Football Players**
Feng Shi[1,2], Pew-Thian Yap[1,2], J. Keith Smith[1], Kelly S. Giovanello[3,4], Candice Goerger[5,6], Weili Lin[1,2], Kevin M. Guskiewicz[5,7], Dinggang Shen[1,2]
[1]Department of Radiology, University of North Carolina, Chapel Hill, NC, USA; [2]Biomedical Research Imaging Center, University of North Carolina, Chapel Hill, NC, USA; [3]Department of Psychology, University of North Carolina, Chapel Hill, NC, USA; [4]Biomedical Research Imaging Center, University of North Carolina , Chapel Hill, NC, USA; [5]Department of Exercise & Sport Science, Orthopedics, University of North Carolina, Chapel Hill, NC, USA; [6]Center for the Study of Retired Athletes, University of North Carolina , Chapel Hill, NC, USA; [7]Center for the Study of Retired Athletes, University of North Carolina, Chapel Hill, NC, USA

16:48 **348**. **Propagation of Probabilistic Tractography of the Optic Radiation for Neuronavigation in Epilepsy Surgery**
Gavin P. Winston[1], Pankaj Daga[2], Jason Stretton[1], Marc Modat[2], Mark R. Symms[1], Andrew W. McEvoy[3], Sebastien Ourselin[2], John S. Duncan[1,3]
[1]UCL Institute of Neurology, London, United Kingdom; [2]UCL Centre for Medical Image Computing, London, United Kingdom; [3]National Hospital for Neurology & Neurosurgery, London, United Kingdom

17:00 **349**. **Patterns of CNS Injury in HIV Infection: A DTI Tract-Based Spatial Statistics Study**
Tong Zhu[1], Jianhui Zhong[1], Rui Hu[2], Wei Tian[1], Sven Ekholm[1], Constantin Yiannoutsos[3], Ron Cohen[4], Bradford Navia[5], Michael Taylor[6], Eric Daar[7], Elyse Singer[8], Thomas Campbell[9], Deborah McMahon[10], Yuen So[11], Giovanni Schifitto[1,12]
[1]Dept. Imaging Sciences, University of Rochester, Rochester, NY, USA; [2]Dept. Biostatistics, University of Rochester, Rochester, NY, USA; [3]Division of Biostatistics, Indiana University School of Medicine, Indianapolis, IN, USA; [4]The Miriam Hospital, Brown University, Providence, RI, USA; [5]Tufts University School of Medicine, Boston, MA, USA; [6]University of California at San Diego, La Jolla, CA, USA; [7]UCLA/Harbor, Torrance, CA, USA; [8]UCLA, Los Angeles, CA, USA; [9]University of Colorado, Denver, CO, USA; [10]University of Pittsburgh, Pittsburgh, PA, USA; [11]Stanford University, Palo Alto, CA, USA; [12]Dept. Neurology, University of Rochester, Rochester, NY, USA

17:12 **350**. **Atypical Gray & White Matter Microstructure in Autism Spectrum Disorders**
Mariana Lazar[1], Laura Miles[1], Jeffrey Donaldson[1], Jens H. Jensen[1], Joy Carol Ming[2]
[1]Department of Radiology, New York University School of Medicine, New York, USA; [2]Livingston High School, Livingston, NJ, USA

17:24 **351**. **Can Structural Connectivity Analyses Measure Brain Plasticity in Amyotrophic Lateral Sclerosis?**
Stephen Rose[1], Kerstin Pannek[1], Fusun Baumann[2], Robert Henderson[2]
[1]Centre for Clinical Research, University of Queensland, Brisbane, Queensland, Australia; [2]Neurology, Royal Brisbane & Women's Hospital, Brisbane, Queensland, Australia

17:36 **352**. **Using Surface Connectivity Atlases to Measure Striato-Cortical "Disconnection Rate" in Huntington Disease**
Linda Marrakchi-Kacem[1,2], Christine Delmaire[3], Alan Tucholka[4,5], Pauline Roca[1,2], Pamela Guevara[1,2], Sophie Lecomte[1,2], Fabrice Poupon[1,2], Jerome Yelnik[6], Alexandra Durr[6], Jean-François Mangin[1,2], Stephane Lehericy[2,3], Cyril Poupon[1,2]
[1]NeuroSpin, CEA, Gif-Sur-Yvette, France; [2]IFR49, Gif-Sur-Yvette, France; [3]CENIR, Pitié Salpêtrière Hospital, Paris, France; [4]Centre de Recherche Hôpital Ste-Justine, Montreal, Canada; [5]Université de Montréal, Montreal, Canada; [6]CRICM, Inserm/UPMC, Paris, France

17:48 **353**. **Prediction of Genetic Risks in Schizophrenia: A DTI-Based Pattern Classification Study**
Madhura Ingalhalikar[1], Stathis Kanterakis[1], Drew Parker[1], Raquel E. Gur[2], Ruben C. Gur[2], Ragini Verma[1]
[1]Section of Biomedical Image Analysis, Department of Radiology, University of Pennsylvania, Philadelphia, PA, USA; [2]Brain Behavior Laboratory, Department of Psychiatry, University of Pennsylvania, Philadelphia, PA, USA

Bronze Corporate Member Symposium
Agilent Technologies

Room 511 D-F 18:15-20:15

Bronze Corporate Member Symposium
Bracco

Room 518 A-C 18:15-20:15

Bronze Corporate Member Symposium
Lantheus Medical Imaging, Inc.

Room 513 A-D 18:15-20:15

Clinical Intensive Course
Sunrise Educational Course
Hot Topics in Body MRI

Room 510 07:00-08:00 *Moderators*: Caroline Reinhold & Evis Sala

MRI of the Uterus

07:00 **MRI of Pelvic Pain**
Patricia Noël

07:30 **Congenital Uterine Anomalies**
Margaret A. Hall-Craggs

Clinical Intensive Course
Sunrise Educational Course
Neuro MRI from Start to Finish

Room 516A-C 07:00-08:00

Neonatal

07:00 **Scanning Children Without Sedation**
Carissa Cascio

07:30 **Common Neonatal Lesions**
Terrie E. Inder

Sunrise Educational Course
Image Analysis

Room 511A-C 07:00-08:00 *Moderator*: James C. Gee

07:00 **Registration: Theory**
Sebastien Ourselin

07:30 **Registration: Practice**
Lilla Zöllei

Sunrise Educational Course
Translational Imaging: Animal Models in MSK

Room 511D-F 07:00-08:00 *Moderators:* Bernard J. Dardzinski & Miika T. Nieminen

07:00 **Role of MRI & MRS for the Study of Bone & Bone Marrow in Animal Models of Disease**
Felix W. Wehrli

07:30 **Cartilage Repair & Degradation**
Lisa A. Fortier

Sunrise Educational Course
Fast & Furious: The New Era of Rapid Imaging

Room 512A-G 07:00-08:00

Fast Body Imaging

07:00 **Current Practices, Clinical Needs & Emerging Techniques**
Jean H. Brittain & Scott B. Reeder

Sunrise Educational Course
Molecular Imaging & Contrast Agents

Room 513A-D 07:00-08:00

07:00 **Physico Chemical Principles of Metal Based Paramagnetic/Iron Contrast**
Natalie J. Serkova

07:30 **Preclinical & Clinical Applications of Metal Based Paramagnetic/Iron Contrast**
Jean-Paul Vallée

Sunrise Educational Course
Cardiovascular MR Imaging: Bridging the Gap Between Research & Clinical Problems

Room 518A-C 07:00-08:00

CMR for Evaluation of Arrhythmia

07:00 **Atrial Fibrillation**
Reza Nezafat

07:20 **Ventricular Tachycardia**
Henry R. Halperin

07:40 **Devices & Safety**
Wolfgang R. Bauer

Sunrise Educational Course
MRS - Metabolite Profiling & Metabolism

Room 520B-F 07:00-08:00 *Moderators*: Kevin M. Brindle & Ivan Tkac

07:00 **Challenges of Advanced Clinical MRS**
Petra J. W. Pouwels

07:30 **Current Possibilities of MRS**
Rolf Gruetter

Sunrise Educational Course
Image Reconstruction

Room 710A 07:00-08:00

Parallel Imaging

07:00 **Parallel Imaging Reconstruction I: Cartesian**
Jonathan R. Polimeni

07:30 **Parallel Imaging Reconstruction II: Non-Cartesian**
Nicole E. Seiberlich

Sunrise Educational Course
Absolute Beginners' Guide to Anatomical & Functional MRI of the Brain

Room 710B 07:00-08:00 *Moderator*: Joelle E. Sarlls

07:00 **Diffusion Imaging**
Jacques-Donald Tournier

07:30 **Diffusion Imaging Processing**
Susumu M. Mori

Plenary
Clinical Needs & Research Promises: In Practice, *Panel Discussion*

Plenary Hall 08:15-09:27 Organizers: Georg Bongartz, Mark A. Griswold, Vivian S. Lee & Caroline Reinhold

Cardiac Arrhythmia

08:15 **354**. **Case**: *Gaston Vergara*

08:18 **Discussion**: *Nassir F. Marrouche*

Inflammatory Bowel Disease

08:33 **355**. **Case**: *Manil Chouhan*

08:36 **Discussion**: *Stuart A. Taylor*

Arthropathy

08:51 **356**. **Case**: *Karen Chen*

08:54 **Discussion**: *Christine Chung*

Brain Tumors

09:09 **357**. **Case**: *Sven Haller*

09:12 **Discussion**: *Jacques F. Schneider*

Hands-On Workshop 1
Neuro & Musculoskeletal Protocol Optimization
GE Healthcare

Room 520A-D 10:30-12:30

Hands-On Workshop 1
Neuro & Musculoskeletal Protocol Optimization
Siemens

Room 515A-C 10:30-12:30

Clinical Intensive Course
MSK Tumors & Marrow Evaluation

Room 516A-C 10:30-12:30 *Moderator:* David M. Panicek

10:30 **Bone & Soft Tissue Tumors**
David M. Panicek

11:30 **Bone Morrow**
Thomas M. Link

Clinical Intensive Course
MR Spectroscopy in Clinical Use

Room 512A-G 10:30-12:30 *Moderators:* Jeffry R. Alger & Sven Ekholm

10:30 **Advances in MRS for Clinical Use**
Peter B. Barker

10:55 **MRS in Brain Tumors**
Ramon Gilberto Gonzalez

11:20 **MRS in Metabolic Disorders**
Zoltan Patay

11:50 **MRS in Bipolar Disorder**
John D. Port

12:20 **Discussion**

Clinical Applications of Ultra-High Field 7T MR - Moving to FDA/EU Approval

Room 510 10:30-12:30 *Moderators:* Soonmee Cha & John C. Gore

10:30 **Neuroradiological Applications of 7T MRI**
Christopher P. Hess

11:00 **Potential Clinical Applications for Ultra-High Field MRI**
Michael V. Knopp

11:30 **New Research Toward Additional Clinical Applications**
Mark E. Ladd

12:00 **Regulatory Considerations for Use of Ultra-High Field MRI**
Lucie L. Yang

Neurovascular Angiography Techniques - Clinical Studies

Room 511A-C 10:30-12:30 *Moderators:* Timothy J. Carroll & Oliver Wieben

10:30 **358**. **A New High Resolution MR DSA Protocol for Intracranial Vascular Malformations**
Parmede Vakil[1], Sameer A. Ansari[2], Michael C. Hurley[2], Timothy J. Carroll[2]
[1]Biomedical Engineering, Northwestern University, Chicago, IL, USA; [2]Radiology, Northwestern University, Chicago, IL, USA

10:42 **359**. **Unenhanced Four Dimensional Magnetic Resonance Angiography: Preliminary Experience in Patients with Cerebrovascular Disorders**
Kaiyuan Zhang[1], Jie Lu[1], Jing An[2], Mo Zhang[1], Xiaoming Bi[3], Kuncheng Li[1]
[1]Department of Radiology, Xuanwu Hospital, Capital Medical University, Beijing, China, People's Republic of; [2]Siemens Mindit Magnetic Resonance, Shenzhen, Guangdong, China, People's Republic of; [3]Cardiovascular MR R&D, Siemens Healthcare, Chicago, IL, USA

10:54 **360**. **Time-Resolved Angiography with a Highly Undersampled Multi-Echo 3D Radial Trajectory**
Gregory R. Lee[1], Nicole Seiberlich[1], Jeffrey L. Sunshine[1,2], Timothy J. Carroll[3,4], Mark A. Griswold[1,5]
[1]Radiology, Case Western Reserve University, Cleveland, OH, USA; [2]Radiology, University Hospitals Case Medical Center, Cleveland, OH, USA; [3]Radiology, Northwestern University, Chicago, IL, USA; [4]Biomedical Engineering, Northwestern University, Chicago, IL, USA; [5]Biomedical Engineering, Case Western Reserve University, Cleveland, OH, USA

11:06 **361**. **High Resolution Hemodynamics of Small Intracranial Aneurysms with Phase Contrast Stack of Stars**
Steven Kecskemeti[1], Kevin Johnson[1], Yijing Wu[1], Patrick Turski[2], Oliver Wieben[1]
[1]Medical Physics, University of Wisconsin - Madison, Madison, WI, USA; [2]Radiology, University of Wisconsin - Madison, Madison, WI, USA

11:18 **362**. **Visualizing Small Intra-Cranial Arteries using TOF with Compressed Sensing**
Jerome Yerly[1,2], Michel Louis Lauzon[2,3], Richard Frayne[2,3]
[1]Department of Electrical & Computer Engineering, University of Calgary, Calgary, AB, Canada; [2]Foothills Medical Centre, Seaman Family MR Research Centre, Calgary, AB, Canada; [3]Departments of Radiology & Clinical Neurosciences, University of Calgary, Calgary, AB, Canada

11:30 **363**. **High Resolution Time-Of Flight MRA using Slice Selective Saturation Transfer Contrast & Water Excitation Technique For the Visualization of the Lenticulostriate Arteries At 1.5T**
Faiza Admiraal-Behloul[1], Evert Blink[1], Bei Zhang[1], Mitsue Miyazaki[2]
[1]MR-BU, Toshiba Medical Systems Europe, Zoetermeer, Netherlands; [2]Toshiba Medical Research Institute , Vernon Hills, Illinois, USA

11:42 **364**. **Superselective MR-Angiography Based On Pseudo-Continuous Arterial Spin Labeling & First Applications in AVM Patients**
Michael Helle[1], Susanne Rüfer[1], Wouter Teeuwisse[2], Olav Jansen[1], David Gordon Norris[3,4], Matthias van Osch[2]
[1]Institute for Neuroradiology, Christian-Albrechts-Universität, UK-SH, Kiel, Germany; [2]C. J. Gorter Center for High Field MRI, Department of Radiology, Leiden University Medical Center, Leiden, Netherlands; [3]Donders Institute for Brain, Cognition & Behaviour, Radboud University Nijmegen, Nijmegen, Netherlands; [4]Erwin L. Hahn Institute for Magnetic Resonance Imaging, Essen, Germany

11:54 **365**. **Application of Temporally Constrained Compressed Sensing for High Spatial & Temporal Resolution Intracranial CE MRA**
Julia V. Velikina[1], Kevin M. Johnson[1], Steven R. Kecskemeti[1], Patrick A. Turski[2], Alexey A. Samsonov[1,2]
[1]Medical Physics, University of Wisconsin - Madison, Madison, WI, USA; [2]Radiology, University of Wisconsin - Madison

12:06 **366**. **Fast Analysis of Vessel Encoded ASL Perfusion & Angiographic Images**
Michael A. Chappell[1,2], Tom W. Okell[2], Stephen J. Payne[1], Peter Jezzard[2], Mark W. Woolrich[2]
[1]Institute of Biomedical Engineering, University of Oxford, Oxford, United Kingdom; [2]FMRIB Centre, University of Oxford, Oxford, United Kingdom

12:18 **367**. **Validation of a Simple Anatomical Classification Method of the Circle of Willis: A MR Angiographical & Selective Arterial Spin Labeling MRI Study at 3 Tesla**
Jeroen Hendrikse[1], Xavier Golay[2], Esben Thade Petersen[3]
[1]UMC, Radiology, Utrecht, Netherlands; [2]Institute of Neurology, UCL, London, United Kingdom; [3]CIRC, NUS-A*STAR, Singapore

Perfusion MRI: Applications in Humans & Animals

Room 511D-F 10:30-12:30 *Moderators:* Rick M. Dijkhuizen & Linda Knutsson

10:30 **368**. **High Resolution Δr_2, Δr_2*& Vessel Density MRI of the Rat Ocular Circulation**
Yen-Yu Ian Shih[1], Li Guang[1], Bryan H. De La Garza[1], Eric R. Muir[1], Timothy Q. Duong[1]
[1]Research Imaging Institute, University of Texas Health Science Center at San Antonio, San Antonio, TX, USA

10:42 **369**. **Macromolecular DCE MRI at 14.1Tesla Allows Comparative Quantitative Evaluation of Antiangiogenic Treatment Effects in Responsive & Resistant GBM Models**
Myriam Marianne Chaumeil[1], Samuel Rose[2], Subramanian Sukumar[1], Hagit Dafni[1], Manish Aghi[2], Sabrina M. Ronen[1]
[1]Radiology, University of California San Francisco, San Francisco, CA, USA; [2]Neurological Surgery, University of California San Francisco, San Francisco, CA, USA

10:54 **370**. **Imaging of the Permeability Dependence of Focused Ultrasound-Induced Blood-Brain Barrier Opening at Distinct Pressures & Microbubble Diameters**
Fotios Vlachos[1], Yao-Sheng Tung[1], Jameel Feshitan[2], Mark Borden[2], Elisa Konofagou[1,3]
[1]Biomedical Engineering, Columbia University, New York, USA; [2]Chemical Engineering, Columbia University, New York, USA; [3]Radiology, Columbia University, New York, USA

11:06 **371**. **Pseudocontinuous Arterial Spin Labeling (pCASL) at Very High Field (11.75T) for Mouse Brain Perfusion Imaging**
Guillaume Duhamel[1], Mohamed Tachrount[1], Patrick J. Cozzone[1], David C. Alsop[2], Virginie Callot[1]
[1]CRMBM / CNRS 6612, Faculté de Médecine, Université de la Méditerranée, Marseille, France; [2]Department of Radiology, Beth Israel Deaconess Medical Center & Harvard Medical School, Boston, MA, USA

11:18 **372**. ***In Vivo* Arterial Blood T_2 Measurement with Arterial Spin Labeling at 9.4 Tesla**
Yuguang Meng[1], Alberto Vazquez[1], Seong-gi Kim[1]
[1]Neuroimaging Center, Department of Radiology, University of Pittsburgh, Pittsburgh, PA, USA

11:30 **373**. **Perfusion Asymmetries & Flow in Children with Sickle Cell Disease Assessed By Pseudo-Continuous Arterial Spin Labeling & Phase Contrast MRI**
Sanna Gevers[1], Pim van Ooij[1], Matthias J. P. van Osch[2], Sandra van den Berg[1], Karin J. Fijnvandraat[3], Charles B. L. M. Majoie[1], Aart J. Nederveen[1]
[1]Radiology, Academic Medical Center, Amsterdam, Netherlands; [2]Radiology, Leiden University Medical Center, Leiden, Netherlands; [3]Pediatrics, Academic Medical Center, Amsterdam, Netherlands

11:42 **374**. **Alteration of Cerebral Blood Flow Values in Children with Cerebral Palsy using 3D Pseudocontinuous Arterial Spin Labeling: Its Correlation with DTI Metrics**
Bhaswati Roy[1], Vimal Paliwal[2], Puneet Goel[3], Siddhant Kumar[1], Ram Kishan Singh Rathore[4], Sanjay Verma[4], Rakesh Kumar Gupta[1]
[1]Department of Radiodiagnosis, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India, Lucknow, Uttar Pradesh, India; [2] Department of Neurology, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India, Lucknow, Uttar Pradesh, India; [3]Department of Anaesthesiology, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India, Lucknow, Uttar Pradesh, India; [4]Department of Mathematics & Statistics, Indian Institute of Technology, Kanpur, Kanpur, Uttar Pradesh, India

11:54 **375**. **Simultaneous Functional & Quantitative ASL: An Optimal Tool for Imaging Ongoing Pain States**
Jingyi Xie[1], Andy Segerdahl[1,2], Irene Tracey[1,3], Peter Jezzard[1]
[1]Nuffield Dept of Clinical Neurosciences (FMRIB Centre), University of Oxford, Oxford, United Kingdom; [2]Nuffield Dept of Clinical Neurosciences (Anaesthetics), University of Oxford, Oxford, United Kingdom; [3]Nuffield Dept of Clinical Neurosciences (Anaesthetics), University of Oxford, , Oxford, United Kingdom

12:06 **376**. **Subject-specific AIF Optimizes Reproducibility of Perfusion Parameters in Longitudinal DSC-MRI in Comparison to Session & Population Level AIF**
Kim Mouridsen[1], Kyrre Eeg Emblem[2], Atle Bjørnerud[3], Dominique Jennings[2], Gregory Sorensen[2]
[1]Center for Functionally Integrative Neuroscience, Aarhus University | Aarhus University Hospital, Aarhus, Denmark; [2]Athinoula A. Martinos Center for Biomedical Imaging, Department of Radiology, Massachusetts General Hospital, Charlestown, MA, USA; [3]Department of Physics, University of Oslo, Interventional Centre, Rikshospitalet, Olso University Hospital, Oslo, Norway

12:18 **377**. **Correction for Delay & Dispersion of Contrast Bolus: A Comparison of Quantitative DSC Cerebral Perfusion & [^{15}O]-H_2O PET**
Jessy Mouannes Srour[1], John Lee[2], Colin Derdeyn[2,3], Wanyong Shin[4], Timothy J. Carroll[1,5]
[1]Biomedical Engineering, Northwestern University, Chicago, IL, USA; [2]Radiology, Washington University in Saint Louis, Saint Louis, MO, USA; [3]Neurology & Neurological Surgery, Washington University in Saint Louis, Saint Louis, MO, USA; [4]Imaging Institute, Mellen Center, The Cleveland Clinic, Cleveland, OH, USA; [5]Radiology, Northwestern University, Chicago, IL, USA

Acquisition Strategies: Improving the Old & Exploring the New

Room 513A-D 10:30-12:30 *Moderators:* Peter M. Jakob & Krishna S. Nayak

10:30 **378**. **The "Central Signal Singularity" Phenomenon in Balanced SSFP**
R. Reeve Ingle[1], Dwight G. Nishimura[1]
[1]Electrical Engineering, Stanford University, Stanford, CA, USA

10:42 **379**. **Desperately Seeking: Non-Balanced Steady State Free Precession Fluid Signal**
Oliver Bieri[1], Carl Ganter[2], Klaus Scheffler[1]
[1]Department of Medical Radiology, Radiological Physics, University of Basel Hospital, Basel, Switzerland; [2]Institut für Radiologie, Klinikum rechts der Isar, Technische Universität München

10:54 **380**. **Fast Quantitative Double Echo Steady State Diffusion Imaging**
Oliver Bieri[1], Carl Ganter[2], Klaus Scheffler[1]
[1]Department of Medical Radiology, Radiological Physics, University of Basel Hospital, Basel, Switzerland; [2]Institut für Radiologie, Klinikum rechts der Isar, Technische Universität München, Munich, Germany

11:06 **381**. **Isotropic Mapping of T_1, T_2 & M_0 with MP-DESS & Phase-Graph Data Fitting**
Tony Stoecker[1], Kaveh Vahedipour[1], Eberhard Pracht[1], Daniel Brenner[1], N. Jon Shah[1,2]
[1]Institute of Neuroscience & Medicine - 4, Forschungszentrum Juelich, Juelich, Germany; [2]Department of Neurology, Faculty of Medicine, JARA, RWTH Aachen University, Aachen, Germany

11:18 **382**. **Continuous SWIFT**
Djaudat Idiyatullin[1], Steven Suddarth[2], Curt Corum[1], Gregor Adriany[1], Michael Garwood[1]
[1]CMRR, Radiology, University of Minnesota, Minneapolis, MN, USA; [2]Agilent Technologies, Santa Clara, CA, USA

11:30 **383**. **Interferometric Techniques for Magnetic Resonance Imaging**
Kenneth Otho Johnson[1], Craig H. Meyer[1]
[1]Biomedical Engineering, University of Virginia, Charlottesville, VA, USA

11:42 **384**. **Self-Navigated Kinematic Imaging of the Knee**
Liheng Guo[1], Antonio J. Machado Segundo[2], John A. Derbyshire[3], John A. Carrino[2], Daniel A. Herzka[4]
[1]Biomedical Engineering, Johns Hopkins University, Baltimore, MD, USA; [2]Department of Radiology & Radiological Science, Johns Hopkins School of Medicine; [3]Translational Medicine Branch, DIR, NHLBI, National Institutes of Health, Bethesda, MD; [4]Department of Biomedical Engineering, Johns Hopkins School of Medicine

11:54 **385**. **Spatial Selection Through Multi-Coil Magnetic Field Shaping**
Christoph Juchem[1], Terence W. Nixon[1], Peter B. Brown[1], Scott McIntyre[1], Douglas L. Rothman[1], Robin A. de Graaf[1]
[1]MR Research Center, Yale University, New Haven, CT, USA

12:06 **386**. **SNR-Optimized Accelerated Phase-Sensitive Dual-Acquisition Signle-Slab 3D Turbo Spin Echo Imaging**
Hyunyeol Lee[1], Jin-Seok Seo[1,2], Jaeseok Park[3]
[1]Department of Medical Science, Yonsei University, Seoul, Korea, Republic of; [2]Department of Radiology , Yonsei University, Seoul, Korea, Republic of; [3]Department of Radiology, Yonsei University, Seoul, Korea, Republic of

12:18 **387**. **3D Radial bUTE**
Clemens Diwoky[1], Rudolf Stollberger[1]
[1]Institute of Medical Engineering, Graz University of Technology, Graz, Austria

Liver Fibrosis

Room 518-A-C 10:30-12:30 *Moderators:* Bachir Taouli & Bernard E.Van Beers

10:30 **388**. **Introduction**
Claude B. Sirlin

10:42 **389**. **Magnetic Resonance Elastography Measurements of Viscosity: A Novel Biomarker For Human Hepatic Tumor Malignancy?**
Sabrina Doblas[1], Philippe Garteiser[1], Nathalie Haddad[1,2], Jean-Luc Daire[1,2], Mathilde Wagner[1,2], Helena Leitao[2,3], Valérie Vilgrain[1,2], Ralph Sinkus[1], Bernard E. Van Beers[1,2]
[1]Centre de Recherche Biomédicale Bichat-Beaujon, INSERM U773, Clichy, France; [2]Department of Radiology, Beaujon University Hospital, University Paris Diderot, Clichy, France; [3]Department of Radiology, Hospitais de Universidade de Coimbra, Coimbra, Portugal

10:54 **390**. **MR Elastography of the Liver: Observations from a Review of 1,377 Exams**
Meng Yin[1], Jayant A. Talwalkar[2], Kevin J. Glaser[1], Richard L. Ehman[1]
[1]Department of Radiology, Mayo Clinic, Rochester, MN, USA; [2]Division of Gastroenterology, Mayo Clinic, Rochester, MN, USA

11:06 **391**. **Paradoxical Correlation between Mrp2 Expression & Fibrosis**
Natsuko Tsuda[1], Osamu Matsui[2]
[1]Medical Affairs , Bayer Yakuhin, Ltd., Osaka, Japan; [2]Department of Radiology, Kanazawa University Graduate School of Medical Science, Kanazawa, Ishikawa, Japan

11:18 **392**. **Macromolecular Proton Fraction Mapping of the Human Liver *In Vivo*: Technical Feasibility & Preliminary Observations in Hepatic Fibrosis**
Vasily L. Yarnykh[1], George N. Ioannou[2]
[1]Department of Radiology, University of Washington, Seattle, WA, USA; [2]Department of Medicine, University of Washington, Seattle, WA, USA

11:30 **393**. **Gadoxetic Acid-Enhanced Magnetic Resonance Imaging for Evaluation of Borderline Hepatocellular Nodules in Cirrhotic Livers**
Jeong Min Lee[1], Hyun Kyung Yang[1], joon koo han[1], Byung Ihn Choi[1]
[1]Radiology, Seoul National University Hospital, Seoul, Korea, Republic of

11:42 **394**. **Quantitative MRI of Liver Fibrosis in an Experimental Mouse Model**
April M. Chow[1,2], Darwin S. Gao[1,3], Shu Juan Fan[1,3], Gladys G. Lo[4], Siu Ki Yu[2], Ed X. Wu[1,3]
[1]Laboratory of Biomedical Imaging & Signal Processing, the University of Hong Kong, Pokfulam, Hong Kong SAR, China, People's Republic of; [2]Medical Physics & Research Department, Hong Kong Sanatorium & Hospital, Happy Valley, Hong Kong SAR, China, People's Republic of; [3]Department of Electrical & Electronic Engineering, the University of Hong Kong, Pokfulam, Hong Kong SAR, China, People's Republic of; [4]Department of Diagnostic & Interventional Radiology, Hong Kong Sanatorium & Hospital, Happy Valley, Hong Kong SAR, China, People's Republic of

11:54 **395**. **T_2 Relaxation Time As a Surrogate Marker of Liver Fibrosis**
Alexander R. Guimaraes[1,2], Luiz Siqueira[2], Giles Boland[2], Deborah Gervais[2], Michael Chew[2], Peter Hahn[2]
[1]Radiology/Massachusetts General Hospital, Martinos Center for Biomedical Imaging, Charlestown, MA, USA; [2]Radiology/Massachusetts General Hospital, Division of Abdominal Imaging & Interventional Radiology, Boston, MA, USA

12:06 **396**. **Analysis of Radially Undersampled 4D Velocity Mapping (PC VIPR) for Comprehensive Imaging in Portal Hypertension.**
Alex Frydrychowicz[1], Alejandro Roldán-Alzate[2], Ben R. Landgraf[1], Eric Niespodzany[2], Rakhee Wadhwa Verma[1], Oliver Wieben[2], Scott B. Reeder[1]
[1]Department of Radiology, University of Wisconsin - Madison, Madison, WI, USA; [2]Departments of Radiology, Medical Physics, University of Wisconsin - Madison, Madison, WI, USA

12:18 **397**. **MRI-Based Detection of the Extracellular Matrix Surrounding the Hepatic Sinusoid**
Scott Charles Beeman[1], Lawrence Mandarino[2,3], Jorge Rakela[4], Kevin Bennett[1,5]
[1]School of Biological & Health Systems Engineering, Arizona State University, Tempe, AZ, USA; [2]Department of Medicine, Mayo Clinic in Arizona, Scottsdale, AZ, USA; [3]School of Life Sciences, Arizona State University, Tempe, AZ, USA; [4]Department of Gastroenterology & Hepatology, Mayo Clinic in Arizona, Scottsdale, AZ, USA; [5]Keller Center for Imaging Innovation, Barrow Neurological Institute, Phoenix, AZ, USA

MR Imaging of the Post-Operative Joint

Room 520B-F 10:30-12:30 *Moderator:* Lawrence M. White

10:30 **Post-Operative Shoulder**
Laura M. Fayad

11:10 **Post-Operative Knee**
Lawrence M. White

11:50 **Cartilage Repair**
Carl S. Winalski

Spinal Cord Imaging & Injury

Room 710A 10:30-12:30 *Moderators:* Benjamin M. Ellingson & Massimo Filippi

10:30 **398**. **Demyelination in the Injured Human Spinal Cord Detected with Diffusion & Magnetization Transfer Imaging**
Julien Cohen-Adad[1,2], Mohamed-Mounir El Mendili[3], Stéphane Lehéricy[4], Pierre-François Pradat[5], Sophie Blancho[6], Serge Rossignol[7], Habib Benali[3]
[1]A.A. Martinos Center for Biomedical Imaging, Department of Radiology, Massachusetts General Hospital, Charlestown, MA, USA; [2]Harvard Medical School, Boston, MA, USA; [3]UMR-678, INSERM-UPMC, Pitié-Salpêtrière Hospital, Paris, France; [4]CENIR, CRICM, UPMC, UMR-S975, INSERM U975, CNRS UMR 7225, Groupe Hospitalier Pitie-Salpetriere, Paris, France; [5]Fédération des Maladies du Système Nerveux, AP-HP, Pitié-Salpêtrière Hospital, Paris, France; [6]Institut pour la Recherche sur la Moelle Epinière et l'Encéphale, France; [7]GRSNC, Faculty of Medicine, Université de Montréal, Montreal, QC, Canada

10:42 **399**. **The Role of MRI For the Evaluation of Spinal Cord Injury & Stem Cell Transplantation in Mice.**
Laura Elizabeth Gonzalez-Lara[1,2], Xiaoyun Xu, Arthur Brown[3], Paula J. Foster[1,4]
[1]Imaging Research Laboratories, Robarts Research Institute, London, ON, Canada; [2]Department of Medical Biophysics , the University of Western Ontario, London, ON, Canada; [3]Department of Anatomy & Cell Biology, the University of Western Ontario, London, ON, Canada; [4]Department of Medical Biophysics, the University of Western Ontario, London, ON, Canada

10:54 **400**. **Diffusion Tensor Imaging of the Pediatric Spinal Cord using an Inner-FoV EPI Pulse Sequence in Normals & Patients with SCI**
Nadia Barakat[1], Louis Hunter[2], Jürgen Finsterbusch[3], John Gaughan[1], Amer Samdani[2], M. J. Mulcahey[2], Randal Betz[2], Scott Faro[1], Feroze Mohamed[1]
[1]Temple University, Philadelphia, PA, USA; [2]Shriners Hospital For Children; [3]University Medical Center Hamburg-Eppendorf, Hamburg, Germany

11:06 **401**. **Medullar & Thalamic Metabolic Alterations Following Spinal Cord Injury (SCI): A Preliminary Mice Study, Combining Early & Longitudinal Follow-Ups using High-Spatially Resolved MRS & DTI At High Field**
Mohamed Tachrount[1], Guillaume Duhamel[1], André Maues de Paula[2], Jérôme Laurin[3], Tanguy Marqueste[3], Patrick Decherchi[3], Patrick J. Cozzone[1], Virginie Callot[1]
[1]Centre de Résonance Magnétique Biologique et Médicale (CRMBM, UMR 6612, CNRS), Faculté de Médecine, Université de la Méditerranée, Marseille, France; [2]Service d'Anatomie Pathologique, Hôpital de la Timone, Marseille, France; [3]Institut des Sciences du Mouvement (ISM, UMR CNRS 6233), Faculté des sciences, Université de la Méditerranée, Marseille, France

11:18 **402**. **The Treatment Impact of Minocycline On Quantitative MRI in Acute Spinal Cord Injury**
Yunyan Zhang[1], V. Wee Yong[1], R. John Hurlbert[1], Steve Casha[2]
[1]University of Calgary, Calgary, AB, Canada; [2]Dalhousie University, Halifax, Nova Scotia, Canada

11:30 **403**. **Atrophy of the Whole Cervical Cord Differs Among the Major Multiple Sclerosis Clinical Phenotypes & is Associated with Disability: A Multicenter Study**
Maria Assunta Rocca[1,2], Mark A. Horsfield[3], Stefania Sala[1], Paola Valsasina[1], J. Drulovic[4], Maria Emma Rodegher[2], Domenico Caputo[5], Massimiliano Copetti[6], T. Stosic-Opincal[7], Sarlota Mesaros[4], Giancarlo Comi[2], Massimo Filippi[1,2]
[1]Neuroimaging Research Unit, Institute of Experimental Neurology, Division of Neuroscience, Scientific Institute & University Hospital San Raffaele, Milan, Italy; [2]Department of Neurology, Scientific Institute & University Hospital San Raffaele, Milan, Italy; [3]Department of Cardiovascular Sciences, University of Leicester, Leicester, United Kingdom; [4]Institute of Neurology, Clinical Centre of Serbia, Faculty of Medicine, University of Belgrade, Belgrade; [5]Department of Neurology, Scientific Institute Fondazione Don Gnocchi, Milan, Italy; [6]Biostatistics Unit, IRCCS-Ospedale Casa Sollievo della Sofferenza, San Giovanni Rotondo, Italy; [7]Institute of Radiology, Clinical Centre of Serbia, Faculty of Medicine, University of Belgrade, Belgrade

11:42 **404**. **Diffusion Tensor Imaging in Human Cervical Spondylotic Myelopathy using a 2D RF Excitation Pulse Combined with a Reduced Field-Of-View Single-Shot Echoplanar Readout (Zoomed-EPI)**
Benjamin M. Ellingson[1], John Grinstead[2], Josef Pfeuffer[3], Thorsten Feiweier[3], Langston Holly[4], Noriko Salamon[1]
[1]Radiological Sciences, University of California Los Angeles, Los Angeles, CA, USA; [2]Siemens Healthcare, Portland, OR, USA; [3]Siemens Healthcare, Erlangen, Germany; [4]Neurosurgery, University of California Los Angeles, Los Angeles, CA, USA

11:54 **405**. **Myelin Water Measurement in the Presence of Myelin Debris**
Henry Szu-Meng Chen[1], Nathan Holmes[2], Jie Liu[2], Wolfram Tetzlaff[2], Piotr Kozlowski[1,2]
[1]UBC MRI Research Centre, Vancouver, BC, Canada; [2]ICORD, Vancouver, BC, Canada

12:06 **406**. **Non-Water Suppressed Proton MR Spectroscopy Allows Spectral Quality Improvement in the Human Cervical Spinal Cord**
Andreas Hock[1], Erin Leigh MacMillan[2], Alexander Fuchs[1], Roland Kreis[2], Peter Boesiger[1], Spyros Kollias[3], Anke Henning[1]
[1]Institute for Biomedical Engineering, University & ETH Zurich, Zurich, Switzerland; [2]Dept. of Clinical Research, University of Bern, Bern, Switzerland; [3]University Hospital of Zurich, Institute of Neuroradiology, Zurich, Switzerland

12:18 **407**. **Application of Chemical Exchange Saturation Transfer (CEST) Imaging to Examine Amide Proton Transfer (APT) in the Spinal Cord at 3T**
Adrienne N. Dula[1,2], Richard D. Dortch[1,2], Bennett A. Landman[1,3], John C. Gore[1,2], Seth A. Smith[1,2]
[1]Institute of Imaging Science, Vanderbilt University Medical Center, Nashville, TN, USA; [2]Radiology & Radiological Sciences, Vanderbilt University Medical Center, Nashville, TN, USA; [3]Electrical Engineering & Computer Science, Vanderbilt University, Nashville, TN, USA

Diffusion Tensor & Beyond

Room 710B 10:30-12:30 *Moderators:* Matthew D. Budde & Mara Cercignani

10:30 **408**. **Diffusion Tensor Spectroscopic Imaging of Rat Brains**
Yoshitaka Bito[1], Yuko Kawai[2], Koji Hirata[1], Toshihiko Ebisu[3], Toru Shirai[1], Satoshi Hirata[1], Yoshihisa Soutome[1], Hisaaki Ochi[1], Masahiro Umeda[2], Toshihiro Higuchi[4], Chuzo Tanaka[4]
[1]Central Research Laboratory, Hitachi, Ltd., Kokubunji-shi, Tokyo, Japan; [2]Medical Informatics, Meiji University of Integrative Medicine, Kyoto, Japan; [3]Neurosurgery, Nantan General Hospital, Kyoto, Japan; [4]Neurosurgery, Meiji University of Integrative Medicine, Kyoto, Japan

10:42 **409**. **Changes to the Fractional Anisotropy & Mean Diffusivity of *In Vivo* Rat Brain Measured At Short Effective Diffusion-Times**
Jeff Kershaw[1,2], Christoph Leuze[3], Takayuki Obata[1], Iwao Kanno[1], Ichio Aoki[1]
[1]Molecular Imaging Centre, National Institute of Radiological Sciences, Chiba, Japan; [2]School of Bioscience & Biotechnology, Tokyo Institute of Technology, Yokohama, Japan; [3]Department of Neurophysics, Max Planck Institute for Human Cognitive & Brain Sciences, Leipzig, Germany

10:54 **410**. **Microscopic Determinates of Anisotropy in the Injured Rodent Brain using Histological Fourier Analysis**
Matthew D. Budde[1,2], Lindsay Janes[2], Eric Gold[2], L. Christine Turtzo[2], Joseph A. Frank[1,2]
[1]Radiology & Imaging Sciences, National Institutes of Health, Bethesda, MD, USA; [2]Center for Neuroscience & Regenerative Medicine at the Uniformed Services University, Bethesda, MD, USA

11:06 **411**. **Investigation of the Diffusion Tensor's Primary Eigenvector Correspondence to Tissue Structure in MR Microscopy of the Human Spinal Cord with Direct Comparison to Histology**
Brian Hansen[1], Jeremy J. Flint[2,3], Choong Heon-Lee[3,4], Michael Fey[5], Franck Vincent[5], Michael A. King[6], Peter Vestergaard-Poulsen[1], Stephen J. Blackband[7]
[1]Center for Functionally Integrative Neuroscience (CFIN), Aarhus University, Aarhus, Denmark; [2]Department of Neuroscience, University of Florida; [3]McKnight Brain Institute, University of Florida, Gainesville, FL, USA; [4]Department of Electrical Engineering, University of Florida, Gainesville, FL, USA; [5]Bruker Biospin; [6]Department of Pharmacology & Therapeutics, University of Florida; [7]Department of Neuroscience, Center for Structural Biology & National High Magnetic Field Laboratory, University of Florida

11:18 **412**. **Surface Based Analysis of Diffusion Orientation for Identifying Architectonic Domains in the *In Vivo* Human Cortex**
Jennifer Andrea McNab[1], Jonathan R. Polimeni[1], Lawrence L. Wald[1,2]
[1]A.A. Martinos Center for Biomedical Imaging, Department of Radiology, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA; [2]Harvard-MIT Division of Health Sciences & Technology, Massachusetts Institute of Technology, Cambridge, MA, USA

11:30 **413**. **Multi-TE Diffusion Tensor Imaging *In Vivo***
Alexandru Vlad Avram[1,2], Arnaud Guidon[1,2], Chunlei Liu[2], Allen W. Song[2]
[1]Biomedical Engineering Department, Duke University, Durham, NC, USA; [2]Brain Imaging & Analysis Center, Duke University Medical Center, Durham, NC, USA

11:42 **414**. **The Sensitivities of the Phenomenological DWI Models in the Presence of Cellular Compartments**
Chu-Yu Lee[1], Josef P. Debbins[2]
[1]Electrical Engineering, Arizona State University, Tempe, AZ, USA; [2]Neuroimaging Research, Barrow Neurological Institute, Phoenix, AZ, USA

11:54 **415**. **Investigation Tissue Micro-Structure Changes in Short Term Neuro-Plasticity with Diffusion MRI**
Ido Tavor[1], Shir Hofstetter[1], Shani Ben-Amitay[1], Yaniv Assaf[1]
[1]Neurobiology, Tel Aviv University, Tel Aviv, Israel

12:06 **416**. **A Hybrid Diffusion Imaging Atlas in Q-space**
Thijs Dhollander[1,2], Wim Van Hecke[1,3], Frederik Maes[1,2], Stefan Sunaert[1,3], Paul Suetens[1,2]
[1]Medical Imaging Research Center (MIRC), K.U.Leuven, Leuven, Belgium; [2]Department of Electrical Engineering (ESAT), K.U.Leuven, Leuven, Belgium; [3]Department of Radiology, University Hospitals of the K.U.Leuven, Leuven, Belgium

12:18 **417**. **Whole-Brain, Multi-Shot, Diffusion-Weighted Imaging in Humans at 7T with 1 mm Isotropic Resolution**
Robin Martin Heidemann[1], David A. Porter[2], Alfred Anwander[1], Thorsten Feiweier[2], Fernando Calamante[3], Jaques-Donald Tournier[3], Gabriele Lohmann[1], Heiko Meyer[2], Thomas R. Knösche[1], Robert Turner[1]
[1]Max Planck Institute for Human Cognitive & Brain Sciences, Leipzig, Germany; [2]Siemens Healthcare, Erlangen, Germany; [3]Brain Research Institute, Melbourne, Australia

Gold Corporate Member Lunchtime Symposium
Philips

Room Plenary Hall 12:30-13:30

Hands-On Workshop 2
Body & Cardiovascular Protocol Optimization
GE Healthcare

Room 520A-D 13:30-15:30

Hands-On Workshop 2
Body & Cardiovascular Protocol Optimization
Siemens

Room 515A-C 13:30-15:30

Clinical Intensive Course
Intracranial & Spine Infections

Room 510 13:30-15:30 *Moderators:* Walter Kucharczyk & Raili K. Raininko

13:30 **Changing Trends in Infectious Agents**
Gregory A. Storch

13:55 **Prion Disease**
Walter Kucharczyk

14:35 **Bacterial Infections of Brain & Spine**
Majda M. Thurnher

Clinical Intensive Course
Breast MRI

Room 516A-C 13:30-15:30 *Moderators*: Fiona J. Gilbert & Margaret A. Hall-Craggs

13:30 **Imaging of the Dense Breast**
Fiona J. Gilbert

14:15 **Lymph Node Imaging: A Clinical Perspective**
Michael Douek

14:45 **Breast Masses: A Case-Based Approach**
Fiona J. Gilbert

Clinical Intensive Course
Combined MRI

Room 520B-F 13:30-15:30

13:30 **MRI/PET**
A. Gregory Sorensen

14:10 **MRI/HIFU**
Kullervo Hynynen

14:50 **MRI/EEG**
Jean Gotman

Cardiovascular MRI - Exploring the Boundaries Part 2: Ultra-High Field Cardiovascular MRI

Room 512A-G 13:30-15:30 *Moderators*: Thoralf Niendorf & Matthias Stuber

13:30 **Clinical Opportunities & Technical Challenges**
Albert de Roos

13:50 **RF Coil Technology & MR Methodology**
Mark E. Ladd

14:10 **Cardiac MR at 7T**
Jeanette Schulz-Menger

14:30 **Coronary MRA at 7T**
Matthias Stuber

14:50 **Non-Contrast Enhanced Renal MRA at 7T**
Gregory J. Metzger

15:10 **Future Directions**
Thoralf Niendorf

Brittle Bones & Stiff Disks

Room 710A 13:30-15:30 *Moderators:* Laura M. Fayad & Roland Krug

13:30 **418**. **Morphologic & Quantitative Mapping of Biological Disc Contructs in a Rat Tail Model**
Sarah Pownder[1], Matthew F. Koff[1], Andrew James[2], Harry H. Gebhard[2], Roger Hartl[2], Robby D. Bowles[3], Lawrence J. Bonassar[3], Hollis G. Potter[1]
[1]Department of Radiolgy & Imaging - MRI, Hospital for Special Surgery, New York, NY, USA; [2]Department of Neurological Surgery, Weill Cornell Brain & Spine Center; [3]Department of Biomedical Engineering, Cornell University

13:42 **419**. ***In Vivo* T_2 & T_1rho Mapping of Rabbit Disc using Spin-Lock Sequence at 3T**
Chan Hong Moon[1], Lloydine Jacobs[2,3], Jung-Hwan Kim[1], Xiang He[1], James Kang[2,3], Kyongtae Ty Bae[1]
[1]Radiology, University of Pittsburgh, Pittsburgh, PA, USA; [2]Orthopaedic Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA; [3]Ferguson Laboratory for Orthopaedic & Spine Research

13:54 **420**. **Improving Predictability of Painful Discs by using T_1ρ MRI & Disc Height**
Rachelle Berger[1], Matthew Fenty[2], Bryan Fry[1], Philip M. Maurer[3], Dawn M. Elliott[4], Ari Borthakur[2]
[1]Department of Biochemistry & Molecular Biophysics, University of Pennsylvania School of Medicine, Philadelphia, PA, USA; [2]CMROI, Department of Radiology, University of Pennsylvania School of Medicine, Philadelphia, PA, USA; [3]3B Orthopaedics, Philadelphia, PA, USA; [4]McKay Orthopaedic Lab, Department of Orthopaedic Surgery, University of Pennsylvania School of Medicine, Philadelphia, PA, USA

14:06 **421**. ***In Vivo* Sodium MRI of Intervertebral Disc At 7T**
Chenyang Wang[1,2], Mark Elliott[3], Thomas Connick[3], Walter Witshcey[3], Joseph Calabro[4], Ari Borthakur[3], Ravinder Reddy[3]
[1]School of Medicine, Yale University, New Haven, CT, USA; [2]Bioengineering, University of Pennsylvania, Philadelphia, PA, USA; [3]Radiology, University of Pennsylvania, Philadelphia, PA, USA; [4]Siemens Medical Solutions, USA

14:18 **422**. **Association between Spinal Disc Degeneration & Deficits in Endplate Perfusion**
L. Tugan Muftuler[1], Yen K. Hong[2], Hon J. Yu[1], Vance O. Gardner[3], Anton N. Hasso[4], Nitin N. Bhatia[5]
[1]Center for Functional Onco-imaging, University of California, Irvine, CA, USA; [2]Microbiology & Molecular Genetics, University of California; [3]Orthopaedic Education & Research Institute, Orange, CA; [4]Radiological Sciences, University of California, Irvine, CA; [5]Orthopaedic Surgery, University of California, Irvine, CA

14:30 **423**. **MR Imaging After Spinal Fusion using Slice Encoding For Metal Artifact Correction (SEMAC)**
Kathryn Jane Stevens[1], Pauline W. Worters[1], Garry Evan Gold[1], Jarrett K. Rosenberg[1], Brian A. Hargreaves[1]
[1]Department of Radiology, Stanford University Medical Center, Stanford, CA, USA

14:42 **424**. **Trabecular Bone Elastic Properties Depend On µMRI-Derived Measures of Bone Volume Fraction & Fabric**
Michael J. Wald[1], Chamith S. Rajapakse[1], Jeremy F. Magland[1], Felix W. Wehrli[1]
[1]Laboratory for Structural NMR Imaging, Department of Radiology, University of Pennsylvania, Philadelphia, PA, USA

14:54 **425**. **Quantification of Bone Marrow Types from High-Resolution MR Images in the Proximal Femur using Three Class Clustering**
Jenny Folkesson[1], Julio Carballido-Gamio[2], Dimitrios C. Karampinos[1], Thomas Baum[1], Thomas M. Link[1], Sharmila Majumdar[1], Roland Krug[1]
[1]Radiology & Biomedical Imaging, University of California, San Francisco, CA, USA; [2]Grupo Tecnologico Santa Fe, Mexico City, Mexico

15:06 **426**. **Initial Results from Baseline Structural & Computational Biomechanics µMRI Study in Postmenopausal Women**
Yusuf A. Bhagat[1], Chamith S. Rajapakse[1], Jeremy F. Magland[1], Michael J. Wald[1], Theresa M. Scattergood[2], Peter J. Snyder[2], Felix W. Wehrli[1]
[1]Laboratory for Structural NMR Imaging, University of Pennsylvania, Philadelphia, PA, USA; [2]Division of Endocrinology, Diabetes & Metabolism, University of Pennsylvania, Philadelphia, PA, USA

15:18 **427**. ***In Vivo* ^{31}P Solid State MRI of Human Wrists: Short-T_2 MRI using the Scanner ^{1}H Channel<**
Jerome L. Ackerman[1,2], Yaotang Wu[2,3], Timothy G. Reese[1,2], Haihui Cao[2,3], Mirko I. Hrovat[4], Steven P. Toddes[5], Rostislav A. Lemdiasov[5]
[1]Martinos Center, Department of Radiology, Massachusetts General Hospital, Charlestown, MA, USA; [2]Harvard Medical School, Boston, MA, USA; [3]Department of Orthopedic Surgery, Children's Hospital, Boston, MA, USA; [4]Mirtech, Inc., Brockton, MA; [5]InsightMRI, Inc., Leominster, MA, USA

Clinical Intensive Course
MR Physics & Techniques for Clinicians

Room 516A-C 16:00-18:00

16:00 **Ultrafast Imaging**
Pauline Wong Worters

16:40 **Parallel Imaging**
Stefan O. Schönberg

17:20 **High Field Imaging**
Gunnar Krueger

Functional Connectivity: Mechanisms & Applications

Room 510 16:00-18:00 *Moderators:* Catherine E. Chang & Richard G. Wise

16:00 **428**. **White Matter Cerebral Blood Flow is Inversely Correlated with Structural & Functional Connectivity in the Human Brain**
Sina Aslan[1,2], Hao Huang[1,2], Jinsoo Uh[1], Virendra Mishra[1,2], Guanghua Xiao[3], Matthias van Osch[4], Hanzhang Lu[1,2]
[1]Advanced Imaging Research Center, University of Texas at Southwestern Medical Center, Dallas, TX, USA; [2]Biomedical Engineering Graduate Program, University of Texas at Southwestern Medical Center, Dallas, TX, USA; [3]Division of Biostatistics, Department of Clinical Sciences, University of Texas at Southwestern Medical Center, Dallas, TX, USA; [4]Department of Radiology, Leiden University Medical Center, Leiden, Netherlands

16:12 **429**. **Forty Weeks of Rest: An Investigation into Functional Network Stability**
Suresh Emmanuel Joel[1,2], Craig K. Jones[1,2], Brian S. Caffo[3], Peter C. M. van Zijl[1,2], James J. Pekar[1,2]
[1]Radiology, Johns Hopkins University, Baltimore, MD, USA; [2]FM Kirby Research Center for Functional Brain Imaging, Kennedy Krieger Institute, Baltimore, MD, USA; [3]Biostatistics, Johns Hopkins University, Baltimore, MD, USA

16:24 **430**. **Symmetry of Resting-State Functional Connectivity in fMRI: High Correlation Across Hemispheres Exists with or without Callosal Connection**
Hang Joon Jo[1], Ziad S. Saad[1], Steve J. Gotts[2], Richard C. Reynolds[1], Patricia Christidis[1], Daniel R. Glen[1], Alex Martin[2], Robert W. Cox[1]
[1]Statistical & Scientific Computing Core, National Institute of Mental Health, National Institutes of Health, Bethesda, MD, USA; [2]Cognitive Neuropsychology Section, Laboratory of Brain & Cognition, National Institute of Mental Health, National Institutes of Health, Bethesda, MD, USA

16:36 **431**. **BOLD Resting State Networks in Adults with Complete Callosal Agenesis**
Julian Michael Tyszka[1], Lynn K. Paul[2], Ralph Adolphs[1,2]
[1]Biology, California Institute of Technology, Pasadena, CA, USA; [2]Humanities & Social Sciences, California Institute of Technology, Pasadena, CA, USA

16:48 **432**. **Investigating the Dependence of Spontaneous Fluctuations in Visual Cortex on Callosal Connectivity**
Li-Wei Kuo[1], Zhongming Liu[1], Jacco A. de Zwart[1], Peter van Gelderen[1], Jeff H. Duyn[1]
[1]Advanced MRI section, LFMI, NINDS, National Institutes of Health, Bethesda, MD, USA

17:00 **433**. **Caffeine Causes Widespread Decreases in Resting-State BOLD Connectivity & Energy**
Chi Wah Wong[1], Valur Olafsson[1], Omer Tal[1], Thomas T. Liu[1]
[1]Center for Functional MRI, University of California San Diego, La Jolla, CA, USA

17:12 **434**. **Differential Effects of Opioid Analgesics on Functional Connectivity of Cortical-Subcortical Networks in Humans**
Richard G. Wise[1], Anna Jolly[2], Kevin Murphy[1], C. John Evans[1], Judith E. Hall[2]
[1]CUBRIC, School of Psychology, Cardiff University, Cardiff, S. Glamorgan, United Kingdom; [2]Department of Anaesthetics & Intensive Care Medicine, School of Medicine, Cardiff University, Cardiff, S. Glamorgan, United Kingdom

17:24 **435**. **Prediction of Age using Resting-State Functional & Effective Connectivity**
Zhihao Li[1], John A. Sexton[1], Gopikrishna Deshpande[2], Xiaoping Hu[1]
[1]Biomedical Engineering, Emory University & Georgia Institute of Technology, Atlanta, GA, USA; [2]Electrical & Computer Engineering, Auburn University, Auburn, AL, USA

17:36 **436**. **Left Lateralization of Motor Circuit Connectivity is Associated with Better Motor Performance in Children**
Anita Dyan Barber[1,2], Suresh E. Joel[1], Priti Srinivasan[2], Simona Spinelli[2], Jim J. Pekar[1,2], Stewart H. Mostofsky[1,2]
[1]Johns Hopkins School of Medicine, Baltimore, MD, USA; [2]Kennedy Krieger Institute, Baltimore, MD, USA

17:48 **437**. **Functional Connectivity MRI Reveals Memory Networks After Maze Learning in Rodents**
Fatima Ali Nasrallah[1], Chen Yow Der-Yow[2], Aryeh Routtenberg[3], Kai-Hsiang Chuang
[1]Lab of Molecular Imaging, A*Star Biomedical Research Institutes, Buona Vista, Singapore, Singapore; [2]NIH, NINDS; [3]Northwestern University

Renal Function - BOLD

Room 511A-C 16:00-18:00 *Moderators:* Hersh Chandarana & Vivian S. Lee

16:00 **438**. **Introduction**
Diego R. Martin

16:12 **439**. **Assessment of Rhabdomyolysis-Induced Acute Kidney Injury (AKI) in Mice using Hemodynamic Response Imaging (HRI)**
Zohar Milman[1], Jonathan Axelrod[1], Samuel Heyman[2], Nathalie Corchia[1], Rinat Abramovitch[1]
[1]The Goldyne Savad Institute for Gene Therapy, Hadassah Hebrew University Medical Center, Jerusalem, Israel; [2]Medicine, Hadassah Hebrew University Medical Center, Jerusalem, Israel

16:24 **440**. **Intra-Renal Oxygenation in Radio-Contrast Nephropathy Model by BOLD MRI: Effect of the Dose & Viscosity**
Lu-Ping Li[1], Tammy Franklin[2], Joann Carbray[2], Maria Papadopulou-Rosenzweig[3], Richard Solomon[4], Pottumarthi V. Prasad[1]
[1]Radiology / Center for Advanced Imaging, Northshore University Healthsystem, Evanston, IL, USA; [2]Radiology / Center for Advanced Imaging, Northshore University Healthsystem, Evanston, IL , USA; [3]Radiation Medicine, Northshore University Healthsystem, Evanston, IL , USA; [4]Nephrology, University of Vermont, Burlington, VT , USA

16:36 **441**. **Renal BOLD-MRI Does Not Reflect Renal Function: A Prospective Study in 368 Patients**
Henrik J. Michaely[1], Linda Metzger[1], Ulrike I. Attenberger[1], Stefan Haneder[1], Stefan O. Schoenberg[1]
[1]University Medical Center Mannheim, Mannheim, BaWue, Germany

16:48 **442**. **Establishment of a Renal Oxygen Transit Model Based on BOLD MRI**
Jeff Lei Zhang[1], Lizette Warner[2], Henry Rusinek[1], Hersh Chandarana[1], Pippa Storey[1], Eric E. Sigmund[1], Qun Chen[1], Lilach O. Lerman[3], Vivian S. Lee[1]
[1]Department of Radiology, New York University, New York, NY, USA; [2]MR Development, Methods & Applications Software, Philips Healthcare, Highland Hts, OH, USA; [3]Division of Nephrology & Hypertension, Mayo Clinic, Rochester, MN, USA

17:00 **443**. **Measuring Whole Kidney Nephron Endowment using MRI**
Scott Charles Beeman[1], Min Zhang[2], Lina Gubhaju[3], David Frakes[1,2], John Bertram[3], Teresa Wu[2], Kevin Bennett[1]
[1]School of Biological & Health Systems Engineering, Arizona State University, Tempe, AZ, USA; [2]School of Electrical, Computer & Energy Engineering, Arizona State University, Tempe, AZ, USA; [3]Department of Anatomy & Developmental Biology, Monash University, Melbourne, Victoria, Australia

17:12 **444**. **Follow-up of Living Kidney Donors After Transplantation by DWI reveals Compensatory Changes in the Remaining Kidney.**
Peter Vermathen[1], Tobias Binser[1], Harriet C. Thoeny[2], Chris Boesch[1], Felix J. Frey[3], Ute Eisenberger[3]
[1]Dept. of Clinical Research, University of Bern, Bern, Switzerland; [2]Dept. of Radiology, University & Inselspital, Bern, Switzerland; [3]Dept. of Nephrology, University & Inselspital, Bern, Switzerland

17:24 **445**. **Measurement of Single-Kidney Glomerular Filtration Rate (GFR) by Arterial Spin Labeling**
Xiang He[1], Kyongtae Ty Bae[1]
[1]Department of Radiology, University of Pittsburgh, Pittsburgh, PA, USA

17:36 **446**. **Diffusion Tensor Imaging (DTI) & Tractography for Assessment of Renal Allograft Dysfunction**
Katja Hueper[1], Marcel Gutberlet[1], Dagmar Hartung[1], Frank Lehner[2], Wilfried Gwinner[3], Xiaoqi Ding[4], Michael Galanski
[1]Radiology, Hannover Medical School, Hannover, Germany; [2]General, Abdominal & Transplant Surgery, Hannover Medical School; [3]Nephrology, Hannover Medical School; [4]Neuroradiology, Hannover Medical School

17:48 **447**. **Renal Perfusion Measured Pre- & Post-Transplantation with ASL MRI in Donor-Recipient Pairs**
Nathan S. Artz[1], Elizabeth A. Sadowski[2], David J. Niles[1], Karl K. Vigen[1], Andrew L. Wentland[1], Arjang Djamali[3], Thomas M. Grist[1,2], Sean B. Fain[1,2]
[1]Medical Physics, University of Wisconsin, Madison, WI, USA; [2]Radiology, University of Wisconsin, Madison, WI, USA; [3]Nephrology, University of Wisconsin, Madison, WI, USA

Targeted Molecular Imaging

Room 511D-F 16:00-18:00 *Moderators:* Peter Caravan & Angelique Louie

16:00 **448**. **Theranostic Imaging of Metastatic Prostate Cancer**
Zhihang Chen[1], Marie-France Penet[1], Sridhar Nimmagadda[1], Cong Li[1], Sangeeta Ray[1], Paul T. Winnard Jr.[1], Dmitri Artemov[1], Kristine Glunde[1], Martin G. Pomper[1], Zaver M. Bhujwalla[1]
[1]JHU ICMIC Program, Russell H. Morgan Department of Radiology & Radiological Science, The Johns Hopkins University School of Medicine, Baltimore, MD, USA

16:12 **449**. **Positive Contrast for Imaging of Receptor Targeted Magnetic Nanoparticles in the Orthotopic Pancreatic Cancer Xenograft Model using Ultrashort Echo Time MRI**
Liya Wang[1,2], Xiaodong Zhong[3], Weiping Qian[4], Hongwei Chen[1,2], Lily Yang[4], Hui Mao[1,2]
[1]Radiology, Emory University School of Medicine, Atlanta, GA, USA; [2]Center for Systems Imaging, Emory University, Atlanta, GA, USA; [3]MR R&D Collaborations, Siemens Healthcare, Atlanta, GA, USA; [4]Surgery, Emory University School of Medicine, Atlanta, GA, USA

16:24 **450**. **MR Imaging Guided NCT by a Dual Gd/B Agent Targeted to Tumor Cells via Upregulated LDL Transporters.**
Simonetta Geninatti-Crich[1], Diego Alberti[1], Ibolya Szabo[1], Antonio Toppino[2], Annamaria Deagostino[2], Paolo Venturello[2], Nicoletta Protti[3], Silva Bortolussi[3], Saverio Altieri[3], Silvio Aime[1]
[1]University of Torino, Torino, Italy; [2]University of Torino, Italy; [3]University of Pavia, Italy

16:36 **451**. **Multimodal Molecular Imaging of Angiogenesis in a Mouse Model of Melanoma**
Giselle Alexandra Suero Abreu[1], Benjamin B. Bartelle[1], Orlando Aristizábal[1], Edward J. Houston[2], Daniel H. Turnbull[2,3]
[1] Skirbal Institute of Biomolecular Medicine, NYU School of Medicine, New York, USA; [2]Skirbal Institute of Biomolecular Medicine, NYU School of Medicine, New York, USA; [3]Radiology Department, NYU School of Medicine, New York, NY, USA

16:48 **452**. **Direct Protein Imaging of Inflammation in the Human Hand**
Jamu K. Alford[1], A. Gregory Sorensen[1], Thomas Benner[1], Blaine A. Chronik[2], William Bradfield Handler[2], Timothy J. Scholl[3], Gunjan Madan[4], Peter Caravan[1]
[1]Radiology, A. A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Charlestown, MA, USA; [2]Physics & Astronomy, The University of Western Ontario, London, ON, Canada; [3]Department of Medical Biophysics, The University of Western Ontario, London, ON, Canada; [4]Siemens Medical Solutions Inc., Malvern, PA, USA

17:00 **453**. **Molecular MRI of Liver Fibrosis by Fibrin-Fibronectin Targeted Contrast Agent in an Experimental Mouse Model**
April M. Chow[1,2], Mingqian Tan[3], Darwin S. Gao[1,4], Shu Juan Fan[1,4], Jerry S. Cheung[1,4], Kwan Man[5], Zheng-Rong Lu[3], Ed X. Wu[1,4]
[1]Laboratory of Biomedical Imaging & Signal Processing, The University of Hong Kong, Pokfulam, Hong Kong SAR, China, People's Republic of; [2]Medical Physics & Research Department, Hong Kong Sanatorium & Hospital, Happy Valley, Hong Kong SAR, China, People's Republic of; [3]Department of Biomedical Engineering, Case Western Reserve University, Cleveland, OH, USA; [4]Department of Electrical & Electronic Engineering, The University of Hong Kong, Pokfulam, Hong Kong SAR, China, People's Republic of; [5]Department of Surgery, The University of Hong Kong, Pokfulam, Hong Kong SAR, China, People's Republic of

17:12 **454**. ***In Vivo* Dynamic Contrast Enhanced MRI of Novel Contrast Agents Targeted to the Estrogen Receptor**
Adi Pais[1], Gunanathan Chidambaram[2], Inbal Biton[3], Raanan Margalit[1], David Milstein[2], Hadassa Degani[1]
[1]Biological Regulation, Weizmann Institute of Science, Rehovot, Israel; [2]Organic Chemistry, Weizmann Institute of Science, Rehovot, Israel; [3]Veterinary Resources, Weizmann Institute of Science, Rehovot, Israel

17:24 **455**. **MRI with Magnetic Nanoparticles Serves As a Biomarker For the Inflammation Associated with the Early, Insulitic Phase of Type I Diabetes**
Alexander R. Guimaraes[1,2], Jason L. Gaglia[3,4], Mukesh G. Harisinghani[2], Christophe Benoist[3,4], Diane Mathis[3,4], Ralph Weissleder[1]
[1]Center for Systems Biology, Boston, MA, USA; [2]Radiology/Massachusetts General Hospital, Division of Abdominal Imaging & Interventional Radiology, Boston, MA, USA; [3]Pathology, Harvard Medical School, Boston, MA, USA; [4]Section on Immunology & Immunogenetics, Joslin Diabetes Center, Boston, MA, USA

17:36 **456**. **MRI of Cells & Mice At 1 & 7Tesla with Gd-Targeting Agents: When the Low Field is Better!**
Simonetta Geninatti-Crich[1], Diego Alberti[1], Ibolya Szabo[1], Dario Longo[1], Silvio Aime[1]
[1]University of Torino, Torino, Italy

17:48 **457**. **Enhanced Relaxivity of Hydroxyapatite-Targeted Gadolinium Contrast Agents**
Jonathan Marmurek[1,2], Khaled Nasr[3], Elena Vinogradov[2], Ananth J. Madhuranthakam[4], John V. Frangioni[3], Robert E. Lenkinski[2]
[1]Harvard-MIT Division of Health Sciences & Technology, Cambridge, MA, USA; [2]Radiology, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, USA; [3]Hematology & Oncology, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, USA; [4]Global Applied Science Laboratory, GE Healthcare, Boston, MA, USA

Stroke - Clinical Studies

Room 512A-G 16:00-18:00 *Moderators:* Jeffry R. Alger & Charlotte Rosso

16:00 **458**. **Ischemic Penumbra in Acute MCA Stroke: Comparison of the PWI-DWI Mismatch & the ADC-Based NEURINFARCT Methods**
Aurelie Drier[1,2], Thomas Tourdias[3], Igor Sibon[4], Yohan Attal[5], Gurkan Mutlu[6], Stéphane Lehéricy[1,2], Yves Samson[6], Jacques Chiras[1], Didier Dormont[1], Jean-Marc Orgogozo[4], Vincent Dousset[3], Charlotte Rosso[6]
[1]Neuroradiology, Pitié Salpêtrière Hospital, Paris, France; [2]Centre de NeuroImagerie de Recherche - CENIR,CRICM U795, Paris, France; [3]Neuroradiology, CHU Pellegrin, Bordeaux, France; [4]Neurology, CHU Pellegrin, Bordeaux, France; [5]CRICM, CNRS, UMR7225 équipe NEMESIS, Paris, France; [6]Urgences cérébro-vasculaires, Pitié Salpêtrière Hospital, Paris, France

16:12 **459**. **Bolus Delay & Dispersion in Predictor Models in Acute Stroke**
Lisa Willats[1], Alan Connelly[1,2], Soren Christensen[3,4], Geoffrey Donnan[2,5], Stephen Davis[4,6], Fernando Calamante[1,2]
[1]Brain Research Institute, Florey Neuroscience Institutes , Melbourne, Australia; [2]Department of Medicine, University of Melbourne, Australia; [3]Department of Radiology, University of Melbourne, Australia; [4]Royal Melbourne Hospital, Melbourne, Australia; [5]Florey Neuroscience Institutes, Melbourne, Australia; [6]Department of Neurology, University of Melbourne, Australia

16:24 **460**. **Comparison of Pseudo-Continuous Arterial Spin-Labeled & Dynamic Susceptibility Contrast Enhanced Perfusion Imaging in Acute Ischemic Stroke**
Danny J. J. Wang[1], David S. Liebeskind[1], Qing Hao[1], Joe X. Qiao[2], Rana Fiazv[1], Matthias Gunther[3,4], Whitney B. Pope[2], Samuel Hou[2], Lirong Yan[1], Jeffrey L. Saver[1], Noriko Salamon[2], Jeffry R. Alger[1,2]
[1]Neurology, UCLA, Los Angeles, CA, USA; [2]Radiology, UCLA, Los Angeles, CA, USA; [3]Faculty of Physics & Electronics, University of Bremen, Bremen, Germany; [4]Fraunhofer MEVIS-Institute for Medical Image Computing, Bremen, Germany

16:36 **461**. **Reversal of Abnormal ADC Lags Reperfusion & Does Not Necessarily Represent Tissue Salvage**
Hongyu An[1], Andria L. Ford[2], Katie D. Vo[3], William J. Powers[4], Jin-Moo Lee[2], Weili Lin[1]
[1]Radiology, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA; [2]Neurology, Washington University in St. Louis, St. Louis, MO, USA; [3]Radiology, Washington University in St. Louis, St. Louis, MO, USA; [4]Neurology, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

16:48 **462**. **Consequences of Multi-Echo Fits in Perfusion MRI for the Determination of MTT in Presence of T_1-Effects.**
Matus Straka[1], Heiko Schmiedeskamp[1], Greg Zaharchuk[1], Jalal B. Andre[1], Jean-Marc Olivot[2], Nancy J. Fischbein[1], Maarten G. Lansberg[2], Michael E. Moseley[1], Gregory W. Albers[2], Roland Bammer[1]
[1]Radiology, Stanford University, Stanford, CA, USA; [2]Stanford Stroke Center, Stanford University, Stanford, CA, USA

17:00 **463**. **Operatively Defined Ischemic Core, Penumbra & Oligemia in Human Acute Stroke using Sequential MR Perfusion Images**
Hongyu An[1], Andria L. Ford[2], Cihat Eldeniz[1], Yang Yang[1], Yasheng Chen[1], Katie D. Vo[3], William J. Powers[4], Jin-Moo Lee[2], Weili Lin[1]
[1]Radiology, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA; [2]Neurology, Washington University in St. Louis, St. Louis, MO, USA; [3]Radiology, Washington University in St. Louis, St. Louis, MO, USA; [4]Neurology, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

17:12 **464**. **Cerebrovascular Reactivity Measured with Arterial Spin Labeling MRI in the Caudate Nucleus, Lentiform Nucleus & Thalamus in Patients with Steno-Occlusive Internal Carotid Artery Disease**
Nolan S. Hartkamp[1], R. P. H. Bokkers[1], H. B. van der Worp[2], M. J. P. van Osch[3], J. Hendrikse[1]
[1]Radiology, UMC Utrecht, Utrecht, Netherlands; [2]Neurology, UMC Utrecht, Utrecht, Netherlands; [3]C. J. Gorter Center, Leiden UMC, Leiden, Netherlands

17:24 **465**. **Whole-brain Arterial Spin Labeling Perfusion MR Imaging in Patients with Acute Stroke**
Reinoud P. H. Bokkers[1], Steven Warach[2], Daymara Hernandez[2], Matthias J. van Osch[3], Jeroen Hendrikse[1], Raymond V. Mirasol[2], José G. Merino[2], Lawrence L. Latour[2]
[1]Department of Radiology, UMCU, Utrecht, Netherlands; [2]Section of Stroke Diagnostics & Therapeutics, NINDS, NIH, Bethesda, MD, USA; [3]C. J. Gorter Institute for High Field MRI, LUMC, Leiden, Netherlands

17:36 **466**. **An Automated Tool for Prediction of Secondary Hemorrhage in Stroke.**
Matus Straka[1], Bruce C. Campbell[2], Maarten G. Lansberg[3], Greg Zaharchuk[1], Michael Mlynash[3], Stephanie M. Kemp[3], Demi Thai[3], Gregory W. Albers[3], Roland Bammer[1]
[1]Radiology, Stanford University, Stanford, CA, USA; [2]Neurology, Royal Melbourne Hospital, Melbourne, Australia; [3]Stanford Stroke Center, Stanford University, Stanford, CA, USA

17:48 **467**. **Carotid Atherosclerotic Lesion Distribution in Patients with Cerebrovascular Events: A 3.0 Tesla Magnetic Resonance Vessel Wall Imaging Study using Three-dimensional, Isotropic, Fast Sequence with Large Coverage**
Xihai Zhao[1], Niranjan Balu[2], Jinnan Wang[3], Huilin Zhao[4], Jianrong Xu[4], Chun Yuan[1,2]
[1]Department of Biomedical Engineering & Center for Biomedical Imaging Research, School of Medicine, Tsinghua University, Beijing, China, People's Republic of; [2]Department of Radiology, University of Washington, Seattle, WA, USA; [3]Philips Research North America, Briarcliff Manor, NY, USA; [4]Department of Radiology, Renji Hospital, Shanghai Jiao Tong University, Shanghai, China, People's Republic of

Non-Proton MRI

Room 513A-D 16:00-18:00 *Moderators:* Christian Beaulieu & Nadim J. Shah

16:00 **468**. **Potential of Relaxation-Weighted ^{23}Na-MRI for Brain Tumor Characterization**
Armin Michael Nagel[1], Michael Bock[1], Christian Hartmann[2], Lars Gerigk[1], Jan-Oliver Neumann[2], Marc-André Weber[2], Martin Bendszus[2], Alexander Radbruch[2], Wolfgang Wick[2], Heinz-Peter Schlemmer[1], Wolfhard Semmler[1], Armin Biller[2]
[1]German Cancer Research Center, Heidelberg, Germany; [2]University Hospital Heidelberg, Germany

16:12 **469**. **Brain Lithium & Sodium Concentration in Lithium-Treated Euthymic Bipolar Disorder Subjects**
Fernando Emilio Boada[1], Mary Phillips[2], Yongxian Qian[3], David Kupfer[2]
[1]Radiology & Bioengineering, University of Pittsburgh, Pittsburgh, PA, USA; [2]Psychiatry, University of Pittsburgh, Pittsburgh, PA, USA; [3]Radiology, University of Pittsburgh, Pittsburgh, PA, USA

16:24 **470**. **Temporal Water Mobility & Sodium Intensity Measurements in Penumbra & Core Tissue During Acute Stroke**
Friedrich Wetterling[1,2], Lindsay Gallagher[3], William Holmes[3], I. Mhairi MacRae[3], Andrew J. Fagan[1,4]
[1]School of Physics, University of Dublin, Dublin, Ireland; [2]Computer Assisted Clinical Medicine, Heidelberg University, Mannheim, Germany; [3]Glasgow Experimental MRI Centre, University of Glasgow, Glasgow, United Kingdom; [4]Centre for Advanced Medical Imaging, St. James's Hospital, Dublin, Ireland

16:36 **471**. **A Dual Resonator System For Whole-Body Sodium-MRI At 3T**
Friedrich Wetterling[1], Andre Rennings[2], Raffi Kalayciyan[1], Dominique M. Corteville[1], Simon Konstandin[1], Lothar R. Schad[1]
[1]Computer Assisted Clinical Medicine, Heidelberg University, Mannheim, Germany; [2]General & Theoretical Electrical Engineering, University of Duisburg-Essen, Duisburg, Germany

16:48 **472**. **A 30-Channel Phased Array for Oxygen-17 (^{17}O) Brain MRI at 7 Tesla**
Florian Martin Meise[1], Jens Groebner[1], Armin M. Nagel[1], Reiner Umathum[1], Helmut Stark[2], Stefan H. Hoffmann[1], Wolfhard Semmler[1], Michael Bock[1]
[1]Medical Physics in Radiology, German Cancer Research Center (DKFZ), Heidelberg, Germany; [2]Stark Contrast GmbH - MR Coils Research, Erlangen, Germany

17:00 **473**. ***In Vivo* Relaxation Parameters of Oxygen-17 (^{17}O)**
Stefan H. Hoffmann[1], Armin M. Nagel[1], Florian M. Meise[1], Reiner Umathum[1], Michael Bock[1]
[1]Medical Physics in Radiology, German Cancer Research Center (DKFZ), Heidelberg, Germany

17:12 **474**. **Exploring the New Utility of the ^{17}O-MRS Imaging Technique for Studying $CMRO_2$ & Perfusion in Stroke Mice**
Xiao-Hong Zhu[1], James Chen[2], Tsang-Wei Tu[2], Wei Chen[1], Sheng-Kwei Song[2]
[1]Center for Magnetic Resonance Research, Department of Radiology, University of Minnesota, Minneapolis, MN, 55455, USA; [2]Department of Radiology, Washington University School of Medicine, St Louis, MO 63110, USA, USA

17:24 **475**. **Echo-based Single Point Imaging: A Novel Pulsed EPR Imaging Modality for High Spatial & Spectral Resolution for *In Vivo* Quantitative Oximetry**
Sankaran Subramanian[1], Nallathamby Devasahayam[1], Shingo Matsumoto[1], Murali C. Krishna[1]
[1]National Cancer Institute, National Institute of Health, Bethesda, MD, USA

17:36 **476**. **Rapid *In Vivo* Quantification of Oxygen Concentration in Blood Flow with a Fluorine Nanoparticle Reporter & a Novel Blood Enhanced Saturation Recovery (BESR) Sequence**
Lingzhi Hu[1], Junjie Chen[1], Shelton D. Caruthers[1], Gregory M. Lanza[1], Samuel A. Wickline[1]
[1]Washington University, St. Louis, MO, USA

17:48 **477**. ***In-Vivo* ^{19}F Imaging of 5-Fluorouracil & its Metabolites in Rat by Two-Element Phased-Array Coil**
Yosuke Otake[1], Koji Hirata[1], Yoshihisa Soutome[1], Yoshitaka Bito[1]
[1]Hitachi, Ltd., Central Resaerch Laboratory, Kokubunji, Tokyo, Japan

Parallel Imaging

Room 518-A-C 16:00-18:00 *Moderators:* R. Todd Constable & Ricardo Otazo

16:00 **478**. **Wave-CAIPIRHINA: A Method For Reducing G-Factors in Highly Accelerated 3D Acquisitions**
Kawin Setsompop[1,2], Borjan A. Gagoski[3], Johnathan Polimeni[1,2], Lawrence L. Wald[1,4]
[1]Radiology, A. A. Martinos Center for Biomedical Imaging, MGH, Charlestown, MA, USA; [2]Harvard Medical School, Boston, MA, USA; [3]Department of Electrical Engineering & Computer Science, MIT, Cambridge, MA, USA; [4]Harvard-MIT Division of Health Sciences & Technology, MIT, Cambridge, MA, USA

16:12 **479**. **An Eigen-Vector Approach to AutoCalibrating Parallel MRI, Where SENSE Meets GRAPPA**
Michael Lustig[1], Peng Lai[2], Mark Murphy[1], Shreyas Mark Vasanawala[3], Michael Elad[4], Jian Zhang[5], John Pauly[5]
[1]Electrical Engineering & Computer Science, University of California Berkeley, Berkeley, CA, USA; [2]ASL West, GE Healthcare, Menlo Park, CA, USA; [3]Radiology, Stanford University, Stanford, CA, USA; [4]Computer Science, Technion IIT, Haifa, Israel; [5]Electrical Engineering, Stanford University, Stanford, CA, USA

16:24 **480**. **Multi-Dimensional Encoded (MDE) Magnetic Resonance Imaging**
Fa-Hsuan Lin[1,2], Thomas Witzel[2], Aapo Nummenmaa[2,3], Panu Vesanen[3], Risto J. Ilmoniemi[3], John W. Belliveau[2]
[1]National Taiwan University, Taipei, Taiwan; [2]Martinos Center, Massachusetts General Hospital, Charlestown, MA, USA; [3]Department of Biomedical Engineering & Computational Science (BECS), Aalto University, Espoo, Finland

16:36 **481**. **K-Space Based Image Reconstruction of MRI Data Encoded with Ambiguous Gradient Fields**
Gerrit Schultz[1], Daniel Gallichan[1], Hans Weber[1], Walter Witschey[1], Matthias Honal[1], Jürgen Hennig[1], Maxim Zaitsev[1]
[1]University Medical Center Freiburg, Freiburg, Germany

16:48 **482**. **A Performance Measure for MRI with Nonlinear Encoding Fields**
Kelvin Layton[1,2], Mark Morelande[1], Peter Mark Farrell[1], Bill Moran[1], Leigh Andrea Johnston[1,3]
[1]Electrical & Electronic Engineering, The University of Melbourne, Melbourne, Australia; [2]NICTA Victorian Research Laboratory, Melbourne, Australia; [3]Howard Florey Institute, Australia

17:00 **483**. **Post-Cartesian Calibrationless Parallel Imaging Reconstruction by Structured Low-Rank Matrix Completion**
Michael Lustig[1]
[1]Electrical Engineering & Computer Science, University of California Berkeley, Berkeley, CA, USA

17:12 **484**. **Rapid, Self-calibrated Parallel Reconstruction for Variable Density Spiral with GROWL**
Wei Lin[1], Peter Börnert[2], Feng Huang[1], George R. Duensing[1], Arne Reykowski[1]
[1]Invivo Corporation, Philips Healthcare, Gainesville, FL, USA; [2]Philips Research Europe, Hamburg, Germany

17:24 **485**. **Parallel Imaging with Nonlinear Reconstruction using Variational Penalties**
Florian Knoll[1], Christian Clason[2], Kristian Bredies[2], Martin Uecker[3], Rudolf Stollberger[1]
[1]Institute of Medical Engineering, Graz University of Technology, Graz, Austria; [2]Institute for Mathematics & Scientific Computing, University of Graz, Graz, Austria; [3]Biomedizinische NMR Forschungs GmbH, Max-Planck-Institut fuer biophysikalische Chemie, Goettingen, Germany

17:36 **486**. **Iterative Self-Consistent Magnetic Resonance Inverse Imaging**
Tsung-Min Huang[1], Thomas Witzel[2], Wen-Jui Kuo[3], Fa-Hsuan Lin[1,2]
[1]Institute of Biomedical Engineering, National Taiwan University, Taipei, Taiwan; [2]Martinos Center, Massachusetts General Hospital, Charlestown, MA, USA; [3]Institute of Neuroscience, National Yang-Ming University, Taipei, Taiwan

17:48 **487**. **Derivative Encoding for Parallel Imaging**
Jun Shen[1]
[1]NIMH, Bethesda, MD, USA

RF Safety at High Field: SAR

Room 520B-F 16:00-18:00 *Moderators:* Blaine A. Chronik & Christopher M. Collins

16:00 **488**. **Introduction**
Christopher M. Collins

16:12 **489**. **Validation & Comparison of Patient-Specific SAR Models**
Hanno Homann[1], Peter Börnert[2], Kay Nehrke[2], Holger Eggers[2], Olaf Dössel[1], Ingmar Graesslin[2]
[1]Institute of Biomedical Engineering, Karlsruhe Institute of Technology, Karlsruhe, Germany; [2]Philips Research Europe, Hamburg, Germany

16:24 **490**. **Assessment of RF Safety of Transmit Coils at 7 Tesla by Experimental & Numerical Procedures**
Andreas Klaus Bitz[1,2], Oliver Kraff[1,2], Stephan Orzada[1,2], Stefan Maderwald[1,2], Irina Brote[1,2], Sören Johst[1,2], Mark E. Ladd[1,2]
[1]Erwin L. Hahn Institute for Magnetic Resonance Imaging, Essen, Germany; [2]Department of Diagnostic & Interventional Radiology & Neuroradiology, University Hospital Essen, Essen, Germany

16:36 **491**. **Do Constraints On $|B_1+|$ Also Constrain $|E|$ & SAR in High Field MR?**
Leeor Alon[1,2], Cem Murat Deniz[1,2], Daniel K. Sodickson[1,2], Yudong Zhu[1,2]
[1]Center for Biomedical Imaging, Department of Radiology, NYU School of Medicine, New York, NY, USA; [2]Sackler Institute of Graduate Biomedical Sciences, NYU School of Medicine, New York, NY, USA

16:48 **492**. **SAR Analysis of Parallel Transmission in Cardiac Imaging at 7T**
Xiaoping Wu[1], Sebastian Schmitter[1], J. Tian[1], J. T. Vaughan[1], Kamil Ugurbil[1], P.-F. Van de Moortele[1]
[1]CMRR, Radiology, University of Minnesota, Minneapolis, MN, USA

17:00 **493**. **Quality Assessment of B_1-Based Local SAR Estimation As a Function of Position Within a Parallel Transmit Coil At 3T**
Stefanie Buchenau[1], Martin Haas[1], Juergen Hennig[1], Maxim Zaitsev[1]
[1]Department of Radiology, Medical Physics, University Medical Center Freiburg, Freiburg, Germany

17:12 **494**. **Single Element SAR Measurements in a Multi-Transmit System**
Ulrich Katscher[1], Christian Findeklee[1], Tobias Voigt[1]
[1]Philips Research Europe, Hamburg, Germany

17:24 **495**. **Generalized Model Compression Method For Peak Local SAR Estimation**
Joonsung Lee[1], Matthias Gebhardt[2], Lawrence L. Wald[3,4], Elfar Adalsteinsson[1,4]
[1]Electrical Engineering & Computer Science, Massachusetts Institute of Technology, Cambridge, MA, USA; [2]Siemens Healthcare, Erlangen, Germany; [3]A. A. Martinos Center for Biomedical Imaging, Department of Radiology, Massachusetts General Hospital, Charlestown, MA, USA; [4]Harvard-MIT Division of Health Sciences & Massachusetts Institute of Technology, Cambridge, MA, USA

17:36 **496**. **A Multi-Channel, High Dynamic Range, Real Time RF Power Deposition Monitor**
AbdELMonem M. El-Sharkawy[1], Di Qian[1,2], Paul A. Bottomley[1,2], William A. Edelstein[1]
[1]Russell H. Morgan Department of Radiology & Radiological Science, Johns Hopkins University, Baltimore, MD, USA; [2]Electrical & Computer Enginnering, Johns Hopkins University, Baltimore, MD, USA

17:48 **497**. **Total Proton Resonance Frequency Shift Coefficient in the Porcine Brain to Image Radiofrequency Heating in Ultra-High Field MRI**
Devashish Shrivastava[1], Ute Goerke[1], Shalom Michaeli[1], Jingeng Tian[1], Lance DelaBarre[1], John T. Vaughan[1]
[1]University of Minnesota, Minneapolis, MN, USA

Weak in the Knees

Room 710A 16:00-18:00 *Moderators:* Jiang Du & Ravinder R. Regatte

16:00 **498**. **Cartilage Quality Assessment using gagCEST & Sodium MRI at 7 Tesla**
Benjamin Schmitt[1], Stefan Zbyn[2,3], David Stelzeneder[2], Vladimir Jellus[4], Dominik Paul[4], Lars Lauer[4], Peter Bachert[1], Siegfried Trattnig[2]
[1]Medical Physics in Radiology, German Cancer Research Center, Heidelberg, Germany; [2]Radiology, Medical University of Vienna, Vienna, Austria; [3]Orthopedics, Medical University of Vienna; [4]Siemens Healthcare, Erlangen, Germany

16:12 **499**. **Quantitative & Morphologic Evaluation of Cartilage Repair in an Equine Model**
Sarah Pownder[1], Matthew F. Koff[1], Lisa Fortier[2], Emme Castiglione[3], Ryan Saska[3], Gino Bradica[3], Kira Novakofski[2], Hollis G. Potter[1]
[1]Department of Radiolgy & Imaging - MRI, Hospital for Special Surgery, New York, NY, USA; [2]College of Veterinary Medicine, Cornell University, Ithaca, NY, USA; [3]Kensey Nash Corporation

16:24 **500**. **Simultaneous Estimation of T_2 & ADC in Human Articular Cartilage *In Vivo* with a Modified 3D DESS Sequence at 3T**
Ernesto Staroswiecki[1,2], Kristin Lee Granlund[1,2], Marcus Tedrow Alley[1], Garry Evan Gold[1], Brian Andrew Hargreaves[1]
[1]Radiology, Stanford University, Stanford, CA, USA; [2]Electrical Engineering, Stanford University, Stanford, CA, USA

16:36 **501**. ***In Vivo* DTI of Articular Cartilage: A New Set of Biomarkers For the Early Diagnosis of Osteoarthritis**
Jose G. Raya[1], Annie Horng[2], Olaf Dietrich[2], Svetlana Krasnokutsky, Luis S. Beltran, Maximilian F. Reiser[2], Michael Recht, Michael Recht, Christian Glaser
[1]Radiology, New York University Langone Medical Center, New York, NY, USA; [2]University of Munich

16:48 **502**. **Clinical Performance of 3D-FSE-Cube in the Upper Extremity**
Lauren Michelle Shapiro[1], Deborah M. Lee[1], Karthryn J. Stevens[1], Weitian Chen[2], Anja C. Brau[2], Brian A. Hargreaves[3], Garry Evan Gold[1,4]
[1]Department of Radiology, Stanford University, Stanford, CA, USA; [2]Applied Science Laboratory, GE Healthcare, Menlo Park, CA, USA; [3]Department of Radiology, Stanford University, Stanford University, CA, USA; [4]Department of Bioengineering, Stanford University, Stanford, CA, USA

17:00 **503**. **Rapid Multi-Planar Assessment of the Articular Cartilage of the Knee Joint using Isotropic Resolution VIPR-ATR Imaging**
Richard Kijowski[1], Jessica Klaers[2], Kenneth Lee[1], Humberto Rosas[1], Larry Hernandez[2], Walter Block[2,3]
[1]Radiology, University of Wisconsin, Madison, WI, USA; [2]Medical Physics, University of Wisconsin, Madison, WI, USA; [3]Biomedical Engineering, University of Wisconsin, Madison, WI, USA

17:12 **504**. **A B_1-insensitive High Resolution 2D T_1 Mapping Pulse Sequence for Radial dGEMRIC of the Hip at 3T**
Riccardo Lattanzi[1,2], Christian Glaser[1,2], Artem V. Mikheev[2], Catherine Petchprapa[2], David J. Mossa[2], Soterios Gyftopoulos[2], Henry Rusinek[2], Michael Recht[2], Daniel Kim[1,2]
[1]Center for Biomedical Imaging, New York University Langone Medical Center, New York, NY, USA; [2]Radiology, New York University Langone Medical Center, New York, NY, USA

17:24 **505**. **Parametric Relaxation Measurements in Bovine Patellar Cartilage**
Wen Ling[1], Elizabeth Arendt[2], Denis Clohisy[2], Silvia Mangia[1], Shalom Michaeli[1], Michael Garwood[1], Jutta Elllermann[1]
[1]Center for Magnetic Resonance Research, Univ. of Minnesota, Minneapolis, MN, USA; [2]Dept. of Orthopedic Surgery, Univ. of Minnesota, Minneapolis, MN, USA

17:36 **506**. **Simultaneous Acquisition of T_1rho & T_2 Quantification in Cartilage – Reproducibility & Diurnal Variation**
Xiaojuan Li[1], Joseph Schooler[1], Fei Liang[1], Keerthi Shet Vishnudas[1], Weitian Chen[2], Suchandrima Banerjee[2], Sharmila Majumdar[1]
[1]Department of Radiology & Biomedical Imaging, University of California, San Francisco, San Francisco, CA, USA; [2]Global Applied Science Laboratory, GE Healthcare, Menlo Park, CA

17:48 **507**. **Are Sports Good For Your Knees? An MRI Evaluation of the Effects of Basketball On Knee Health in Division I Collegiate Athletes**
Melissa Ann Vogelsong[1,2], George Pappas[3], Ernesto Staroswiecki[1,4], Neal K. Bangerter[5], Eric Han[6], Brian A. Hargreaves[1], Hillary J. Braun[1], Marc R. Safran[3], Garry E. Gold[1]
[1]Radiology, Stanford University, Stanford, CA, USA; [2]UCSF School of Medicine, San Francisco, CA, USA; [3]Orthopaedic Surgery, Stanford University; [4]Electrical Engineering, Stanford University; [5]Electrical Engineering, Brigham Young University; [6]GE Global Applied Sciences Laboratory, Menlo Park, CA

Breast MRI - Clinical & Technical

Room 710B 16:00-18:00 *Moderators:* Bruce L. Daniel & Brian A. Hargreaves

16:00 **508**. **Optimization of the Percent Enhancement Threshold for Breast MRI Tumor Volume Measurement During Neoadjuvant Treatment of Breast Cancer for Predicting Recurrence Free Survival Time**
David C. Newitt[1], Savannah C. Partridge[2], Belinda Chang[1], Bonnie N. Joe[1], Nola Hylton[1]
[1]Radiology & Biomedical Imaging, University of California, San Francisco, CA, USA; [2]Radiology, University of Washington, Seattle, WA

16:12 **509**. **ADC Measurements of Malignant & Benign Breast Tumors & their Correlation to Prognostic Markers: Preliminary 3T Study**
Sunitha Thakur[1,2], Sharp Malak[2], Sanjay Annarao[1], Dilip Giri[3], Jason Koutcher[1,2], Elizabeth Morris[2]
[1]Medical Physics, Memorial Sloan Kettering Cancer Center, New York, NY, USA; [2]Radiology, Memorial Sloan Kettering Cancer Center, New York, NY, USA; [3]Pathology, Memorial Sloan Kettering Cancer Center

16:24 **510**. **Assessment of *In Vivo* DCIS Grade: A Model Incorporating Dynamic Contrast Enhanced & Diffusion Weighted Imaging Parameters on Breast MRI**
Habib Rahbar[1,2], Savannah Partridge[1,2], Wendy DeMartini[1,2], Franklin Liu[1,2], Robert Gutierrez[1,2], Kimberly Allison[3], Sue Peacock[1,4], Constance Lehman[1,2]
[1]Radiology, University of Washington, Seattle, WA, USA; [2]Radiology, Seattle Cancer Care Alliance, Seattle, WA, USA; [3]Pathology, University of Washington, Seattle, WA; [4]Radiology, Seattle Cancer Care Alliance, Seattle , WA, USA

16:36 **511**. **Potential of Diffusion MRI As a Biomarker of Low-Risk DCIS**
Mami Iima[1], Denis Le Bihan[2,3], Tomohisa Okada[1], Koji Fujimoto[1], Shotaro Kanao[1], Shiro Tanaka[4], Kaori Togashi[1]
[1]Dept. of Diagnostic Radiology, Kyoto University Graduate School of Medicine, Kyoto, Japan; [2]Human Brain Research Center, Kyoto University Graduate School of Medicine, Kyoto, Japan; [3]Neurospin, CEA-Saclay Center, Gif-sur-Yvette Cedex, France; [4]The Translational Research Center, Kyoto University Hospital, Kyoto, Japan

16:48 **512**. **Differentiating between Benign & Malignant Breast Tumors using the Choline Concentration As Determined by Chemical Shift Imaging**
Paul E. Sijens[1,2], Monique D. Dorrius[1], Ruud M. Pijnappel[1], Martine C. Jansen-van der Weide[1], Peter Kappert[1], Matthijs Oudkerk[1,2]
[1]UMCG, Groningen, Netherlands; [2]CMI, Groningen, Netherlands

17:00 **513**. **High-Speed MR Spectroscopic Imaging of Total Choline in Breast Cancer & Healthy Controls at 3T: A Feasibility Study**
Chenguang Zhao[1], Patrick Bolan[2], Melanie Royce[3], Lavneeth Lakkadi[2], Sang-Joon Lee[4], Steve Eberhard[5], Stefan Posse[1,6]
[1]Neurology, University of New Mexico, Albuquerque, NM, USA; [2]CMRR, University of Minnesota, Minneapolis, MN, USA; [3]Medical Oncology, University of New Mexico, Albuquerque, NM, USA; [4]Internal Medicine, University of New Mexico, Albuquerque, NM, USA; [5]Radiology, University of New Mexico, Albuquerque, NM, USA; [6]Electrical & Computer Engineering, University of New Mexico, Albuquerque, NM, USA

17:12 **514**. **Visualizing Collagen I Fiber Architecture in Human Breast Tumor Specimens using Diffusion Tensor Imaging**
Samata M. Kakkad[1], Jiangyang Zhang[1], Lu Jiang[1], Zaver M. Bhujwalla[1], Kristine Glunde[1]
[1]JHU ICMIC Program, Russell H. Morgan Department of Radiology & Radiological Science, Johns Hopkins University School of Medicine, Baltimore, MD, USA

17:24 **515**. **Breast Cancer Detection & Diagnosis based on Diffusion Tensor Imaging**
Edna Furman-Haran[1], Erez Eyal[1], Myra Shapiro-Feinberg[2], Dov Grobgeld[1], talia Golan[3], Yaacov Itzchak[3], Raphael Catane[3], Moshe Papa[3], Hadassa Degani[1]
[1]The Weizmann Institute of Science, Rehovot, Israel; [2]Meir Medical Center, Israel; [3]Sheba Medical Center, Israel

17:36 **516**. **Menstrual Cycle Related Fluctuations in Breast Density Evaluated using 3D MRI**
Siwa Chan[1], Jeon-Hor Chen[2,3], Jia-Pei Wu[3], Fu-Ju Lei[3], Muqing Lin[2], Orhan Nalcioglu[2], Min-Ying L. Su[2]
[1]Department of Radiology, Taichung Veterans General Hospital, Taichung, Taiwan; [2]Center for Functional Onco-Imaging & Department of Radiological Science, University of California Irvine, Irvine, CA, USA; [3]Department of Radiology, China Medical University Hospital, Taichung, Taiwan

17:48 **517**. **T_2 Values of Breast Lymph Nodes At 1.5 T in Patients Pre & Post Subcutaneous Injection of Superparamagnetic Iron Oxide - Initial Results From a Sentinel Node Negative Population**
Laura Johnson[1], Geoff Charles-Edwards[2], Jyoti Parikh[3], Margaret Hall-Craggs[4], Tobias Schaeffter[5], Michael Douek[1]
[1]Research Oncology, Kings College London, London, England, United Kingdom; [2]Medical physics, Guy's & St Thomas' NHS Foundation Trust; [3]Radiology, Guys and St Thomas' NHS Foundation Trust; [4]Imaging & Medical Physics & Bio−Engineering, University College London; [5]Imaging sciences, Kings College London

Study Groups
Cardiac MR & MR Flow & Motion Quantitation

Room 510 18:15-20:15

Study Groups
MR in Drug Research

Room 511A-C 18:15-20:15

Study Groups
Molecular & Cellular Imaging

Room 511D-F 18:15-20:15

Study Groups
Musculoskeletal MR

Room 518A-C 18:15-20:15

Study Groups
MR of Cancer

Room 520 B-F 18:15-20:15

Study Groups
High Field Systems & Applications

Room 710A 18:15-20:15

Study Groups
Perfusion

Room 710B 18:15-20:15

Sunrise Educational Course
Hot Topics in Body MRI

Room 510 07:00-08:00 *Moderators:* Shahid M. Hussain & Bachir Taouli

Treated Liver Lesions & Small Renal Lesions

07:00 **MRI Appearance of Treated Liver Lesions**
Ihab Kamel

07:30 **Characterization of Small Renal Lesions: Problem Solving with MRI**
Gary M. Israel

Sunrise Educational Course
Image Analysis

Room 511A-C 07:00-08:00 *Moderator:* Henry Rusinek

07:00 **Analysis of Texture: Theory**
Andrzej Materka

07:30 **Analysis of Texture: Practice**
Arvid Lundervold

Sunrise Educational Course
Translational Imaging: Animal Models in MSK

Room 511D-F 07:00-08:00 *Moderators:* Bernard J. Dardzinski & Ravinder R. Regatte

07:00 **Tendon & Enthesis Models**
Scott A. Rodeo

07:30 **Muscle Models**
Bruce M. Damon

Sunrise Educational Course
Fast & Furious: The New Era of Rapid Imaging

Room 512A-G 07:00-08:00

Fast Neuroimaging

07:00 **Current Clinical Practices & Needs**
John P. Karis

07:30 **Emerging Techniques**
James G. Pipe

Sunrise Educational Course
Molecular Imaging & Contrast Agents

Room 513A-D 07:00-08:00

07:00 **Physico Chemical Principles CEST**
Robert E. Lenkinski

07:30 **Preclinical & Clinical Applications of CEST**
Michael T. McMahon

Sunrise Educational Course
Neuro MRI from Start to Finish

Room 516A-C 07:00-08:00

Mature

07:00 **Normal Brain**
Marco Essig

07:30 **MRI of Pathological Aging Brain**
Yukio Miki

Sunrise Educational Course
Cardiovascular MR Imaging: Bridging the Gap Between Research & Clinical Problems

Room 518A-C 07:00-08:00

Lumen & Vessel Wall Imaging

07:00 **Coronary Arteries**
René M. Botnar

07:20 **Carotid Arteries**
Bruce A. Wasserman

07:40 **Peripheral Arteries**
James C. Carr

Sunrise Educational Course
MRS - Metabolite Profiling & Metabolism

Room 520B-F 07:00-08:00 *Moderators:* Kevin M. Brindle & Ivan Tkac

07:00 **Tumor Phospholipid Metabolism**
Franca Podo

07:30 **MRS in Cancer Research**
Carles Arús

Sunrise Educational Course
Image Reconstruction

Room 710A 07:00-08:00

Sparse Data

07:00 **Compressed Sensing & HYPR**
Julia V. Velikina

07:30 **Exploiting Spatiotemporal Correlations for Dynamic Imaging**
Pablo Irarrazaval

Sunrise Educational Courses
Absolute Beginners' Guide to Anatomical & Functional MRI of the Brain

Room 710B 07:00-08:00 *Moderator:* Ziad S. Saad

07:00 **Registration, Segmentation & Atlases**
D. Louis Collins

07:30 **Surface, Edge & Voxel-Based Analyses**
Douglas N. Greve

Plenary Session

Room Plenary Hall 08:00-08:30 *Chair:* Debiao Li, ISMRM President

08:00 **Young Investigator Awards & Poster Awards**

2011 Lauterbur Lecture

Room Plenary Hall 08:30-09:10 *Chair:* Debiao Li, ISMRM President

08:30 **fMRI at 20 – Has It Changed the World?**
Bruce R. Rosen, M.D., Ph.D.
Massachusetts General Hospital, Charlestown, MA, USA

Plenary Lectures
Reducing Radiation: MR & CT in the Era of Radiation Dose Concerns

Room Plenary Hall 09:10-10:10 *Organizers:* Thoralf Niendorf & Bachir Taouli

09:10 **518**. **CT Radiation Exposure: How Bad is it & How Can it Be Reduced in Practice?**
Aaron D. Sodickson
Brigham & Women's Hospital, Boston, MA, USA

The objective of this talk is to convey some understanding about the approximate levels of risk imparted by CT, and the factors influencing these risks. I will review common radiation terminology, typical dose values for common CT exam types, and technology and patient factors that influence dose. I will demonstrate how to make order of magnitude cancer risk estimates using the most common Linear-No-Threshold risk model. Finally, we will explore practical opportunities to reduce radiation exposure, including potential opportunity areas where MRI may play a role if the common challenges of access, exam duration, and technical complexity can be overcome.

09:30 **519**. **A Hard Look At MR: is It Simple Enough & Fast Enough to Fill the Gap?**
Elmar M. Merkle
Duke University Medical Center, Durham, NC, USA

This plenary session will focus on abdominal and pelvic CT and MR imaging with an emphasis on: 24/7 availability of MR and CT, robustness of the data acquisition, vulnerability to artifacts causing substantial study limitations, in room time versus sequence acquisition time, lack of standardized sequence protocols, and the MR incompatible patient.

09:50 **520**. **A Look Ahead: How Will New MR Techniques & Technologies Change the Landscape?**
Heinz-Peter W. Schlemmer
German Cancer Research Centre (DKFZ), Heidelberg, Germany

Through the persistent progress in medicine over the last 4 centuries MR has become an indispensible tool for basic, translational, clinical research and every-day clinical application. the capability to comprehensively visualize morphology, function and metabolism without necessitating ionization radiation essentially drives the ongoing progress of personalized medicine. But the whole extent of potentials for prevention, diagnosis and therapy of diseases by MR will only be exploited if a team of medical doctors, physicists, biologists, chemists, computer specialists, etc. efficiently works together in optimized processes. Furthermore, Radiologists will have to use "spacey" communication technology to handle the increased amount and complexity of information.

Hands-On Workshop 1 (Repeat)
Neuro & Musculoskeletal Protocol Optimization
GE Healthcare

Room 520A-D 10:30-12:30

Hands-On Workshop 1 (Repeat)
Neuro & Musculoskeletal Protocol Optimization
Siemens

Room 515A-C 10:30-12:30

Connectivity

Room 510 10:30-11:30 *Moderators:* Kaj M. Ericson & Tobias Schmidt-Wilcke

10:30 **fcMRI During Development**
Christopher D. Smyser

11:00 **fcMRI Connectivity in Disease**
Tarek Yousry

MR-Guided Focused Ultrasound, Thermotheraphy & Thermometry

Room 511A-C 10:30-12:30 *Moderators:* Chrit T. Moonen & Rudolf Stollberger

10:30 **521**. **Hybrid Referenceless & Multi-Baseline Thermometry For Mrgfus Brain Applications**
Viola Rieke[1], Beat Werner[2], Nathan McDannold[3], William Grissom[4], Ernst Martin[2], Kim Butts Pauly[1]
[1]Department of Radiology, Stanford University, Stanford, CA, USA; [2]MR-Center, University Children's Hospital Zurich, Zurich, Switzerland; [3]Department of Radiology, Brigham & Women's Hospital, Boston, MA, USA; [4]Imaging Technologies Laboratory, GE Global Research, Munich, Germany

10:42 **522**. **Dynamic Study of Tissue Penetration For MR Contrast Agents of Different Sizes Following Ultrasound Induced Blood Brain Barrier Disruption in Rodent Models**
Benjamin Marty[1], Benoit Larrat[1], Caroline Robic[2], Mathieu Pernot[3], Mickael Tanter[3], Marc Port[2], Philippe Robert[2], Denis Le Bihan[1], Franck Lethimonnier[1], Sébastien Mériaux[1]
[1]CEA/DSV/I2BM/Neurospin, Gif-sur-Yvette, France; [2]Research Division, Guerbet, Roissy Charles de Gaulle, France; [3]Institut Langevin, Paris, France

10:54 **523**. **Pressure & Microbubble-Size Dependence of the FUS-Induced Blood Brain Barrier Opening Reversibility *In Vivo***
Gesthimani Samiotaki[1], Yao-Sheng Tung[1], Fotios Vlachos[1], Elisa Konofagou[1,2]
[1]Department of Biomedical Engineering, Columbia University, New York, NY, USA; [2]Department of Radiology, Columbia University, New York, NY, USA

11:06 **524**. **ARFI-Prepared MR-Guided Transcostal HIFU in Sheep Liver *In Vivo* using a High Resolution Hybrid ARFI/MRT GRE-EPI Sequence**
Vincent Auboiroux[1], Magalie Viallon[1], Jean-Noël Hyacinthe[1], Joerg Roland[2], Lorena Petrusca[1], Thomas Goget[1], Patrick Gross[2], Christoph D. Becker[1], Rares Salomir[1]
[1]Radiology Dept, Geneva University Hospital, Geneva, Switzerland; [2]Siemens Healthcare, Erlangen, Germany

11:18 **525**. **Real Time Respiration Based Steering for High Intensity Focused Ultrasound in the Liver**
Andrew B. Holbrook[1,2], Charles L. Dumoulin[3], Juan M. Santos[4], Yoav Medan[5], Kim Butts Pauly[1]
[1]Radiology, Stanford University, Stanford, CA, USA; [2]Bioengineering, Stanford University, Stanford, CA, USA; [3]University Cincinnati College of Medicine, Imaging Research Center, Cincinnati, OH, USA; [4]HeartVista, Palo Alto, CA, USA; [5]InSightec, Tirat Carmel, Israel

11:30 **526**. **Three-Dimensional Motion Analysis of Hepatic Tissue for Focal Spot Tracking Based on Portal Vain Structure**
Etsuko Kumamoto[1,2], Yoshie Takao[3], Daisuke Kokuryo[4], Toshiya Kaihara[2], Kagayaki Kuroda[5,6]
[1]Information Science & Technology Center, Kobe University, Kobe, Japan; [2]Graduate School of System Infomatics, Kobe University, Kobe, Japan; [3]Graduate School of Engineering, Kobe University, Kobe, Japan; [4]Molecular Imaging Center, National Institute of Radiological Sciences, Chiba, Japan; [5]Graduate School of Engineering, Tokai University, Hiratsuka, Japan; [6]Medical Device Development Center, Foundation for Biomedical Research & Innovation, Kobe, Japan

11:42 **527**. **Reference-Less PRFS MR Thermometry of the Whole Liver Based On Near-Harmonic Calculation: Clinical Evaluation From LITT Ablation Data**
Antje Kickhefel[1], Christian Rosenberg[2,3], Joerg Roland[4], Patrick Gross[4], Fritz Schick[5], Norbert Hosten[2], Rares Salomir[6]
[1]Diagnostic & Interventional Radiology, Eberhard-Karls-University Tübingen, Tübingen, Baden-Württemberg, Germany; [2]Diagnostic Radiology & Neuroradiology, Ernst-Moritz-Arndt-Universität Greifswald, Greifswald, Germany; [3]Diagnostic Radiology & Neuroradiology, Greifswald, Germany; [4]Siemens Healthcare, Erlangen, Bavaria, Germany; [5]Diagnostic & Interventional Radiology, Eberhard-Karls-University Tübingen, Tübingen, Baden-Würtemberg, Germany; [6]Radiology, University Hospitals of Geneva, Geneva, Switzerland

11:54 **528**. **Feasibility of Temperature Imaging of Fat & Water Based on Methylene T_1 & Water Proton Resonance Frequency**
Kagayaki Kuroda[1,2], Mie Kee Lam[3], Taku Iwabuchi[1], Makoto Obara[4], Masatoshi Honda[5], Kensuke Saito[1], Yutaka Imai[5]
[1]Graduate School of Engineering, Tokai University, Hiratsuka, Kanagawa, Japan; [2]Medical Device Development Center, Foundation for Biomedical Research & Innovation, Kobe, Hyogo, Japan; [3]Image Sciences Institute, University Medical Center Utrecht, Utrecht, Netherlands; [4]MR Marketing, Philips Electronics Japan Medical Systems, Shinagawa, Tokyo, Japan; [5]Department of Radiology, Tokai University, Isehara, Kanagawa, Japan

12:06 **529**. **Frequency-Selective Asymmetric Spin-Echo EPI with Parallel Imaging For Fast Internally Referenced MR Thermometry**
Markus Nikola Streicher[1], Andreas Schäfer[1], Dirk Müller[1], Carsten Kögler[1], Enrico Reimer[1], Bibek Dhital[1], Robert Trampel[1], Debra Rivera[1], André Pampel[1], Dimo Ivanov[1], Robert Turner[1]
[1]Max Planck Institute for Human Cognitive & Brain Sciences, Leipzig, Germany

12:18 **530**. **Multi-Shot High-Speed 3D-EPI Thermometry using a Hybrid Method Combining 2DRF Excitation, Parallel Imaging & UNFOLD**
Chang-Sheng Mei[1,2], Onur Afacan[2,3], Jing Yuan[4], Bruno Madore[2], Lawrence Panych[2], Nathan McDannold[2]
[1]Physics, Boston College, Chestnut Hill, MA, USA; [2]Radiology, Harvard Medical School, Brigham & Women's Hospital, Boston, MA, USA; [3]ECE, Northeastern University, Boston, MA, USA; [4]The Chinese University of Hong Kong

Advances in Image Analysis

Room 511D-F 10:30-12:30 *Moderators:* Shannon C. Agner & Benoit Scherrer

10:30 **531**. **Quantitative MRI Biomarkers for Knee Pain & Other Symptoms**
Jose Tamez-Pena[1], Patricia Gonzalez[2], Joshua Farber[2], Edward Schreyer[2], Saara Totterman[2], Victor Trevino[1]
[1]Biomedicine, ITESM, Monterrey, Nuevo Leon, Mexico; [2]Qmetrics Technologies, Rochester, NY, USA

10:42 **532**. **Measuring the Volumes & Thickness of Hippocampal Subfields *In Vivo* using Automatic Segmentation of T_2-Weighted MRI: A Pilot Evaluation Study**
Paul A. Yushkevich[1], Hongzhi Wang[1], John Pluta[1], Sandhitsu R. Das[1], Brian Avants[1], Michael Weiner[2], Susanne Mueller[2], David Wolk[3]
[1]PICSL, Department of Radiology, University of Pennsylvania, Philadelphia, PA, USA; [2]Department of Radiology, University of California, San Francisco, San Francisco, CA, USA; [3]Department of Neurology, University of Pennsylvania, Philadelphia, PA, USA

10:54 **533**. **MTR at 3T in the Hippocampus – Validation of Automated Post-Analysis & Comparison of Quantification Metrics**
Shawn Sidharthan[1], Ryan Joseph Hutten[1], Christopher Glielmi[2], Hongyan Du[3], Fiona Malone[1], Ann Ragin[1,4], Robert R. Edelman[1], Ying Wu[1,5]
[1]Radiology, NorthShore University HealthSystem, Evanston, IL, USA; [2]MR Research & Development, Siemens Healthcare, Chicago, IL, USA; [3]Center for Clinical Research Informatics, NorthShore University HealthSystem, Evanston, IL, USA; [4]Radiology, Northwestern University, Chicago, IL, USA; [5]Radiology, University of Chicago, Chicago, IL, USA

11:06 **534**. **Analysis of Hippocampal Shape in Children using a Surface-to-Centerline Distance Method & Template-Based Surface & Volumetric Non-Rigid Registration Methods**
Muqing Lin[1], Kevin Head[2], Claudia Buss[2], Tugan Muftuler[1], Elysia Poggi Davis[1], Curt A. Sandman[2], Orhan Nalcioglu[1], Min-Ying Lydia Su[1]
[1]Tu & Yuen Center for Functional Onco-Imaging & Department of Radiological Sciences, University of California, Irvine, CA, USA; [2]Department of Psychiatry & Human Behavior, University of California, Irvine, CA, USA

11:18 **535**. **Comparison of Tissue Classification Models for Automatic Brain MR Segmentation**
Delphine Ribes[1,2], Bénédicte Mortamet[1], Meritxell Cuadra Bach[3], Clifford R. Jack[4], Reto Meuli[5], Gunnar Krueger[1], Alexis Roche[1]
[1]Advanced Clinical Imaging Technology, Siemens Medical Solutions-CIBM, Lausanne, Switzerland; [2]Radiology, UNIL, Lausanne, Switzerland; [3]Signal Processing Laboratory (LTS5), EPFL, Lausanne, Switzerland; [4]Mayo Clin, Rochester, MN USA; [5]Centre Hospitalier Universitaire Vaudois & University of Lausanne, Lausanne, Switzerland

11:30 **536**. **Using Multi-Parametric Quantitative MRI to Model Myelin in the Brain**
J. B. M. Warntjes[1,2], J. West[1,3], O. Dahlqvist-Leinhard[1,3], G. Helms[4], A.-M. Landtblom[5], P. Lundberg[6,7]
[1]Linköping University, Center for Medical Image Science & Visualization, Linköping, Sweden; [2]Department of Medicine & Health, Division of Clinical Physiology, Linköping, Sweden; [3]Department of Medicine & Health, Division of Radiation Physics, Linköping, Sweden; [4]University Medical Center, MR-Research in Neurology & Psychiatry, Göttingen, Germany; [5]Department of Clinical Neuroscience, Linköping, Sweden; [6]Linköping University, Dept of Radiation Physics & Dept of Radiology, IMH, University of Linkoping, Linköping, Sweden; [7]University Hospital of Linköping, Dept of Radiation Physics & Dept of Radiology, CKOC, University Hospital of Linkoping, Linköping, Sweden

11:42 **537**. **Orthogonal Super Resolution Reconstruction for 3D Isotropic Imaging in 9.4T MRI**
Niranchana Manivannan[1], Bradley D. Clymer[1], Anna Bratasz[2,3], Kimerly A. Powell[2,3]
[1]Department of Electrical & Computer Engineering, The Ohio State University, Columbus, OH, USA; [2]Small Animal Imaging Shared Resource, The Ohio State University; [3]Department of Biomedical Informatics, The Ohio State University, Columbus, OH, USA

11:54 **538**. **Addressing Positioning Induced Variabillity in VBM Analyses**
Costin Tanase[1], Tyler Lesh[1], Cameron Carter[1]
[1]Psychiatry & Behavioral Sciences, University of California at Davis, Sacramento, CA, USA

12:06 **539**. **Training-Related Cortical Thickness Changes**
Jan Scholz[1], Miriam Klein[2], Heidi Johansen-Berg[1]
[1]University of Oxford, FMRIB Centre, Oxford, United Kingdom; [2]University College London, Sobell Department of Motor Neuroscience & Movement Disorders, London

12:18 **540**. **A General-Purpuse Learning-Based Wrapper Method to Correct Systematic Errors in Automatic Image Segmentation: Consistently Improved Performance in Hippocampus, Cortex & Brain Segmentation**
Hongzhi Wang[1], Sandhitsu R. Das[1], Murat Altinay[1], John Pluta[1], Jung Wook Suh[1], caryne craige[1], Brian Avants[1], Paul Yushkevich[1]
[1]PICSL, Department of Radiology, University of Pennsylvania, Philadelphia, PA, USA

Iron Detection & Quantification

Room 512A-G 10:30-12:30

10:30 **Tissue Iron Detection & Quantification with MRI**
Jens H. Jensen

10:55 **Clinical Introduction**
John F. Schenck

11:05 **Brain Iron Deposition**
Joanna F. Collingwood

11:30 **Cardiac Iron Deposition**
Claudia M. Hillenbrand

11:55 **Liver Iron**
Bachir Taouli

12:20 **Discussion**

Proton vs. Hyperpolarized-Gas MRI for Evaluating the Lung

Room 513A-D 10:30-12:30 *Moderators:* Per A. G. Åkeson & Kiarash Emami

10:30 **541**. **Validation of Ventilation- & Perfusion-Weighted Fourier Decomposition MRI with Hyperpolarized ^{3}He-MRI & Dynamic Contrast-Enhanced MRI in An Animal Experiment**
Grzegorz Bauman[1], Alexander Scholz[2], Julien Rivoire[2], Maxim Terekhov[2], Janet Friedrich[2], Andre de Oliveira[3], Wolfhard Semmler[1], Laura M. Schreiber[2], Michael Puderbach[4]
[1]Division of Medical Physics in Radiology, German Cancer Research Center, Heidelberg, Germany; [2]Department of Radiology, Section of Medical Physics, Johannes Gutenberg University Medical Center, Mainz, Germany; [3]Siemens Healthcare, Erlangen, Germany; [4]Division of Radiology, German Cancer Research Center, Heidelberg, Germany

10:42 **542**. **Heterogeneity of the Ventilation–Perfusion Ratio in Lung Disease using OE-MRI**
Penny Louise Hubbard[1,2], Geoff J. M. Parker[1,2], Dave Singh[3], Eva Bondesson[4], Lars E. Olsson[5], Lars Wigström[5], Simon S. Young[6], Josephine H. Naish[1,2]
[1]Imaging Sciences & Biomedical Engineering, The University of Manchester, Manchester, United Kingdom; [2]The Biomedical Imaging Institute, The University of Manchester, Manchester, United Kingdom; [3]Airway Pharmacology Group, School of Translational Medicine, University Hospital of South Manchester Foundation Trust, Manchester, Greater Manchester, United Kingdom; [4]AstraZeneca R & D, Lund, Sweden; [5]AstraZeneca R & D, Möndal, Sweden; [6]AstraZeneca R & D, Charnwood, United Kingdom

10:54 **543**. **Assessment of Relative Regional Lung Compliance in Patients with Chronic Obstructive Pulmonary Disease**
Alexandra Rose Morgan[1,2], Geoff J. M. Parker[1,2], Penny L. Hubbard[1,2], David Singh[2,3], Jørgen Vestbo[2,3], Simon S. Young[4], Eva Bondesson[5], Lars Wigström[5], Lars E. Olsson[6], Marietta L. J. Scott[7], Josephine H. Naish[1,2]
[1]Imaging Science & Biomedical Engineering, University of Manchester, Manchester, Greater Manchester, United Kingdom; [2]Biomedical Imaging Institute, University of Manchester, Manchester, Greater Manchester, United Kingdom; [3]Airway Pharmacology Group, School of Translational Medicine, University Hospital of South Manchester, Manchester, Greater Manchester, United Kingdom; [4]AstraZeneca R&D, Charnwood, United Kingdom; [5]AstraZeneca, Lund, Sweden; [6]AstraZeneca, Mölndal, Sweden; [7]AstraZeneca, Alderley Park, Macclesfield, United Kingdom

11:06 **544**. **Non-Contrast-Enhanced High Resolution MRI of the Pulmonary Blood Volume using a Two Compartment Model & T_1 Mapping**
Thomas Gaass[1,2], Julien Dinkel[3], Grzegorz Bauman[2], Moritz Zaiss[2], Axel Haase[1], Frederik Laun[2]
[1]Institute of Medical Engineering, Technical University Munich, Munich, Germany; [2]Division of Medical Physics, German Cancer Research Center, Heidelberg, Germany; [3]Division of Radiology, German Cancer Research Center, Heidelberg, Germany

11:18 **545**. **Pulmonary Blood Volume Mapping using a Modified T_1 Weighted, Steady State MRI Technique in a Rodent Model of Hypoxic Pulmonary Vasoconstriction**
Ronn P. Walvick[1,2], Austin L. Reno[2], Alexei A. Bogdanov[2], Mitchell S. Albert[2]
[1]Radiology, New York University Langone Medical Center, New York, NY, USA; [2]Radiology, University of Massachusetts Medical School, Worcester, MA, USA

11:30 **546**. **Acquisition of Spatially-registered Helium-3 & Proton 3D Image Sets of the Lung in Less than 10 Seconds using Compressed Sensing**
Kun Qing[1], Talissa A. Altes[2], Nicholas J. Tustison[2], Jaime F. Horta Coelho Mata[2], Grady W. Miller[2,3], Eduard E. De Lange[2], William A. Tobias[3], Gordon D. Cates[3], James R. Brookeman[2], John Philip Mugler[1,2]
[1]Biomedical Engineering, University of Virginia, Charlottesville, VA, USA; [2]Radiology, University of Virginia; [3]Physics, University of Virginia

11:42 **547**. **Highly Accelerated Dynamic 3D Hyperpolarized Lung Imaging**
Sebastian Kozerke[1,2], Salma Ajraoui[3], Thomas Eykyn[4], Reza Razavi[4], Jim M. Wild[3]
[1]Institute for Biomedical Engineering, University & ETH Zurich, Zurich, Switzerland; [2]Division of Imaging Sciences & Biomedical Engineering, King's College London, London, United Kingdom; [3]Unit of Academic Radiology, University of Sheffield, United Kingdom; [4]Division of Imaging Sciences & Biomedical Engineering, King's College London, United Kingdom

11:54 **548**. **Pulmonary ^{3}He MRI of Pediatric Subjects with Risk Factors for Asthma**
Robert V. Cadman[1], Jionghan Dai[1], Michael D. Evans[2], Daniel J. Jackson[3], James E. Gern[3], Robert F. Lemanske Jr.[3], Sean B. Fain[1]
[1]Medical Physics, University of Wisconsin, Madison, WI, USA; [2]Biostatistics & Medical Informatics, University of Wisconsin, Madison, WI, USA; [3]Pediatrics, University of Wisconsin, Madison, WI, USA

12:06 **549**. **Imaging of Lung Micromechanics with Hyperpolarized Gas Diffusion MRI: Regional Compliance**
Yi Xin[1], Kiarash Emami[1], Stephen J. Kadlecek[1], Puttisarn Mongkolwisetwara[1], Nicholas N. Kuzma[1], Harilla Profka[1], Yinan Xu[1], Hooman Hamedani[1], Benjamin M. Pullinger[1], Rajat K. Ghosh[1], Jennia N. Rajaei[1], Stephen Pickup[1], Masaru Ishii[2], Rahim R. Rizi[1]
[1]Radiology, University of Pennsylvania, Philadelphia, PA, USA; [2]Otolaryngology–Head & Neck Surgery, Johns Hopkins University, Baltimore, MD, USA

12:18 **550**. **Quantitative Scoring of Hyperpolarized ^{129}Xe Ventilation Imaging: Correlation with Pulmonary Function Testing & Age**
Bastiaan Driehuys[1,2], Zackary I. Cleveland[2,3], John Nouls[1,2], S. Sivaram Kaushik[2,4], Gary P. Cofer[2], Santiago Jimenez-Martinez[1], Jan Wolber[5], Monica Kraft[6], H. Page McAdams[1]
[1]Department of Radiology, Duke University, Durham, NC, USA; [2]Center for in vivo Microscopy, Duke University; [3]Department of Radiology, Duke University, Durham, NC, USA; [4]Biomedical Engineering, Duke University; [5]GE Healthcare; [6]Pulmonary and Critical Care Medicine, Duke University

What Went Wrong? A Case-Based Approach to MR Image Quality – Case-Based Teaching

Room 516A-C 10:30-12:30 *Hosts:* Walter F. Block, Derek K. Jones & Chalres A. McKenzie

10:30 **"Guess That Artifact" Game Show**

Cancer Animal Models

Room 518-A-C 10:30-12:30 *Moderators:* Yuen-Li Chung & Robert J. Gillies

10:30 **551**. **Imaging of Glucose Uptake in Breast Tumors using Non-Labeled D-Glucose**
Kannie Wai Yan Chan[1], Michael C. McMahon[2], Guanshu Liu[3], Yoshinori Kato, Zaver Bhujwalla, Dmitri Artemov, Peter Christiaan van Zijl[1,3]
[1]Radiology, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [2]F.M. Kirby Research Center, Kennedy Krieger Research Insitute, Baltimore, MD, USA; [3]kennedy Krieger Research Insitute

10:42 **552**. **HGF/SF-Induced Ca+2 Intake to Breast Tumor Cells – a Manganese Enhanced MRI Study**
Galia Tsarfaty[1], Ilan Tsarfaty[2], Sari Natan[2], Eli Konen[1], Tammar Kushnir[1]
[1]Dept. of Diagnostic Imaging, MRI Unit, the Chaim Sheba Medical Center, Tel Hashomer, Israel; [2]Department of Human Microbiology, Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel

10:54 **553**. **Mapping of Oxygen By Imaging Lipids relaxation Enhancement (MOBILE): Application to Changes in Tumor Oxygenation of Mammary Cancer Models**
Julie Magat[1], Elif Ozel[1], Valérie Marchand[1], Caroline Bouzin[2], Olivier Feron[2], Benedicte F. Jordan[1], Bernard Gallez[1]
[1]Louvain Drug Research Institute, Biomedical Magnetic Resonance Research Group, University of Louvain, Brussels, Belgium; [2]Pole of Pharmacotherapy, University of Louvain, Brussels, Belgium

11:06 **554**. **Histological Verification of Oxygen-Enhanced MRI for Detection of Hypoxia**
Inna V. Linnik[1,2], Marietta Scott[3], Neil Woodhouse[4], John C. Waterton[3,5], Helen Young[3], Carsten Liess[3], Hervé Barjat[3], Jose Ulloa[3], Cassandra L. Hodgkinson[6], Timothy Ward[6], Caroline Dive[6], Darren Roberts[6], Josephine H. Naish[1,7], Geoffrey J. M. Parker[5,8]
[1]Imaging Science & Biomedical Engineering, School of Cancer & Enabling Sciences, University of Manchester, Oxford Road, Manchester M13 9PT, United Kingdom; [2]Biomedical Imaging Institute, University of Manchester, Oxford Road, Manchester M13 9PT, United Kingdom; [3]Imaging, Translational Sciences, AstraZeneca, Alderley Park, Macclesfield, Cheshire, SK10 4TG, United Kingdom; [4]Imaging, Translational Sciences, AstraZeneca, Alderley Park, Macclesfield, Cheshire, SK10 4TG , United Kingdom; [5]Imaging Science & Biomedical Engineering, School of Cancer & Enabling Sciences, University of Manchester, Oxford Road, Manchester M13 9PT, United Kingdom; [6]Paterson Institute for Cancer Research, Manchester, United Kingdom; [7]Biomedical Imaging Institute, University of Manchester, Oxford Road, Manchester M13 9PT, United Kingdom; [8]Biomedical Imaging Institute , University of Manchester, Oxford Road, Manchester M13 9PT, United Kingdom

11:18 **555**. ***In Vivo* Dynamic Contrast Enhanced MRI & Histopathological Assessment of Tumor Angiogenesis in Luminal-Like & Basal-Like Breast Cancer Xenografts**
Else Marie Huuse[1], Siver Andre Moestue[1], Tone Frost Bathen[1], Anna Bofin[2], Gunhild Mari Mælandsmo[3], Lars A. Akslen[4], Olav Engebraaten[3,5], Ingrid S. Gribbestad[1]
[1]Department of Circulation & Medical Imaging, Norwegian University of Science & Tehcnology (NTNU), Trondheim, Norway; [2]Department of Laboratory Medicine, Children's & Women's Health, NTNU, Trondheim, Norway; [3]Department of Oncology & Department of Tumor Biology, Oslo University Hospital, Oslo, Norway; [4]The Gade Institute, Section for Pathology, University of Bergen, Bergen, Norway; [5]Institute for Clinical Medicine, University of Oslo, Oslo, Norway

11:30 **556**. **Dual PI3K/mTOR Inhibition Induces Structural Changes in Tumor Vasculature Assessed by Vessel Size Imaging**
Shelby Katherine Wyatt[1], Sharon E. Ungersma[1], Jason R. Oeh[2], Calvin Ho[1], Tim C. Cao[1], Hartmut Koeppen[3], Lori S. Friedman[2], Deepak Sampath[2], Richard A. D. Carano[1]
[1]Biomedical Imaging, Genentech, Inc, South San Francisco, CA, USA; [2]Translational Oncology, Genentech, Inc, South San Francisco, CA, USA; [3]Pathology, Genentech, Inc, South San Francisco, CA, USA

11:42 **557**. **Genetic Manipulation of Proton Transport Mechanisms Generates Modulations of Intra & Extracellular Ph & Growth Characteristics in Tumors**
Norbert W. Lutz[1], Johanna Chiche[2], Yann LeFur[1], Frederic Frassineti[3], Laurent Daniel[3], Jacques Pouyssegur[2], Patrick J. Cozzone[1]
[1]Dept. of Medicine La Timone, Marseille, France; [2]Institute of Developmental Biology & Cancer, University of Nice, Nice, France; [3]Dept. of Pathology La Timone, Marseille, France

11:54 **558**. **Metabolic Profiling of Primary & Recurrent Mammary Gland Tumors in an Inducible Her2/neu Breast Cancer Mouse Model using ^{1}H MRS**
Dania Daye[1], James Alvarez[2,3], Suzanne Wehrli[4], Mitchell Schnall[5], Lewis Chodosh[2,3]
[1]Department of Bioengineering, University of Pennsylvania, Philadelphia, PA, USA; [2]Department of Cancer Biology, University of Pennsylvania; [3]Abramson Family Cancer Research Institute, University of Pennsylvania; [4]Nuclear Magnetic Resonance Core Facility, Children's Hospital of Philadelphia; [5]Department of Radiology, University of Pennsylvania

12:06 **559**. **MRI & MRS Characterization of Two Experimental Models of Ovarian Cancer with Different Glycolytic Phenotypes**
Rossella Canese[1], Giorgia Nardo[2], Marika Crescenzi[2], Egidio Iorio[1], Stefano Indraccolo[2]
[1]Istituto Superiore di Sanità, Rome, RM, Italy; [2]Istituto Oncologico Veneto -IRCCS, Padova, Italy

12:18 **560**. **Magnetic Resonance Spectroscopic Imaging of Orthotopic Ovarian Cancer**
Marie-France Penet[1], Kristine Glunde[1], Dmitri Artemov[1], Franca Podo[2], Zaver M. Bhujwalla[1]
[1]JHU ICMIC Program, Russell H. Morgan Department of Radiology & Radiological Science, The Johns Hopkins University School of Medicine, Baltimore, MD, USA; [2]Department of Cell Biology & Neurosciences, Section of Molecular & Cellular Imaging, Istituto Superiore di Sanità, Rome, Italy

The Short of It

Room 520B-F 10:30-12:30 *Moderators:* Garry E. Gold & Matthew F. Koff

10:30 **561**. **Introduction**
Won C. Bae

10:42 **562**. **Clinical Ultra-Short TE-Enhanced T_2* Mapping of Meniscus**
Ashley Williams[1], Yongxian Qian[2], Constance R. Chu[1]
[1]Cartilage Restoration Center, University of Pittsburgh, Pittsburgh, PA, USA; [2]Department of Radiology, University of Pittsburgh

10:54 **563**. **Direct Depiction of Bone Microstructure using ZTE Imaging**
Markus Weiger[1,2], Marco Stampanoni[3,4], Klaas Paul Pruessmann[3]
[1]Bruker BioSpin AG, Faellanden, Switzerland; [2]Bruker BioSpin MRI GmbH, Faellanden, Germany; [3]Institute for Biomedical Engineering, University & ETH Zurich, Zurich, Switzerland; [4]Swiss Light Source, Paul Scherrer Institute, Villigen, Switzerland

11:06 **564**. **SWIFT Imaging of Osteochondral Repair in Equine Model with Correlation to µCT**
Mikko Johannes Nissi[1], Jari Rautiainen[1], Lauri Juhani Lehto[1], Virpi Tiitu[1], Outi Kiviranta[1], Hertta Pulkkinen[1], Anne Brunott[2], Rene van Weeren[3], Pieter Brama[4], Ilkka Kiviranta[5], Jutta Ellermann[6], Miika Tapio Nieminen[7,8]
[1]University of Eastern Finland, Kuopio, Finland; [2]Brünott Equine Surgery & Ortopedics, Netherlands; [3]University of Utrecht, Netherlands; [4]University College Dublin, Ireland; [5]University of Helsinki, Finland; [6]University of Minnesota, USA; [7]University of Oulu, Finland; [8]Oulu University Hospital, Finland

11:18 **565**. **Free & Bound Water Evaluation of Articular Cartilage**
Jiang Du[1], Chantal Pauli[2], Eric Diaz[1], Won Bae[1], Sheronda Statum[1], Darryl DLima[2], Christine Chung[1]
[1]Radiology, University of California, San Diego, San Diego, CA, USA; [2]Scripps Reseach Institution

11:30 **566**. **Investigations of the Origin of Phase Differences Seen with Ultrashort TE Imaging of Short T_2 Meniscal Tissue**
Michael Carl[1]
[1]Global Applied Science Laboratory, GE Healthcare, San Diego, CA, USA

11:42 **567**. **High Resolution 3D Ultrashort TE (UTE) Imaging: *In Vivo* Applications**
Jiang Du[1], Michael Carl[2], Mark Bydder[1], Jing-Tzyh Chiang[1], Richard Znamirowski[1], Christine Chung[1], Graeme Bydder[1]
[1]Radiology, University of California, San Diego, San Diego, CA, USA; [2]Global Applied Science Laboratory, GE Healthcare, San Diego, CA, USA

11:54 **568**. **Temporal & Regional Changes of T_2* in the Repaired Meniscus**
Matthew F. Koff[1], Lisa A. Fortier[2], Scott A. Rodeo[3], Atsushi Takahashi[4], Suzanne Maher[5], Demetris Delos[3], Parina Shah[1], Hollis G. Potter[1]
[1]Department of Radiology & Imaging - MRI, Hospital for Special Surgery, New York, NY, USA; [2]College of Veterinary Medicine, Cornell University, Ithaca, NY, USA; [3]Department of Orthopaedic Surgery, Hospital for Special Surgery, New York, NY, USA; [4]Global Applied Science Laboratory, General Electric Healthcare, Menlo Park, CA, USA; [5]Department of Biomechanics, Hospital for Special Surgery, New York, NY, USA

12:06 **569**. **Sensitivity of Quantitative UTE MRI to Degradation of Human Temporomandibular Discs**
Won C. Bae[1], Sheronda Statum[1], Reni Biswas[2], Koichi Masuda[3], Jiang Du[1], Terry Tanaka[4], Christine B. Chung[1]
[1]Radiology, University of California, San Diego, San Diego, CA, USA; [2]Bioengineering, University of California, San Diego, La Jolla, CA, USA; [3]Orthopaedic Surgery, University of California, San Diego, La Jolla, CA, USA; [4]School of Dentistry, Department of Graduate Prosthodontics, University of Southern California, Los Angeles, CA, USA

12:18 **570**. **Ultrashort Time-to-Echo MRI of the Cartilagenous Endplate & Relationship to Degenerative Disc Disease & Schmorl's Nodes**
Tsz Kwun Law[1], Dino Samartzis[2], Mina Kim[1], Queenie Chan[3], Pek-Lan Khong[1], M C Kenneth Cheung[2], Marina-Portia Anthony[1]
[1]Diagnostic Radiology, The University of Hong Kong, Hong Kong, China, People's Republic of; [2]Orthopaedics & Traumatology, The University of Hong Kong, Hong Kong, China, People's Republic of; [3]Philips Healthcare, Hong Kong, China, People's Republic of

Applications & Evaluations of State-of-the-Art Sequences

Room 710A 10:30-12:30 *Moderators:* Priti Balchandani & Jean H. Brittain

10:30 **571**. **Simultaneous 3D Tracking of Multiple ^{19}F Labeled Capsules using a 3D Golden Angle Sampling Scheme**
Tobias Hahn[1], Andreas Steingoetter[1,2], Werner Schwizer[2], Martin Buehrer[1], Sebastian Kozerke[1], Peter Boesiger[1]
[1]Institute for Biomedical Engineering, University & ETH Zurich, Zurich, Switzerland; [2]Division of Gastroenterology & Hepatology, University Hospital Zurich, Zurich, Switzerland

10:42 **572**. **Ultrashort TE Spectroscopic Imaging (UTESI): An Efficient Technique For Free & Bound Water Quantification**
Jiang Du[1], Eric Diaz[1], Richard Znamirowski[1], Sheronda Statum[1], Darryl DLima[2], Graeme Bydder[1], Christine Chung[1]
[1]Radiology, University of California, San Diego, San Diego, CA, USA; [2]Scripps Reseach Institution

10:54 **573**. **Influence of Spectral Model & Signal Decay on Hepatic Fat Fraction Measurements at 3T with Dual-Echo Dixon Imaging**
Holger Eggers[1], Thomas G. Perkins[2], Shahid M. Hussain[3,4]
[1]Philips Research, Hamburg, Germany; [2]Philips Healthcare, Cleveland, OH, USA; [3]University of Nebraska Medical Center, Omaha, NE, USA; [4]The Nebraska Medical Center, Omaha, NE, USA

11:06 **574**. **Comparison of Different Data Acquisition Strategies in Myocardial Strain Assessment using Strain-Encoded (SENC) MRI**
Elsayed H. Ibrahim[1], Wolfgang Rehwald[2], Bradley Sutton[3], Sven Zuehlsdorff[2], Richard D. White[1]
[1]Department of Radiology, University of Florida, Jacksonville, FL, USA; [2]Siemens Medical Solutions, Cardiovascular MRI R&D, Chicago, IL, USA; [3]Department of Bioengineering, University of Illinois, Urbana-Champaign, IL, USA

11:18 **575**. **Validation of 4D Velocity Mapping using 5-Point PC-VIPR For Blood Flow Quantification in the Thoracic Aorta & Main Pulmonary Artery**
Alex Frydrychowicz[1], Eric Niespodzany[2], Scott B. Reeder[1], Kevin M. Johnson[3], Oliver Wieben[2], Christopher J. François[1]
[1]Department of Radiology, University of Wisconsin - Madison, Madison, WI, USA; [2]Departments of Radiology, Medical Physics, University of Wisconsin - Madison, Madison, WI, USA; [3]Department of Medical Physics, University of Wisconsin - Madison, Madison, WI, USA

11:30 **576**. **Initial Comparative Evaluation of a Five-Minute Comprehensive Cardiac MR Examination using Highly Accelerated Parallel Imaging**
Jian Xu[1,2], Daniel Kim[1], Ricardo Otazo[1], Monvadi Srichai[1], Ruth Lim[1], Kellyanne Mcgorty[1], Ryan Avery[1], Leon Axel[1], Thoralf Niendorf[3], Daniel Sodickson[1]
[1]Center for Biomedical Imaging, Department of Radiology, New York University School of Medicine, New York, NY, USA; [2]PolyTechnic Institute of NYU & Siemens Medical Solutions USA Inc., New York, NY, USA; [3]Charite' - University Medicine, Berlin-Buch, Germany

11:42 **577**. **Fast 3D B_1+ Mapping using An Optimized, Asymmetric Bloch-Siegert Method**
Manojkumar Saranathan[1], Mohammad Mehdi Khalighi[2], Adam B. Kerr[3], Brian Rutt[1]
[1]Radiology, Stanford University, Stanford, CA, USA; [2]Global Applied Science Laboratory, GE Healthcare, Menlo Park, CA, USA; [3]Electrical Engineering, Stanford University, Stanford, CA, USA

11:54 **578**. **Single-Shot Spiral Based Bloch-Siegert B_1^+ Mapping**
Mohammad Mehdi Khalighi[1], Gary H. Glover[2], Prachi Pandit[2], Scott Hinks[3], Adam B. Kerr[4], Manojkumar Saranathan[2], Brian K. Rutt[2]
[1]Global Applied Science Laboratory, GE Healthcare, Menlo Park, CA, USA; [2]Department of Radiology, Stanford University, Stanford, CA, USA; [3]Global Applied Science Laboratory, GE Healthcare, Waukesha, WI, USA; [4]Department of Electrical Engineering, Stanford University, Stanford, CA, USA

12:06 **579**. **Quantification of Susceptibility Mapping with Synchrotron X-ray Fluorescence Iron Mapping**
Weili Zheng[1], E Mark Haacke[1], Saifeng Liu[2], Jaladhar Neelavalli[3], Helen Nichol[4]
[1]Radiology, Wayne State University, Detroit, MI, USA; [2]School of Biomedical Engineering, McMaster University, Hamilton, Ontario, Canada; [3]The Magnetic Resonance Imaging Institute for Biomedical Research, Detroit, MI, USA; [4]Department of Anatomy & Cell Biology, University of Saskatchewan, Saskatoon, Saskatchewan, Canada

12:18 **580**. **Correlation between Elemental Distribution & Susceptibility Change in Intracerebral Hemorrhagic Stroke**
Weili Zheng[1], E. Mark Haacke[1], Helen Nichol[2]
[1]Radiology, Wayne State University, Detroit, MI, USA; [2]Department of Anatomy & Cell Biology, University of Saskatchewan, Saskatoon, Saskatchewan, Canada

Clinical Applications of 7T Including Neurodegenerative Diseases

Room 710B 10:30-12:30 *Moderators:* Oliver Speck & Kamil Ugurbil

10:30 **581**. **Introduction**
Mark A. van Buchem

10:54 **583**. **Higher GABA Concentrations in the Brainstem in Parkinson's Disease by ^{1}H MRS at 7T**
Uzay Emrah Emir[1], Susan Rolandelli[1], Paul Joseph Tuite[1], Gulin Oz[1]
[1]University of Minnesota, Minneapolis, MN, USA

11:06 **584**. **MR Relaxometry in PKAN Patients at 1.5T, 3T & 7T**
Monika Dezortova[1], Vit Herynek[1], Martin Krssak[2], Claudia Kronnerwetter[3], Milan Hajek[1]
[1]MR-Unit, Dept Diagnostic & Interventional Radiology, Institute for Clinical & Experimental Medicine, Prague, Czech Republic; [2]Center for Medical Physics & Biomedical Engineering & MR Centre of Excellence, Medical University of Vienna, Vienna, Austria; [3]Dept Radiology & MR Centre of Excellence, Medical University of Vienna, Vienna, Austria

11:18 **585**. **Susceptibility Mapping of the Substantia Nigra in Parkinson Patients At 7T After One Year of Diagnosis & Treatment**
Andreas Schäfer[1], Derek V. Ott[2], Almut Focke[2], Johannes Schwarz[2], David Weise[2], Robert Turner[1], Sonja A. Kotz[1]
[1]Max-Planck-Institute for Human Cognitive & Brain Sciences, Leipzig, Germany; [2]University Hospital, Leipzig, Germany

11:30 **586**. **Susceptibility Mapping of Alzheimer Plaques at 7T**
Michael Zeineh[1], Hagen Kitzler[2], Scott Atlas[1], Hannes Vogel[3], Brian Rutt[1]
[1]Radiology, Stanford University, Stanford, CA, USA; [2]Neuroradiology, 2Department of Neuroradiology, Technische Universitaet Dresden, Germany; [3]Pathology, Stanford University, Stanford, CA, USA

11:42 **587**. **Spectroscopic Imaging of Human Medial Temporal Lobe Epilepsy At 7T**
Jullie W. Pan[1], Dennis D. Spencer[1], R. Bradley Duckrow[2], Nikolai Avdievich[1], Hoby P. Hetherington[1]
[1]Neurosurgery, Yale University School of Medicine, New Haven, CT, USA; [2]Neurology, Yale University School of Medicine, New Haven, CT, USA

11:54 **588**. **Glutamate Level in the Frontal Cortex Decreases During Young Adulthood**
Anouk Marsman[1], Dennis Klomp[2], Jannie Wijnen[2], Martijn Van den Heuvel[1], Vincent Boer[2], Peter Luijten[2], Hilleke Hulshoff Pol[1]
[1]Psychiatry, University Medical Center Utrecht, Utrecht, Netherlands; [2]Radiology, University Medical Center Utrecht, Utrecht, Netherlands

12:06 **589**. **Effect of Normal Aging On the Intra-Cellular Sodium Volume Fraction in the Human Brain: A 7T MRI *In-Vivo* Study**
Lazar Fleysher[1], Niels Oesingmann[2], Ryan Brown[1], Hina Jaggi[1], Graham Wiggins[1], Daniel Sodickson[1], Matilde Inglese[1,3]
[1]Radiology, NYU School of Medicine, New York, USA; [2]Siemens Medical Solutions USA, Malvern, PA, USA; [3]Neurology, NYU School of Medicine, New York

12:18 **590**. **Diffuse Iron Deposition in the Putamen & Caudate Nucleus in CADASIL: Comparing Phase & Magnitude Images At 7 Tesla**
Michael Kwan-Yoe Liem[1], Saskia A. J. Lesnik Oberstein[2], Maarten J. Versluis[1], Joost Haan[3], Andrew G. Webb[1], Michel D. Ferrari[3], Mark A. van Buchem[1], Jeroen van der Grond[1]
[1]Radiology, Leiden University Medical Center, Leiden, Netherlands; [2]Clinical Genetics, Leiden University Medical Center, Leiden, Netherlands; [3]Neurology, Leiden University Medical Center, Leiden, Netherlands

Hands-On Workshop 2 (Repeat)
Body & Cardiovascular Protocol Optimization
GE Healthcare

Room 520A-D 13:30-15:30

Hands-On Workshop 2 (Repeat)
Body & Cardiovascular Protocol Optimization
Siemens

Room 515A-C 13:30-15:30

Cardiovascular MRI - Exploring the Boundaries Part 3: Case-Based Studies in CMR
Case-Based Teaching

Room 512A-G 13:30-15:30 *Moderators:* Tim Leiner & Warren J. Manning

13:30 **Ischemic CMP**
Tim Leiner

13:50 **Non-Ischemic CMP**
Bernd J. Wintersperger

14:10 **Valvular Disease**
Warren J. Manning

14:30 **Congenital Heart Disease**
Jeffrey H. Maki

14:50 **Right Ventricle / ARVD**
Harikrishna Tandri

15:10 **Coronary Angiography**
Qi Yang

MR Safety: Risk-Benefit Approach: Case-Based Teaching

Room 516A-C 13:30-15:30

13:30 **MR Environment & Patient Screening: Increasing Patient Access**
Paul M. Ruggieri

14:00 **Scanning Dangerous Things: Risk Benefit Approach**
Micheal D. Phillips

14:30 **Interventional MRI-Interventional Procedures**
Alastair J. Martin

15:00 **7T & Higher-Human Safety & the Path to the Clinic Adoption**
Jaane Rauschenberg

Toward Clinical 7T from Toe to Head

Room 518-A-C 13:30-15:30 *Moderators:* Jeanette Schulz-Menger & Daniel K. Sodickson

13:30 **591**. **Introduction**
Daniel K. Sodickson

13:42 **592**. **MRI of the Human Prostate *In Vivo* at 7T**
Tom W.J. Scheenen[1,2], Stephan Orzada[2,3], Thiele Kobus[1], Miriam W. Lagemaat[1], Marnix C. Maas[1], Oliver Kraff[2], Stefan Maderwald[2], Irina Brote[2,3], Mark E. Ladd[2,3], Andreas K. Bitz[2,3]
[1]Radiology, Radboud University Nijmegen Medical Centre, Nijmegen, Gelderland, Netherlands; [2]Erwin L. Hahn Institute for Magnetic Resonance Imaging, Essen, Germany; [3]Diagnostic & Interventional Radiology & Neuroradiology, University Hospital Essen, Essen, Germany

13:54 **593**. **Dynamically Applied Multiple B_1+ Shimming Scheme for Arterial Spin Labeling of the Prostate at 7T**
Xiufeng Li[1], Pierre-Francois Van de Moortele[1], Kamil Ugurbil[1], Greg Metzger[1]
[1]Center for Magnetic Resonance Research, University of Minnesota, Minneapolis, MN, USA

14:06 **594**. **7 Tesla Abdominal Imaging using TIAMO**
Stephan Orzada[1,2], Sören Johst[1,2], Andreas K. Bitz[1,2], Oliver Kraff[1,3], Irina Brote[1,2], Susanne C. Ladd[1,2], Mark E. Ladd[1,2], Stefan Maderwald[1,3]
[1]Erwin L. Hahn Institute for Magnetic Resonance Imaging, Essen, NRW, Germany; [2]Department of Diagnostic & Interventional Radiology & Neuroradiology, University Hospital Essen, Essen, NRW, Germany; [3]University of Duisburg-Essen, Essen, NRW, Germany

14:18 **595**. **Initial Results of Abdominal MRI at 7T using a 16-channel Transmit/Receive Coil**
Fabian Hezel[1], Peter Kellman[2], Christof Thalhammer[1], Celal Özerdem[1], Wolfgang Renz[3], Thoralf Niendorf[1]
[1]Berlin Ultrahigh Field Facility, Max Delbrueck Center for Molecular Medicine, Berlin, Germany; [2]Laboratory of Cardiac Energetics, National Institutes of Health/NHLBI, Bethesda, MD, USA; [3]Siemens Medical Systems, Erlangen, Germany

14:30 **596**. **Balanced SSFP Cardiac Imaging at 7T**
Lance DelaBarre[1], J. Thomas Vaughan[1], Carl Snyder[1], Pierre-Francois van de Moortele[1]
[1]CMRR - Dept. of Radiology, University of Minnesota, Minneapolis, MN, USA

14:42 **597**. **Fat-water Separated Imaging At 7T: Initial Results For Cardiac Applications**
Peter Kellman[1], Fabian Hezel[2], Saurabh Shah[3], Wolfgang Renz[4], Christof Thalhammer[2], Jeanette Schulz-Menger[2,5], Thoralf Niendorf[2,6]
[1]NIH, Bethesda, MD, USA; [2]Berlin Ultrahigh Field Facility, Max-Delbrueck-Center for Molecular Medicine, Berlin, Germany; [3]Siemens Medical Solutions, USA, Chicago, IL, USA; [4]Siemens Healthcare, Erlangen, Germany; [5]Charité Campus Buch, Helios Klinkum, Berlin, Germany; [6]Experimental & Clinical Research Center, Charité Campus Buch, Humboldt-University, Berlin, Germany

14:54 **598**. **Contrast Enhancement in TOF Cerebral Angiography At 7 Tesla Under SAR Constraints: Trading Between Saturation, VERSE & Magnetization Transfer RF Pulses**
Sebastian Schmitter[1], Edward J. Auerbach[1], Gregor Adriany[1], Kamil Ugurbil[1], Pierre-Francois Van de Moortele[1]
[1]Center for Magnetic Resonance Research, University of Minnesota, Minneapolis, MN, USA

15:06 **599**. **Further Reduction of SAR For T_2-Weighted Hyper-TSE Imaging At 7 Tesla**
K. A. Danishad[1], Niravkumar Darji[1], Oliver Speck[1]
[1]Department of Biomedical Magnetic Resonance, Otto-von-Guericke University, Magdeburg, Saxony Anhalt, Germany

15:18 **600**. **Adiabatic Turbo Spin Echo For Human Applications At 7T**
Irene Maria Louise van Kalleveen[1], Vincent O. Boer[1], Peter Luijten[1], Jaco J. M. Zwanenburg[1], Dennis W. J. Klomp[1]
[1]Radiology, UMC Utrecht, Utrecht, Netherlands

Multiple Sclerosis Human Studies Neuro

Room 710B 13:30-15:30 *Moderators:* Douglas L. Arnold & Maria A. Rocca

13:30 **601**. **Characterizing Brain Oxygen Metabolism in Patients with Multiple Sclerosis with T_2-Relaxation-Under-Spin-Tagging (TRUST) MRI**
Yulin Ge[1], Zhongwei Zhang[1], Hanzhang Lu[2], Lin Tang[1], Hina Jaggi[1], James Babb[1], Joseph Herbert[3], Robert I. Grossman[1]
[1]Department of Radiology, New York University Langone Medical Center, New York City, NY, USA; [2]Advanced Imaging Research Center, University of Texas Southwestern Medical Center; [3]Department of Neurology, New York University Langone Medical Center, New York City, NY, USA

13:40 **602**. **Evolution of Multiple Sclerosis Ring Lesions: A Serial Phase Imaging Study at 7T**
Wei Bian[1,2], Kristin Harter[3], Kathryn Hammond Rosenbluth[4], Duan Xu[2], Douglas A. C. Kelley[2], Daniel Vigneron[2], Sarah J. Nelson[2,5], Daniel Pelletier[6]
[1]Joint Graduate Program in BioEngineering at UCSF & UCB, University of California San Francisco, San Francisco, CA, USA; [2]Department of Radiology & Biomedical Imaging, University of California San Francisco, San Francisco, CA, USA; [3]School of Pharmacy, University of California San Francisco, San Francisco, CA, USA; [4]Department of Neurological Surgery, University of

California San Francisco, San Francisco, CA, USA; [5]Department of BioEngineeing & Therapeutic Sciences, Unviersity of California San Francisco, San Francisco, CA, USA; [6]Department of Neurology, University of California San Francisco, San Francisco, CA, USA

13:50 **603**. **Quantitative Characterization of Cortical Pathology in Multiple Sclerosis using Surface-Based Analysis of T_2* Relaxation At 7T**

Julien Cohen-Adad[1,2], Karl G. Helmer[1,2], Allen Scott Nielsen[3], Doug Greve[1,2], Thomas Benner[1,2], Rip Philip Kinkel[2,3], Bruce R. Rosen[1,2], Caterina Mainero[1,2]

[1]A. A. Martinos Center for Biomedical Imaging, Department of Radiology, Massachusetts General Hospital, Charlestown, MA, USA; [2]Harvard Medical School, Boston, MA, USA; [3]Beth Israel Deaconess Medical Center, Boston, MA, USA

14:00 **604**. **Multiple Sclerosis Alters Intra-cellular Sodium Concentration & Intra-cellular Volume Fraction: An *In-Vivo* 7T MRI study**

Lazar Fleysher[1], Niels Oesingmann[2], Ryan Brown[1], Hina Jaggi[1], Graham Wiggins[1], Daniel Sodickson[1], Joseph Herbert[3], Matilde Inglese[1]

[1]Radiology, NYU School of Medicine, New York, USA; [2]Siemens Medical Solutions USA, Malvern, PA, USA; [3]Neurology, NYU School of Medicine, New York, USA

14:10 **605**. **Atlas-Based Quantification of Brain Normal-Appearing White & Gray Matter Volume, Relaxation Time & Diffusion Tensor Metrics in Multiple Sclerosis**

Khader M. Hasan[1], Indika S. Walimuni[1], Sushmita Datta[1], Flavia Nelson[2], Jerry S. Wolinsky[3], Ponnada A. Narayana[4]

[1]Radiology, UTHSCH, Houston, TX, USA; [2]Neurology, UTHSCH, Houston, TX; [3]Neurology, UTHSCH, Houston, Texasa, USA; [4]Radiology, UTHSCH, Houston, Uexasa, USA

14:20 **606**. **Ten-Year Brain Atrophy Rate & Its Relevance to Disability in Multiple Sclerosis**

Antonio Giorgio[1], Maria Laura Stromillo[1], Maria Letizia Bartolozzi[2], Francesca Rossi[3], Marco Battaglini[3], Anita Blandino[3], Leonello Guidi[2], Patrizia Maritato[2], Antonio Federico[3], Nicola De Stefano[3]

[1]Department of Neurological & Behavioral Sciences , University of Siena, Siena, Italy; [2]Neurology Unit, Hospital of Empoli, Italy; [3]Department of Neurological & Behavioral Sciences, University of Siena, Siena, Italy

14:30 **607**. **Reversible NAA Decreases in Active MS Lesions Are Not Due Solely to Water Content Changes**

Irene Vavasour[1], Cornelia Laule[1,2], Madeleine Hodgson[3], David Li[1], Anthony Traboulsee[4], Burkhard Maedler[5], Alexander MacKay[1,3]

[1]Radiology, University of British Columbia, Vancouver, British Columbia, Canada; [2]Pathology & Laboratory Medicine, University of British Columbia, Vancouver, British Columbia, Canada; [3]Physics & Astronomy, University of British Columbia, Vancouver, British Columbia, Canada; [4]Medicine (Neurology), University of British Columbia, Vancouver, British Columbia, Canada; [5]Neurosurgery, University of Bonn, Germany

14:40 **608**. **Quantitative Assessment of Iron in Multiple Sclerosis Lesions**

Christian Langkammer[1], Michael Khalil[1], Christian Enzinger[1], Mirja Wallner-Blazek[1], Margit Jehna[1], Siegried Fuchs[1], Franz Fazekas[1], Stefan Ropele[1]

[1]Department of Neurology, Medical University of Graz, Graz, Austria

14:50 **609**. **Longitudinal Tract-Based Spatial Statistics Analysis Reveals Left & Right Asymmetric DTI Alterations in Relapsing Remitting Multiple Sclerosis**

Salem Hannoun[1], Francoise Durand-Dubief[1,2], Christian Confavreux[2], Francois Cotton[1], Dominique Sappey-Marinier[1,3]

[1]CREATIS, University of Lyon, Lyon, Rhone-Alpes, France; [2]Neurological Hospital, Lyon, Rhone-Alpes, France; [3]CERMEP-Imagerie du Vivant, Lyon, Rhone-Alpes, France

15:00 **610**. **Axonal Damage in the Making: Neurofilament Phosphorylation & Magnetization Transfer in MS Non-Lesional White Matter**

Klaus Schmierer[1,2], Dan Tozer[2], Axel Petzold[2,3]

[1]Barts and the London School of Medicine & Dentistry, London, England, United Kingdom; [2]Neuroinflammation, UCL Institute of Neurology, London, United Kingdom; [3]Free University Medical Centre, Amsterdam, Netherlands

Mouse Imaging: How to Do It Faster, Cheaper & Better

Room 510 16:00-18:00 *Moderators:* Klaas Nicolay & Ivan Tkac

16:00 **Multimodal Imaging of Mice**
Natalie J. Serkova

16:20 **Tips for Advanced MRI Screening of Mice**
Rui V. Simões

16:40 **Single & Multiple Mouse Imaging on a Clinical Scanner using Receiver Coil Arrays**
Marcelino L. Bernardo

17:00 **MRI & Stem Cell Trafficking**
Karen C. Briley-Saebo

17:20 **Cost Effective, High Performance MRS Screening of Rodents**
Olli J. H. Gröhn

17:40 **Heart Imaging in Mice**
David E. Sosnovik

MR Physics & Techniques for Clinicians

Room 516A-C 16:00-18:00

16:00 **Diffusion & Perfusion Weighted Imaging**
Matthias Weigel

16:40 **Contrast Agents**
Michael V. Knopp

17:20 **fMRI**
Karla L. Miller

Myocardial Tissue Characteristics & Spectroscopy: Human Studies

Room 511A-C 16:00-18:00 *Moderators:* Sebastian Kozerke & Robert G. Weiss

16:00 **611**. **Cardiac Magnetic Resonance Quantitative T_2 Mapping For Monitoring of Acute Cardiac Transplant Rejection**
Asad Ali Usman[1], Kirsi Taimen[1], Marie Wasielewski[1], Saurabh Shah[1,2], Jermey D. Collins[1], Jennifer M. McDonald[1], James C. Carr[1]
[1]Radiology - Cardiovascular Imaging, Northwestern University, Chicago, IL, USA; [2]Cardiovascular MR Research & Development, Siemens Healthcare, Chicago, IL, USA

16:12 **612**. **Comparison of the Transverse Relaxation Time of the Left Ventricle during the Mid-Diastolic Rest & the End-systolic Rest Periods**
Brice Fernandez[1,2], Maelene Lohezic[1,2], Lucien Hammen[2,3], Jean-Marie Escanyé[4,5], Damien Mandry[2,4], Jacques Felblinger[2,6], Pierre-André Vuissoz[2,3]
[1]Global Applied Science Laboratory, GE Healthcare, Nancy, France; [2]IADI Lab, Nancy-Université, Nancy, France; [3]U947, INSERM, Nancy, France; [4]CHU de Nancy, Nancy, France; [5]Biophysics Lab, Nancy-Université, Nancy, France; [6]CIT801, INSERM, Nancy, France

16:24 **613**. **Quantitative Myocardial T_2 Measurement For Systemic Sarcoidosis with Cardiac Involvement: Initial Results**
Yuesong Yang[1], Kim A. Connelly[2], Meyer Balter[3], John J. Graham[2], Rhonda Walcarius[1], Bradley Strauss[1], Alexander J. Dick[4], Graham A. Wright[1]
[1]Imaging Research & Cardiology, Sunnybrook Health Sciences Centre, Toronto, ON, Canada; [2]Cardiology, St.Michael's Hospital, Toronto, ON, Canada; [3]Medicine, Mount Sinai Hospital, Toronto, ON, Canada; [4]Ottawa Heart Institute, Ottawa, ON, Canada

16:36 **614**. **Design of a Robust Method For Suppression of Ghosting Artifacts Due to Long T_1 Species in Cardiac Imaging**
Elizabeth R. Jenista[1], Wolfgang G. Rehwald[2], Nayla Chaptini[1], Michele A. Parker[1], Raymond J. Kim[1]
[1]Duke University Medical Center, Durham, NC, USA; [2]Cardiovascular MR&D, Siemens Healthcare, Chicago, IL, USA

16:48 **615**. **Human Cardiac T_1 Measured At 7 Tesla**
Christopher Thomas Rodgers[1,2], Stefan Piechnik[1], Lance DelaBarre[2], Pierre-Francois Van de Moortele[2], Carl Snyder[2], Stefan Neubauer[1], Matthew D. Robson[1], J. Thomas Vaughan[2]
[1]University of Oxford, Oxford, United Kingdom; [2]University of Minnesota, Minneapolis, MN, USA

17:00 **616**. **Early Cardiovascular MR Imaging Predicts Late Scar Formation in Pulmonary Vein Isolation**
Dana C. Peters[1], Warren J. Manning[1,2], Mark E. Josephson[1], Jeff Hsing[1]
[1]Cardiology, Beth Israel Deaconess Medical Center, Boston, MA, USA; [2]Radiology, Beth Israel Deaconess Medical Center

17:12 **617**. **Imaging of Hemorrhagic Myocardial Infarction using Susceptibility Weighted Imaging (SWI)**
James William Goldfarb[1]
[1]Saint Francis Hospital, Roslyn, NY, USA

17:24 **618**. **Quantitative Assessment of Aldosterone-Induced Myocardial Fibrosis by Cardiac Magnetic Resonance**
Mao-Yuan Su[1], Vin-cent Wu[2,3], Yen-Hung Line[2,3], Hsi-Yu Yu[4], Wen-Yieh Isaac Tseng[1,5]
[1]Medical Imaging, National Taiwan University Hosptial, Taipei, Taiwan; [2]Internal Medicine, National Taiwan University Hosptial, Taipei, Taiwan; [3]TAIPAI study group; [4]Sugery, National Taiwan University Hosptial, Taipei, Taiwan; [5]Center for Optoelectronic Biomedicine, National Taiwan University College of Medicine, Taipei, Taiwan

17:36 **619**. **Two-dimensional Mapping of Triglyceride & Creatine Content of the Human Heart**
Kilian Weiss[1], Nicola Martini[2], Peter Boesiger[1], Sebastian Kozerke[1]
[1]Institute for Biomedical Engineering, University & ETH Zurich, Zurich, Switzerland; [2]Fondazione G. Monasterio CNR-Regione Toscana, Massa, Italy

17:48 **620**. **Three-Dimensional Local-Look Spectroscopic Imaging of the Heart**
Kilian Weiss[1], Nicola Martini[2], Peter Boesiger[1], Sebastian Kozerke[1]
[1]Institute for Biomedical Engineering, University & ETH Zurich, Zurich, Switzerland; [2]Fondazione G. Monasterio CNR-Regione Toscana, Massa, Italy

Novel RF & Other Systems

Room 511D-F 16:00-18:00 *Moderators:* Richard W. Bowtell & Michael S. Poole

16:00 **621**. **Enhancement of RF Field By High Dielectric Constant Pad At 3T: Cervical Spine Imaging**
Qing X. Yang[1,2], Zachary George Herse[1], Mathew Ketterman[3], Jianli Wang[1], Chris Sica[1], Christopher Collins[1,2], Jinhua Wang[4], Michael Lanagan[3]
[1]Radiology, the Pennsylvania State University College of Medicine, Hershey, PA, USA; [2]Bioengineering, the Pennsylvania State University College of Medicine, Hershey, PA, USA; [3]Materials Research Institute, the Pennsylvania State University, University Park, PA, USA; [4]Diagnostic Radiology, Yale School of Medicine

16:12 **622**. **New Barium Titanate Based Dielectric Materials For High Field Imaging**
Wouter M. Teeuwisse[1], Kristina N. Haines[2], Nadine B. Smith[1], Andrew G. Webb[1]
[1]Radiology, Leiden University Medical Center, Leiden, Netherlands; [2]Electrical Engineering, Penn State University, University Park, USA

16:24 **623**. **B_1 Shimming using Phase Shifts For Travelling Wave MRI with a Coaxial Waveguide**
Stefan Alt[1], Marco Müller[1], Reiner Umathum[1], Michael Bock[1]
[1]Medical Physics in Radiology, German Cancer Research Center (DKFZ), Heidelberg, Germany

16:36 **624**. **Improved RF Control of the Travelling Wave MR using a Multi-Mode Coaxial Waveguide**
Anna Andreychenko[1], Hugo Kroeze[1], Peter Luijten[1], Jan J. W. Lagendijk[1], Cornelis A. T. van den Berg[1]
[1]University Medical Center Utrecht, Utrecht, Netherlands

16:48 **625**. **Sideband Excitation for Concurrent RF Transmission & Reception**
David Otto Brunner[1], Matteo Pavan[1], Benjamin Dietrich[1], Daniel Rothmund[1], Alexander Heller[1], Klaas Paul Pruessmann[1]
[1]Institute for Biomedical Engineering, University & ETH Zurich, Zurich, Switzerland

17:00 **626**. **Integrated Detection, Amplification & Wireless transmission of MRI Signals using a Parametric Amplifier**
Chunqi Qian[1], Joseph Murphy-Boesch[1], Stephen Dodd[1], Alan Koretsky[1]
[1]LFMI/NINDS, National Institute of Health, Bethesda, MD, USA

17:12 **627**. **Development of an MRI System using a High T_c Bulk Superconducting Magnet**
Kyohei Ogawa[1], Takashi Nakamura[2], Yasuhiko Terada[1], Katsumi Kose[1], Tomoyuki Haishi[3]
[1]Institute of Applied Physics, University of Tsukuba, Tsukuba, 305-8573, Japan; [2]RIKEN, Wako, 351-0198, Japan; [3]MRTechnology, Tsukuba, 305-0047, Japan

17:24 **628**. **Ultrasound/MR Hybrid Imaging: Truly Simultaneous Motion Monitoring in the Abdomen & Image Co-Registration**
Lorena Petrusca[1], Valeria De Luca[2], Patrik Arnold[3], Zarko Celicanin[4], Thomas Goget[5], Vincent Auboiroux[5], Magalie Viallon[5], Francesco Santini[4], Sylvain Terraz[5], Klaus Scheffler[4], Christine Tanner[2], Philippe Cattin[3], Rares Salomir[5]
[1]Radiology Department, University Hospitals of Geneva , Geneva , Switzerland; [2]Computer Vision Laboratory, Zurich, Switzerland; [3]Center for Medical Images Analysis, Basel, Switzerland; [4]Radiological Physics, University of Basel Hospital, Switzerland; [5]Radiology Department, University Hospitals of Geneva, Geneva, Switzerland

17:36 **629**. **Results on Rapid 3D Magnetic Particle Imaging with a Large Field of View**
Jürgen Rahmer[1], Bernhard Gleich[1], Claas Bontus[1], Ingo Schmale[1], Joachim Schmidt[1], Jürgen Kanzenbach[1], Oliver Woywode[2], Jürgen Weizenecker[3], Jörn Borgert[1]
[1]Philips Research Laboratories, Hamburg, Germany; [2]Philips Medical Systems DMC GmbH, Hamburg, Germany; [3]University of Applied Sciences, Karlsruhe, Germany

17:48 **630**. **A Combined MR-Fluorescence Tomography System For Quantitative Small Animal Imaging: *In Vivo* Validation**
Yuting Lin[1], Michael Ghijsen[1], Orhan Nalcioglu[1], Gultekin Gulsen[1]
[1]University of California, Irvine, CA, USA

Pushing the Bounds of fMRI Resolution

Room 512A-G 16:00-18:00 *Moderators:* Nan-Kuei Chen & Seong-Gi Kim

16:00 **631**. **Ultra-Fast fMRI of Human Visual Cortex using Echo-Shifted Magnetic Resonance Inverse Imaging**
Wei-Tang Chang[1], Thomas Witzel[2], Kevin Wen-Kai Tsai[1], Wen-Jui Kuo[3], Fa-Hsuan Lin[1]
[1]Institute of Biomedical Engineering, National Taiwan University, Taipei, Taiwan; [2]Athinoula A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Charlestown, MA, USA; [3]Institute of Neuroscience, National Yang-Ming University, Taipei, Taiwan

16:12 **632**. **Dynamic Magnetic Resonance Multi-Projection Inverse Imaging (Mini) with Isotropic Spatial Resolution**
Kevin Wen-Kai Tsai[1], Aapo Nummenmaa[2], Thomas Witzel[2,3], Wei-Tang Chang[4], Wei-Jui Kuo[5], Fa-Hsuan Lin[1,2]
[1]Institute of Biomedical Engineering, National Taiwan University, Taipei, Taiwan; [2]A. A. Martinos Center, Massachusetts General Hospital, Charlestown, MA, USA; [3]Harvard-MIT Divisions of Health Sciences & Technique, Charlestown, MA, USA; [4]Institute of Biomedical Engineering, National Taiwan University, Taipei, Taiwan, Taiwan; [5]Cognitive Neuropsychology Laboratory, National Yang-Ming University, Taipei, Taiwan, Taiwan

16:24 **633**. **Single-Shot Whole Brain Echo Volume Imaging for Temporally Resolved Physiological Signals in fMRI**
Thomas Witzel[1,2], Jonathan R. Polimeni[1], FaHsuan Lin[1,3], Aapo Nummenmaa[1], Lawrence L. Wald[1,2]
[1]A. A. Martinos Center MGH Department of Radiology, Harvard Medical School, Boston, MA, USA; [2]Harvard-MIT Division of Health Sciences & Technology, Cambridge, MA, USA; [3]Biomedical Engineering, National Taiwan University, Taipei, Taiwan

16:36 **634**. **Tracking Dynamic Resting-State Networks with High Temporal Resolution fMRI**
Hsu-Lei Lee[1], Benjamin Zahneisen[1], Thimo Grotz[1], Pierre LeVan[1], Jürgen Hennig[1]
[1]Medical Physics, University Medical Center Freiburg, Freiburg, Germany

16:48 **635**. **Multiplexed Echo Planar Imaging with Sub-Second Whole Brain FMRI & Fast Diffusion Imaging**
David A. Feinberg[1,2], Steen Moeller[3], Stephen Smith[4], Edward Auerbach[3], Kamil Ugurbil[3], Essa Yacoub[3]
[1]Advanced MRI Technologies, Sebastopol, CA, USA; [2]University of California, Berkeley & San Francisco, CA, USA; [3]Center for Magnetic Resonance Research, University of Minnesota; [4]FMRIB, Oxford University

17:00 **636**. **Resting-state Correlations Between Depths Within Columns of Voxels Radial to the Cortical Surface**
Jonathan Rizzo Polimeni[1], Kyoko Fujimoto[1], Boris Keil[1], Douglas N. Greve[1], Bruce Fischl[1,2], Lawrence L. Wald[1,3]
[1]A. A. Martinos Center for Biomedical Imaging, Department of Radiology, Harvard Medical School, Massachusetts General Hospital, Charlestown, MA, USA; [2]Computer Science & AI Lab (CSAIL), Massachusetts Institute of Technology, Cambridge, MA, USA; [3]Harvard-MIT Division of Health Sciences & Technology, Massachusetts Institute of Technology, Cambridge, MA, USA

17:12 **637**. **High Resolution fMRI of the Functionally-Defined Fusiform Face Area using 7T**
Rankin Williams McGugin[1], Christopher Gatenby[2,3], Isabel Gauthier[1]
[1]Psychology, Vanderbilt University, Nashville, TN, USA; [2]Radiology & Radiological Sciences, Vanderbilt University Medical Center, Nashville, TN, USA; [3]Radiology, University of Washington, Seattle, WA, USA

17:24 **638**. **Tonotopic Mapping in Inferior Colliculus using bSSFP fMRI & Sweeping Frequency Auditory Stimulation**
Matthew Man Hin Cheung[1,2], Joe S. Cheng[1,2], Iris Y. Zhou[1,2], Kevin C. Chan[1,2], Condon Lau[1,2], Ed X. Wu[1,2]
[1]Laboratory of Biomedical Imaging & Signal Processing, the University of Hong Kong, Pokfulam, Hong Kong SAR, China, People's Republic of; [2]Department of Electrical & Electronic Engineering, the University of Hong Kong, Pokfulam, Hong Kong SAR, China, People's Republic of

17:36 **639**. **Cortical Depth Dependent Temporal Dynamics of the BOLD Response in the Human Brain**
Jeroen Cornelis Willem Siero[1,2], Natalia Petridou[1,2], Johannes Marinus Hoogduin[1,2], Peter R. Luijten[2], Nick F. Ramsey[1]
[1]Rudolf Magnus Institute, University Medical Center Utrecht, Utrecht, Netherlands; [2]Radiology, University Medical Center Utrecht, Utrecht, Netherlands

17:48 **640**. **Ipsilateral fMRI Response in Primary Somatosensory Cortex (Area 3b) of Awake Marmosets**
Junjie V. Liu[1], Matthew Huberty[1], Afonso C. Silva[1]
[1]NINDS, National Institutes of Health, Bethesda, MD, USA

Artifacts & Motion Correction

Room 513A-D 16:00-18:00 *Moderators:* Joseph V. Hajnal & Claudia del Carmen Prieto

16:00 **641**. **Improving Scan Efficiency of Respiratory Gated Imaging using Compressed Sensing with 3D Cartesian Golden Angle Sampling**
Mariya Doneva[1], Christian Stehning[1], Kay Nehrke[1], Peter Börnert[1]
[1]Philips Research Europe, Hamburg, Germany

16:12 **642**. **Metric Optimized Gating for Fetal Cardiac Imaging**
Christopher William Roy[1], Mike Seed[2], Joshua F. van Amerom[3,4], Lars Grosse-Wortmann[2,4], Shi-Joon Yoo[2,4], Christopher K. Macgowan[3,4]
[1]Departments of Medical Biophysics & Medical Imaging, University of Toronto , Toronto, Ontario, Canada; [2]Division of Cardiology, Department of Paediatrics, The Labatt Family Heart Centre, The Hospital for Sick Children, University of Toronto, Toronto, Ontario, Canada; [3]Departments of Medical Biophysics & Medical Imaging, University of Toronto, Toronto, Ontario, Canada; [4]Department of Diagnostic Imaging, The Hospital for Sick Children, University of Toronto, Toronto, Ontario, Canada

16:24 **643**. **3D Non-Rigid Motion Modeling of the Liver from Undersampled Golden-Radial Phase Encoding (G-RPE) Acquisitions**
Christian Buerger[1], Andrew Peter King[1], Tobias Schaeffter[1], Claudia Prieto[1]
[1]Division of Imaging Sciences & Biomedical Engineering, King's College London, London, United Kingdom

16:36 **644**. **From Artifact to Merit: Cardiac Gated MRI at 7T & 3T using Magneto-Hydrodynamic Effects for Synchronization**
Tobias Frauenrath[1], Matthias Dieringer[1,2], Nishant Patel[1], Celal Özerdem[1], Jan Hentschel[1], Wolfgang Renz[1,3], Thoralf Niendorf[1,2]
[1]Berlin Ultrahigh Field Facility, MDC Berlin, Berlin, Germany; [2]Charité Campus Buch, Humboldt-University, Experimental & Clinical Research Center (ECRC), Berlin, Germany; [3]Siemens Healthcare, Erlangen, Bayern, Germany

16:48 **645**. **Steady-State B_1 Mapping of Dynamically Changing RF Fields**
Shaihan J. Malik[1], Francesco Padormo[1], Joseph V. Hajnal[1]
[1]Robert Steiner MRI Unit, Imaging Sciences Department, MRC Clinical Sciences Centre, Hammersmith Hospital, Imperial College London, London, United Kingdom

17:00 **646**. **Frequency Correction for MR Spectroscopy in the Human Breast At 7 Tesla with External Field Monitoring**
Bart Lowie van de Bank[1], Vincent Oltman Boer[1], Mariska P. Luttje[1], Jannie Petra Wijnen[1], Gerard van Vliet[1], J. M. Hoogduin[1], Peter R. Luijten[1], Dennis W. Klomp[1]
[1]Beeld, University Medical Center Utrecht, Utrecht, Netherlands

17:12 **647**. **Real Time Dynamic Shimming for MR Spectroscopy using 2-Dimensional RF Excitations**
Brian Keating[1], Thomas Ernst[2]
[1]Deptartment of Medicine, University of Hawaii, Honolulu, HI, USA; [2]Department of Medicine, University of Hawaii, Honolulu, HI, USA

17:24 **648**. **Bowtie PROPELLER: A Fast & Efficient Motion Correction Method in MRI**
Hisamoto Moriguchi[1,2], Shin-ichi Urayama[3], Yutaka Imai[1], Manabu Honda[4], Takashi Hanakawa[4,5]
[1]Radiology, Tokai University, Isehara, Kanagawa, Japan; [2]Radiology, Hiratsuka municipal hospital, Hiratsuka, Kanagawa, Japan; [3]Human Brain Research Center, Kyoto University, Kyoto, Japan; [4]Functional Brain Research, National Center of Neurology & Psychiatry, Kodaira, Tokyo, Japan; [5]Precursory Research for Embryonic Science & Technology, Japan Science & Technology Agency, Japan

17:36 **649**. **Prospective Motion Correction for Diffusion Imaging using FID Navigators**
Tobias Kober[1,2], Rolf Gruetter[1,3], Gunnar Krueger[2]
[1]Laboratory for functional & metabolic imaging, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; [2]Advanced Clinical Imaging Technology, Siemens Suisse SA - CIBM, Lausanne, Switzerland; [3]Departments of Radiology, Universities of Lausanne & Geneva, Switzerland

17:48 **650**. **A Robust MR-Based Rigid-Body Motion Correction for Simultaneous MR-PET**
Marcus Goerge Ullisch[1], Christoph Weirich[1], Juergen Scheins[1], Elena Rota Kops[1], Avdo Celik[1], Tony Stöcker[1], Nadim Jon Shah[1,2]
[1]Institute of Neuroscience and Medicine - 4, Forschungszentrum Juelich, Juelich, Germany; [2]Department of Neurology, Faculty of Medicine, JARA, RWTH Aachen University, Aachen, Germany

Hyperpolarized ^{13}C

Room 518-A-C 16:00-18:00 *Moderators:* Dirk Mayer & Rahim R. Rizi

16:00 **651**. **Hyperpolarized ^{13}C MR Metabolic Imaging Provides an Early Biomarker of MGMT Activity & Response to Temozolomide Treatment**
Ilwoo Park[1], Llewellyn E. Jalbert[1], Tomoko Ozawa[2], C. David James[2], Joanna J. Phillips[2], Daniel B. Vigneron[1,3], Russell O. Pieper[2], Sabrina M. Ronen[1], Sarah J. Nelson[1,3]
[1]Surbeck Laboratory of Advanced Imaging, Department of Radiology & Biomedical Imaging, University of California, San Francisco, San Francisco, CA, USA; [2]Brain Tumor Research Center, Department of Neurological Surgery, University of California, San Francisco, San Francisco, CA, USA; [3]Department of Bioengineering & Therapeutic Sciences, University of California, San Francisco, San Francisco, CA, USA

16:12 **652**. **Hyperpolarized ^{13}C magnetic Resonance Spectroscopy Detects Early Changes in Tumor Metabolism Following Treatment with the Anti-Angiogenic Agent Bevacizumab**
Sarah E. Bohndiek[1,2], De-en Hu[1,2], Mikko I. Kettunen[1,2], Kevin M. Brindle[1,2]
[1]Department of Biochemistry, University of Cambridge, Cambridge, Cambridgeshire, United Kingdom; [2]Cambridge Research Institute, Cancer Research UK, Cambridge, Cambridgeshire, United Kingdom

16:24 **653.** **Monitoring Metabolic Shifts in TRAMP Mice Resulting from Dichloroacetate using Hyperpolarized Pyruvate**
Aaron Keith Grant[1], Pankaj K. Seth[2], Elena Vinogradov[1], Xiaoen Wang[1], Vikas P. Sukhatme[2], Robert E. Lenkinski[1]
[1]Radiology, Beth Israel Deaconess Medical Center & Harvard Medical School, Boston, MA, USA; [2]Medicine, Beth Israel Deaconess Medical Center & Harvard Medical School, Boston, MA, USA

16:36 **654**. **Exchange-Linked Dissolution Agents in ^{13}C Metabolic Imaging**
Ralph E. Hurd[1], Daniel Spielman[2], Sonal Josan[3], Yi-Fen Yen[1], Adolf Pfefferbaum[3,4], Dirk Mayer[2,3]
[1]GE Healthcare, Menlo Park, CA, USA; [2]Department of Radiology, Stanford University, Stanford, CA, USA; [3]Neuroscience Program, SRI International, Menlo Park, CA, USA; [4]Psychiatry & Behavioral Sciences, Stanford University, Stanford, CA, USA

16:48 **655**. **Hyperpolarized C-13 Metabolic Activity Decomposition with Stimulated-echoes**
Peder Eric Zufall Larson[1], Adam B. Kerr[2], John M. Pauly[2], Daniel B. Vigneron[1]
[1]Radiology & Biomedical Imaging, UC - San Francisco, San Francisco, CA, USA; [2]Electrical Engineering, Stanford University, Stanford, CA, USA

17:00 **656**. **T_1 Nuclear Magnetic Resonance Dispersion of Hyperpolarized [1-^{13}C] Pyruvate**
Francisco M. Martinez-Santiesteban[1], Lanette Friesen Waldner[2], Timothy James Scholl[1,2]
[1]Department of Medical Biophysics, University of Western Ontario, London, ON, Canada; [2]Imaging Research Laboratories, Robarts Research Institute, University of Western Ontario, London, ON, Canada

17:12 **657**. **Simultaneous Investigation of Cardiac Pyruvate Dehydrogenase Flux, Krebs Cycle Metabolism & Intracellular Ph using Hyperpolarized [1,2-$^{13}C_2$] Pyruvate**
Albert P. Chen[1], Ralph E. Hurd[2], Marie A. Schroeder[3,4], Angus Z. Lau[4,5], Yi-Ping Gu[4], Wilfred W. Lam[4], Jennifer Barry[4], James Tropp[6], Charles H. Cunningham[4,5]
[1]GE Healthcare, Toronto, ON, Canada; [2]GE Healthcare, Menlo Park, CA, USA; [3]Department of Physiology, Anatomy & Genetics, University of Oxford, Oxford, United Kingdom; [4]Imaging Research, Sunnybrook Health Sciences Centre, Toronto, ON, Canada; [5]Deptartment of Medical Biophysics, University of Toronto, Toronto, ON, Canada; [6]GE Healthcare, Fremont, CA, USA

17:24 **658**. **Hyperpolarized Butyrate: A Novel Substrate for the Assessment of Cardiac Fatty Acid Metabolism**
Daniel Ball[1], Michael Dodd[1], Helen Atherton[2], Marie Schroeder[1], Carolyn Carr[1], George Radda[1], Kieran Clarke[1], Damian Tyler[1]
[1]Department of Physiology, Anatomy & Genetics, Oxford University, Oxford, Oxfordshire, United Kingdom; [2]Department of Biochemistry, Cambridge University

17:36 **659**. **Metabolic Imaging of the Rat Brain using Hyperpolarized [1-^{13}C]Ketoisocaproate & [1-^{13}C]Pyruvate**
Sadia Asghar Butt[1], Lise Vejby Søgaard[1], Peter Magnusson[1], Mette Lauritzen[1], Per Åkeson[1], Jan Henrik Ardenkjær-Larsen[2]
[1]Danish Research Centre for Magnetic Resonance, Hvidovre, Denmark; [2]GE Healthcare, Broendby, Denmark

17:48 **660**. ***In Vivo* Detection of Brain Krebs Cycle Intermediate By Hyperpolarized MR**
Mor Mishkovsky[1,2], Arnaud Comment[1,2], Rolf Gruetter[1,3]
[1]Laboratory for Functional & Metabolic Imaging , Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; [2]Department of Radiology, Université de Lausanne, Lausanne, Switzerland; [3]Department of Radiology, Universités de Lausanne et de Genève, Lausanne & Genève, Switzerland

Cell Tracking & Gene Expression

Room 520B-F 16:00-18:00 *Moderators:* Eric T. Ahrens & Piotr Walczak

16:00 **661**. **CEST MRI for Monitoring Bacteriolytic Tumor Therapy**
Guanshu Liu[1,2], Chetan Bettegowda[3], Assaf A. Gilad[4,5], Michael T. McMahon[1,2], Kannie W. Y. Chan[2,5], Kenneth W. Kinzler[3], Bert Vogelstein[3], Jeff W. M. Bulte[2,5], Shibin Zhou[3], Peter C. M. van Zijl[1,2]
[1]F. M. Kirby center, Kennedy Krieger Institute, Baltimore, MD, USA; [2]Department of Radiology, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [3]Ludwig Center, Howard Hughes Medical Institute & Sidney Kimmel Cancer Center, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [4]Department of Radiology, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [5]Institute for Cell Engineering, Johns Hopkins University School of Medicine, Baltimore, MD, USA

16:12 **662**. **Magnetization Transfer Contrast MRI Detects Pseudomonas Aeruginosa Bacterial Infection Bacterial Infection a Mouse Burn Model**
Valeria Righi[1,2], Melissa Starkey[3], Laurence G. Rahme[3], Ronald G. Tompkins[4], Aria A. Tzika[1,2]
[1]Department of Surgery, NMR Surgical Laboratory, MGH & Shriners Burn Institute, Harvard Medical School, Boston, MA, USA; [2]Department of Radiology, Athinoula A. Martinos Center of Biomedical Imaging, Boston, MA, USA; [3]Department of Surgery, Molecular Surgery Laboratory, MGH & Shriners Burn Institute, Harvard Medical School, Boston, MA, USA; [4]Department of Surgery, MGH & Shriners Burn Institute, Harvard Medical School, Boston, MA, USA

16:24 **663**. **High-Efficiency Targeting of Glial Precursor Cells to Inflammatory Brain Lesions using the VLA4-VCAM1 Cell Adhesion Pathway: Real-Time MR Monitoring of Instant Cell Engraftment**
Inema Orukari[1,2], Mike Gorelik[3], Joann Wang[3], Shashikala Galpoththawela[1], Heechul Kim[1], Douglas A. Kerr[4], Michael Levy[5], Andre Levchenko[3], Jeff Bulte[1], Piotr Walczak[1]
[1]Russell H. Morgan Department of Radiology & Radiological Science, Division of MR Research, Johns Hopkins University, Baltimore, MD, USA; [2] Cellular Imaging Section, Vascular Biology Program, Institute for Cell Engineerin, Johns Hopkins University, Baltimore, MD, USA; [3]Department of Biomedical Engineering, Johns Hopkins University, Baltimore, MD, USA; [4]Biogen-IDEC, Cambridge, MA, USA; [5]Neurology, Johns Hopkins University, Baltimore, MD, USA

16:36 **664**. ***In Vivo* Magnetic Resonance Imaging of Ferritin-Based Reporter Visualizes Native Neuroblast Migration**
Bistra Iordanova[1,2], Eric T. Ahrens[1,3]
[1]Department of Biological Sciences, Carnegie Mellon University, Pittsburgh, PA, USA; [2]Pittsburgh NMR Center for Biomedical Research , Pittsburgh, PA, USA; [3]Pittsburgh NMR Center for Biomedical Research, Pittsburgh, PA, USA

16:48 **665**. ***In Vivo* Visualization of Pancreatic Islets in the Mouse**
David Z. Balla[1], Sven Gottschalk[1], G Shajan[1], Sandra Ueberberg[2], Stephan Schneider[2], Rolf Pohmann[1], Jörn Engelmann[1]
[1]High-Field MR Center, Max Planck Institute for Biological Cybernetics, Tübingen, Germany; [2]Universitätsklinikum Bergmannsheil, Ruhr-Universität Bochum, Bochum, Germany

17:00 **666**. **Monitoring of Transplanted Pancreatic Islets in Humans By MRI**
Daniel Jirak[1], Frantisek Saudek[2], Monika Dezortova[1], Peter Girman[2], Vit Herynek[1], Jan Kriz[2], Zuzana Berkova[2], Klara Zacharovova[2], Jan Peregrin[1], Milan Hajek[1]
[1]Department of Diagnostic & Interventional Radiology, Institute for Clinical & Experimental Medicine, Prague, Czech Republic; [2]Diabetes Center, Institute for Clinical & Experimental Medicine, Prague, Czech Republic

17:12 **667**. **Divalent Metal Transporter, DMT1: A Novel MRI Reporter**
Benjamin Bay Bartelle[1], Kamila Urzula Szulc[2], Daniel H. Turnbull[2,3]
[1]Structural Biology, Skirball Institute for Biomolecular Medicine, New York, NY, USA; [2]Skirball Institute of Biomolecular Medicine; [3]Radiology, New York University School of Medicine

17:24 **668**. **Electron Paramagnetic Resonance as a New Sensitive Tool to Assess the Iron Content in Cells & Tissues For MRI Cell Labeling Studies**
Pierre Danhier[1], Geraldine Depraeter[1], Sebastien Boutry[2], Isabelle Mahieu[2], Robert N. Muller[2], Pierre Sonveaux[3], Caroline Bouzin[3], Olivier Feron[3], Philippe Leveque[1], Julie Magat[1], Benedicte Jordan[1], Bernard Gallez[1]
[1]Louvain Drug Research Institute, Biomedical Magnetic Resonance Research Group, University of Louvain, Brussels, Belgium; [2]University of Mons, Mons, Belgium; [3]Institute of Experimental & Clinical Research, University of Louvain, Brussels, Belgium

17:36 **669**. ***In Vivo* Monitoring of Anti-Inflammatory Atorvastatin-Effects in Reperfused Myocardial Infarction using Integrated Cellular Fluorine ^{19}F-MRI & ^{1}H-Cardiac MRI**
Yu-Xiang Ye[1], Thomas Christian Basse-Luesebrink[1], Paula Arias[2], Thomas Kampf[1], Vladimir Kocoski[3], Elisabeth Bauer[2], Kai Hu[2], Valerie Jahns[4], Peter M. Jakob[1,5], Karl-Heinz Hiller[1,5], Roland Jahns[2], Wolfgang Rudolf Bauer[2]
[1]Department for Experimental Physics 5, University of Würzburg, Würzburg, Bavaria, Germany; [2]Department of Internal Medicine I, University Hospital Würzburg; [3]Institute for Virology & Immunobiology; [4]Institute for Pharmacology & Toxicology, University of Würzburg; [5]MRB Research Center, Magnetic Resonance Bavaria

17:48 **670**. ***In Vivo* MRI Signal Features of Transgenic Grafts Overexpressing Ferritin in the Murine Myocardial Infarction Model**
Anna Naumova[1,2], Vasily Yarnykh[1,2], Hans Reinecke[2,3], Charles Murry[2,3], Chun Yuan[1,2]
[1]Radiology, University of Washington, Seattle, WA, USA; [2]Center for Cardiovascular Biology, University of Washington, Seattle, WA, USA; [3]Pathology, University of Washington, Seattle, WA, USA

Tractography

Room 710A 16:00-18:00 *Moderators:* Jonathan D. Clayden & Derek K. Jones

16:00 **671**. **Tensor Based Morphometry of White Matter Tracts using Fibre Orientation Distributions**
David Raffelt[1,2], Olivier Salvado[1], Stephen Rose[3], Robert Henderson[4], Alan Connelly[5,6], Stuart Crozier[2], J.-Donald Tournier[5,6]
[1]The Australian E-Health Research Centre, CSIRO, Brisbane, QLD, Australia; [2]Biomedical Engineering, School of ITEE, University of Queensland, Brisbane, QLD, Australia; [3]Centre for Advanced Imaging, University of Queensland, Brisbane, QLD, Australia; [4]Department of Neurology, Royal Brisbane & Women's Hospital, Brisbane, QLD, Australia; [5]Brain Research Institute, Florey Neuroscience Institutes (Austin), Melbourne, VIC, Australia; [6]Department of Medicine, University of Melbourne, Melbourne, VIC, Australia

16:12 **672**. **The fiber Pathways of the Brain Organized As a Highly Curved Woven Grid**
Van Wedeen[1], Douglas Rosene[2], Guangping Dai[1], Ruopeng Wang[1], Jon Kaas[3], Isaac Tseng[4]
[1]Radiology, Martinos Center/ MGH, Charlestown, MA, USA; [2]Anatomy & Neurobiology, Boston University Medical, Boston, MA, USA; [3]Cell & Developmental Biology, Vanderbilt University, Nashville, TN, USA; [4]Center for Optoelectronic Biomedicine, National Taiwan University College of Medicine, Taipei, Taiwan

16:24 **673**. **A Novel Paradigm For Automated Segmentation of Very Large Whole-Brain Probabilistic Tractography Data Sets**
Robert Elton Smith[1,2], Jacques-Donald Tournier[1,2], Fernando Calamante[1,2], Alan Connelly[1,2]
[1]Brain Research Institute, Florey Neuroscience Institutes, Heidelberg West, Victoria, Australia; [2]Department of Medicine, The University of Melbourne, Melbourne, Victoria, Australia

16:36 **674**. **A Study of Effect of Compiling Method on Interregional Connectivity Maps of Brain Networks via Diffusion Tractography**
Longchuan Li[1], James Rilling[2], Todd Preuss[3], Frederick Damen[4], Xiaoping Hu[4]
[1]School of Medicine, Emory University/Georiga Institute of Technology, Atlanta, GA, USA; [2]Division of Psychobiology, Yerkes National Primate Research Center, Atlanta, GA, USA; [3]Division of Neuroscience, Yerkes National Primate Research Center, Atlanta, GA, USA; [4]Department of Biomedical Engineering, Georgia Institute of Technology, Atlanta, GA, USA

16:48 **675**. **Inter-Subject Variability of Structural Network: A DTI Study**
Hu Cheng[1], Jinhua Sheng[2], Yang Wang[2], Olaf Sporns[1], Andrew Saykin[2], William Kronenberger[2], Vincent Mathews[2], Thomas Hummer[2]
[1]Indiana University, Bloomington, IN, USA; [2]Indiana University, Indianapolis, IN, USA

17:00 **676**. **Mapping Hubs in the Neocortical Structural Network of the Human Brain Shows Lateralization**
Emil Harald Jeroen Nijhuis[1,2], Anne-Marie van Cappellen van Walsum[2,3], David G. Norris[1,4]
[1]Donders Institute for Brain, Cognition and Behaviour, Radboud University, Nijmegen, Netherlands; [2]MIRA Institute for Biomedical Technology and Technical Medicine, University of Twente, Netherlands; [3]Department of Anatomy, Radboud University Nijmegen Medical Center, Netherlands; [4]Erwin L Hahn Institute for MRI, Universität Duisburg-Essen, Germany

17:12 **677**. **Track Density Imaging (TDI): Validation of Super-Resolution Property**
Fernando Calamante[1,2], Jacques-Donald Tournier[1,2], Robin M. Heidemann[3], Alfred Anwander[3], Graeme D. Jackson[1,2], Alan Connelly[1,2]
[1]Brain Research Institute, Florey Neuroscience Institutes, Heidelberg West, Victoria, Australia; [2]Department of Medicine, University of Melbourne, Melbourne, Victoria, Australia; [3]Max Planck Institute for Human Cognitive & Brain Sciences, Leipzig, Germany

17:24 **678**. **"Tractometry" – Comprehensive Multi-modal Quantitative Assessment of White Matter Along Specific Tracts**
Sonya Bells[1], Mara Cercignani[2], Sean Deoni[3,4], Yaniv Assaf[5], Ofer Pasternak[6], C John Evans[7], a Leemans[8], Derek K. Jones[7]
[1]CUBRIC , School of Psychology, Cardiff, United Kingdom; [2]Santa Lucia Foundation, Neuroimaging Laboratory, Rome, Italy; [3]School of Engineering, Brown University, Providence, RI, USA; [4]Centre of Neuroimaging Sciences-Institute of Psychiatry, King's College, London, United Kingdom; [5]Department of Neurobiology, Tel Aviv University, Tel Aviv, Israel; [6]Brigham & Women's Hospital, Harvard Medical School, Bostan, MA, USA; [7]CUBRIC, School of Psychology, Cardiff, United Kingdom; [8]Image Sciences Institute, University Medical Center Utrecht, Utrecht, Netherlands

17:36 **679**. **Microstructure Tracking (MicroTrack): An Algorithm for Estimating a Multiscale Hierarchical White Matter Model from Diffusion-Weighted MRI**
Anthony Jacob Sherbondy[1], Tim B. Dyrby[2], Matthew C. Rowe[3], Maurice Ptito[2,4], Brian A. Wandell[1], Daniel C. Alexander[3]
[1]Psychology Department, Stanford University, Stanford, CA, USA; [2]Danish Research Centre for Magnetic Resonance, Copenhagen University Hospital Hvidovre, Hvidovre, Denmark; [3]Centre for Medical Image Computing, University College London, London, United Kingdom; [4]School of Optometry, University of Montreal, Montreal, Canada

17:48 **680**. **Reliability of Tract-Specific Q-Space Imaging Metrics in Healthy Spinal Cord**
Torben Schneider[1], Olga Ciccarelli[2], Carolina Kachramanoglou[2], David L. Thomas[2], Claudia AM Wheeler-Kingshott[1]
[1]Department of Neuroinflammation, UCL Institute of Neurology, London, United Kingdom; [2]Department of Brain Repair & Rehabilitation, UCL Institute of Neurology, London, United Kingdom

Dementia Diagnosis - What Can We Learn from Structural Analysis

Room 710B 16:00-18:00 *Moderators:* Vincent A. Magnotta & Pia C. Maly Sundgren

16:00 **681**. **T_2-VBM is More Sensitive to Alzheimer's Disease Pathology Than Conventional T_1-VBM**
Julio Acosta-Cabronero[1], Lara Z. Diaz-de-Grenu[1], Joao MS Pereira[1], George Pengas[1], Guy B. Williams[1], Peter J. Nestor[1]
[1]Department of Clinical Neurosciences, University of Cambridge, Cambridge, Cambridgeshire, United Kingdom

16:12 **682**. **HARDI-Based Microstructural Complexity Mapping Reveals Distinct Subcortical & Cortical Grey Matter Changes in Mild Cognitive Impairment & Alzheimer's Disease**
Hamied Ahmad Haroon[1,2], Heather Reynolds[1], Stephen F. Carter[2,3], Karl V. Embleton[2,4], Karl G. Herholz[2,3], Geoff J. Parker[1,2]
[1]Imaging Science & Biomedical Engineering, School of Cancer & Enabling Sciences, The University of Manchester, Manchester, England, United Kingdom; [2]Biomedical Imaging Institute, The University of Manchester, Manchester, England, United Kingdom; [3]Wolfson Molecular Imaging Centre, School of Cancer & Enabling Sciences, The University of Manchester, Manchester, England, United Kingdom; [4]School of Psychological Sciences, The University of Manchester, Manchester, England, United Kingdom

16:24 **683**. **Anatomical Connectivity to Assess Brain Tissue Modifications in Alzheimer's Disease**
Marco Bozzali[1], Geoff Parker[2], Laura Serra[1], Roberta Perri[3], Franco Giubilei[4], Camillo Marra[5], Carlo Caltagirone[3], Mara Cercignani[1]
[1]Neuroimaging Laboratory, Santa Lucia Foundation, Rome, Italy; [2]Imaging Science & Biomedical Engineering, University of Manchester, Manchester, United Kingdom; [3]Department of Clinical & Behavioural Neurology, Santa Lucia Foundation, Rome, Italy; [4]Department of Neurology, II Faculty of Medicine, "Sapienza" University of Rome, Rome; [5]Institute of Neurology, Università Cattolica, Rome, Italy

16:36 **684**. **Robust High-Dimensional Morphological Metric: Application to the ADNI Multi-Centric Dataset**
Nicolas Robitaille[1], Abderazzak Mouiha[1], Simon Duchesne[1,2]
[1]Centre de recherche Université Laval Robert-Giffard, Québec, QC, Canada; [2]Radiology, Université Laval, Quebec, QC, Canada

16:48 **685**. **Automated Imaging Classification Based On Volumetric Analysis: Application On Primary Progressive Aphasia**
Andreia Vasconcellos Faria[1,2], Kyrana Tsapkini[3], Jennifer Crinion[4], Hangyi Jiang[1], Xin Li[1], Kenichi Oishi[1], Peter van Zijl[1], Michael Miller[5], Argye Hillis[3], Susumu Mori[1]
[1]Radiology, Johns Hopkins University, Baltimore, MD, USA; [2]Radiology, State University of Campinas, Campinas, SP, Brazil; [3]Neurology, Johns Hopkins University, Baltimore, MD, USA; [4]Institute of Cognitive Neuroscience, University College London; [5]Biomedical Engineering, Johns Hopkins University, Baltimore, MD, USA

17:00 **686**. **Magnetization Transfer Imaging of Individual Beta-Amyloid Plaques in Alzheimer's Disease**
Mark David Meadowcroft[1, 2], Zachary George Herse[1], James R. Connor[3], Qing X. Yang[1]
[1]Radiology - Center for NMR Research, Pennsylvania State University - College of Medicine, Hershey, PA, USA; [2]DMCP - Neuroimaging, Bristol-Myers Squibb, Wallingford, CT, USA; [3]Neurosurgery, Pennsylvania State University - College of Medicine, Hershey, PA, USA

17:12 **687**. **Structural Differences Can Be Found Between MCI Converters & Non-Converters More Than 2 Years Prior to Conversion to AD**
Gwenaelle Douaud[1], Ricarda Menke[1], Achim Gass[2], Andreas Monsch[3], Marc Sollberger[2,3], Anil Rao[4], Brandon Whitcher[4], Paul Matthews[4], Stephen Smith[1]
[1]FMRIB Centre, University of Oxford, Oxford, Oxfordshire, United Kingdom; [2]Departments of Neurology & Neuroradiology, University Hospital Basel, Switzerland; [3]Memory Clinic, Department of Geriatrics, University Hospital Basel, Switzerland; [4]GlaxoSmithKline,Clinical Imaging Centre, Hammersmith Hospital London

17:24 **688**. **Multi-Modal MRI Analysis with Disease Specific Spatial Filtering: Initial Testing to Predict Mild Cognitive Impairment Patients Who Convert to Alzheimer's Disease**
Kenichi Oishi[1], Michelle M. Mielke[2], Andreia V. Faria[1], Michael I. Miller, Perer C. M. van Zijl[3], Marilyn Albert[4,5], Constantine G. Lyketsos[2,5], Susumu Mori[1,3]
[1]Radiology, Johns Hopkins University, Baltimore, MD, USA; [2]Psychiatry & Behavioral Sciences, Johns Hopkins University; [3]Kennedy Krieger Institute; [4]Neurology, Johns Hopkins University; [5]The Johns Hopkins Alzheimer's Disease Research Center

17:36 **689**. **Joint Analysis of Structural & Quantitative Magnetization Transfer MRI For Classification of Alzheimer's Disease & Normal Aging**
Giovanni Giulietti[1], Marco Bozzali[1], Viviana Figura[1], Roberta Perri[2], Camillo Marra[3], Franco Giubilei[4], Mara Cercignani[1]
[1]Neuroimaging Laboratory, Santa Lucia Foundation, Rome, Italy; [2]Department of Clinical & Behavioural Neurology, Santa Lucia Foundation, Rome, Italy; [3]Institute of Neurology, Cattolica University, Rome, Italy; [4]Department of Neurology, Sapienza University, Rome, Italy

17:48 **690**. **Decreased Brain Stiffness in Alzheimer's Disease Determined by Magnetic Resonance Elastography**
Matthew C. Murphy[1], John Huston, III[1], Clifford R. Jack, Jr. [1], Kevin J. Glaser[1], Armando Manduca[1], Joel P. Felmlee[1], Richard L. Ehman[1]
[1]Department of Radiology, Mayo Clinic, Rochester, MN, USA

Sunrise Educational Course
Hot Topics in Body MRI

Room 510 07:00-08:00 *Moderators:* Evis Sala & Herbert A. Vargas

Male & Female Pelvis

07:00 **Non-oncological Imaging of the Male Pelvis**
Ulrich G. Mueller-Lisse

07:30 **MRI of the Female Pelvic Floor**
Katarzyna J. Macura

Sunrise Educational Course
Image Analysis

Room 511A-C 07:00-08:00 *Moderator:* Joseph V. Hajnal

07:00 **DCE MRI**
Steven P. Sourbron

07:30 **Future Needs - Panel Discussion: Unsolved Problems & Unmet Needs**
Panel

Sunrise Educational Course
Translational Imaging: Animal Models in MSK

Room 511D-F 07:00-08:00 *Moderator:* Bernard J. Dardzinski

07:00 **Use of Animal Models: Pharmaceutical Perspective**
John C. Waterton

07:30 **Use of Animal Models: The CRO Perspective**
Michael D. Cockman

Sunrise Educational Course
Fast & Furious: The New Era of Rapid Imaging

Room 512A-G 07:0-08:00

Fast Fetal/Neonatal Imaging

07:00 **Current Clinical Practices & Needs: Fetal Imaging**
Daniela Prayer

07:20 **Current Clinical Practices & Needs: Neonatal Imaging**
Jeffrey Joseph Neil

07:40 **Emerging Techniques**
Roland Bammer

Sunrise Educational Course
Molecular Imaging & Contrast Agents

Room 513A-D 07:00-08:00

07:00 **Physico Chemical Principles of Hyperpolarized CA**
Walter Kockenberger

07:30 **Preclinical & Clinical Applications of Hyperpolarized CA**
Sarah J. Nelson

Sunrise Educational Course
Neuro MRI from Start to Finish

Room 516A-C

The End (Necropsy)

07:00 **Rationale behind Post-Mortem MR of the Fetal CNS & Methodology**
Paul D. Griffiths

07:30 **Forensic/Research Indications**
Eva Scheurer

Sunrise Educational Course
Cardiovascular MR Imaging: Bridging the Gap Between Research & Clinical Problems

Room 518A-C 07:00-08:00

Endogenous Contrast in CMR

07:00 **Non-Contrast MRA**
Ruth P. Lim

07:20 **BOLD & ASL**
Krishna S. Nayak

07:40 **Vessel Function**
Allison G. Hays

Sunrise Educational Course
MRS - Metabolite Profiling & Metabolism

Room 520B-F 07:00-08:00 *Moderators:* Kevin M. Brindle & Ivan Tkac

07:00 **Spectroscopy of Prostate Cancer**
John Kurhanewicz

07:30 **Imaging Cancer Metabolism with Hyperpolarized Substances**
Kevin M. Brindle

Sunrise Educational Course
Image Reconstruction

Room 710A 07:00-08:00

Chemical Shift & Motion

07:00 **Separating Water & Fat**
Walter F. Block

07:30 **Motion Correction**
David Atkinson

Sunrise Educational Course
Absolute Beginners' Guide to Anatomical & Functional MRI of the Brain

Room 710B 07:00-08:00 *Moderator:* Thomas T. Liu

07:00 **Perfusion Imaging**
Matthias Günther

07:30 **Perfusion Processing**
Michael A. Chappell

Plenary Lectures
MRI in the Compromised Pregnancy

Plenary Hall 08:15-09:30 *Organizers:* Penny Anne Gowland & Evis Sala

08:15 **691**. **The Problems of Managing the Compromised Pregnancy**
Phillip N. Baker
University of Alberta, Edmonton, AB, Canada

One in five first pregnancies is complicated by a major pregnancy complication, often without preceding signs or symptoms. the placenta is key to the pathogenesis of two of these complications, preeclampsia and fetal growth restriction (FGR), and this provides the opportunity for predictive and diagnostic tests. Current methodologies include placental hormone measurement, ultrasound assessment of placental morphology and uterine artery Doppler. Once a diagnosis of preeclampsia/FGR has been made, ultrasound assessment of fetal growth and wellbeing is a crucial determinant of the timing of delivery. the role of MR assessment of the placenta is unproven.

08:35 **692**. **Novel MR for Fetal Morphometry**
Colin Studholme
University of Washington, Seattle, WA, USA

Advances in MRI and post processing have revolutionized our ability to quantify early human brain growth in-utero. Motion correction of fast multi-slice imaging permits the formation of true 3D images of the moving fetal head in the majority rather than a fraction of cases, and allows large scale studies of normal human fetal brain growth. New methods allow automated morphometric analysis of transient tissue zones. These studies reveal the process of early sulcal formation, the emergence of brain asymmetry in-utero and promise to provide a host of focal biomarkers that can be used to probe neurological development in clinical cases.

09:05 **693**. **Fetal MR- Beyond Morphology**
Daniela Prayer
Medical University of Vienna, Vienna, Austria

Diffusion-tensor imaging and tractography, fMRI diffusion-based perfusion measurements, spectroscopy, and dynamic movement studies can be used prenatally to acquire information about normal and pathological maturational processes that exceed the visualization of pure morphological details. These applications have become possible as a consequence of speeding up sequences that may be used in unsedated fetuses. the additional information provided by these methods do not only enhance the understanding of normal developmental processes, they also offer opportunities to recognize disorders of normal development earlier, describe them more accurately, and thus improve the quality of counseling and perinatal management.

Animal Models of Brain Disease Other than Stroke

Room 510 10:30-12:30 *Moderators:* Emmanuel L. Barbier & Youssef Z. Wadghiri

10:30 **694**. **Neuroanatomical Abnormalities in a Neuroligin$_3$ R451C Knockin Mouse Model of Autism**
Jacob Ellegood[1], Jason P. Lerch[1], R. M. Henkelman[1]
[1]Mouse Imaging Centre, the Hospital for Sick Children, Toronto, Ontario, Canada

10:42 **695**. **High-Field (9.4 T) MRI of Brain Dysmyelination by Quantitative Mapping of Magnetic Susceptibility**
Chunlei Liu[1,2], Wei Li[1], G. Allan Johnson[2], Bing Wu[1]
[1]Brain Imaging and Analysis Center, Duke University, Durham, NC, USA; [2]Radiology, Duke University, Durham, NC, USA

10:54 **696**. ***In Vivo* Longitudinal ^{1}H MRS Study of Transgenic Mouse Models of Prion Disease in the Hippocampus & Cerebellum at 14.1T**

Cristina Cudalbu[1], Melanie Craveiro[2], Vladimir Mlynárik[2], Juliane Bremer[3], Adriano Aguzzi[3], Rolf Gruetter[2,4]
[1]Laboratory for Functional & Metabolic Imaging (LIFMET), Ecole Polytechnique Fédérale de Lausanne (EPFL) , Lausanne, Switzerland; [2]Laboratory for Functional & Metabolic Imaging (LIFMET), Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland; [3]Institute of Neuropathology, University Hospital of Zurich, Zurich, Switzerland; [4]Departments of Radiology, Universities of Lausanne and Geneva, Geneva, Switzerland

11:06 **697**. **Nanoantioxidants in the Treatment of Diabetic Complications**

Taeko Inoue[1], John P. Leach[1], Daniela Marcano[2], Jacob Berlin[2], Thomas A. Kent[3,4], James M. Tour[2,5], Robia G. Pautler[1]
[1]Molecular Physiology & Biophysics, Baylor College of Medicine, Houston, TX, USA; [2]Department of Chemistry, Rice University, Houston, TX, USA; [3]Department of Neurology, Baylor College of Medicine, Houston, TX, USA; [4]Translational Biology & Molecular Medicine, Baylor College of Medicine, Houston, TX, USA; [5]Smalley Institute for Nanoscale Science & Technology, Rice University, Houston, TX, USA

11:18 **698**. **Age-Dependent Neurovascular Changes in C57BL/6 Wild Type Mice using Contrast Enhanced Micro-MR Angiography**

Lindsay K. Hill[1], Karen C. Briley-Saebo[2], Dung M. Hoang[1], Asad Baig[1], Brian J. Nieman[3], Zahi A. Fayad[2], Youssef Z. Wadghiri[1]
[1]Radiology, New York University School of Medicine, New York, NY, USA; [2]Radiology, Mount Sinai School of Medicine, New York, NY, USA; [3]Mouse Imaging Centre, Hospital for Sick Children, Toronto, Canada

11:30 **699**. **Proton & Phosphorus MRS of a 5xfad Mouse Model of Alzheimer's Disease**

Vladimir Mlynarik[1], Lili Sun-Reimer[1], Sharon Janssens[1], Matthias Cacquevel[2], Hongxia Lei[1], Bernard Schneider[2], Patrick Aebischer[2], Rolf Gruetter[1,3]
[1]Laboratory of Functional & Metabolic Imaging, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; [2]Brain Mind Institute, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; [3]Departments of Radiology, Universities of Lausanne & Geneva, Switzerland

11:42 **700**. **Calcification Imaging with SWIFT in Rat Brain**

Lauri Juhani Lehto[1], Alejandra Sierra[1], Curtis Andrew Corum[2], Djaudat Idiyatullin[2], Michael Garwood[2], Olli Heikki Gröhn[1]
[1]Department of Neurobiology, A. I. Virtanen Institute for Molecular Sciences, University of Eastern Finland, Kuopio, Eastern Finland, Finland; [2]Center for Magnetic Resonance Research, University of Minnesota, Minneapolis, MN, USA

11:54 **701**. **Longitudinal *In Vivo* MRI-Based Spatiotemporal Mapping of Brain Atrophy in the R6/2 Mouse Model of Huntington's Disease**

Manisha Aggarwal[1], Susumu Mori[1], Michael I. Miller[2], Wenzhen Duan[3], Jiangyang Zhang[1]
[1]Department of Radiology, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [2]Center for Imaging Science, Johns Hopkins University, Baltimore, MD, USA; [3]Department of Psychiatry, Johns Hopkins University School of Medicine, Baltimore, MD, USA

12:06 **702**. **Tensor Based Morphometry on the Tc_1 Mouse Model of Down Syndrome Highlights Previously Undetected Phenotypes**

Benjamin Sinclair[1,2], Jon Cleary[2], Marc Modat[1], Francesca Norris[2,3], Frances Wiseman[4], Victor Tybulewicz[5], Elizabeth Fisher[4], Mark Lythgoe[2], Sebastien Ourselin[1]
[1]Centre for Medical Image Computing, UCL, London, United Kingdom; [2]Centre for Advanced Biomedical Imaging, UCL, London, United Kingdom; [3]Centre for Mathematics & Physics in the Life Sciences & Experimental Biology (CoMPLEX); [4]UCL, Institute of Neurology, London, United Kingdom; [5]MRC National Institute for Medical Research, London, United Kingdom

12:18 **703**. **Diffusion Kurtosis - a Sensitive Marker For Traumatic Brain Injury (TBI)**

Jiachen Zhuo[1,2], Jake Mullins[2,3], Julie Hazelton[4], Jonathan Simon[5], Su Xu[1,2], Tuo Li, Gary Fiskum[4], Rao Gullapalli[1,2]
[1]Radiology, University of Maryland School of Medicine, Baltimore, MD, USA; [2]Core for Translational Research in Imaging at Maryland (C-TRIM), University of Maryland School of Medicine, Baltimore, MD; [3]Neuroscience, University of Maryland Baltimore, Baltimore, MD; [4]Anesthesiology & Center for Shock Trauma & Anesthesiology Research, University of Maryland School of Medicine, Baltimore, MD; [5]Electrical & Computer Engineering, University of Maryland, College Park, College Park, MD

Endogenous Contrast Mechanisms: CEST & Relaxation

Room 511A-C 10:30-12:30 *Moderators:* R. Mark Henkelman & Ravinder Reddy

10:30 **704**. **Could Lipids Contribute to the Exchange-Induced Resonance Frequency Contrast in Brain Tissue?**
Karin Shmueli[1], Stephen J. Dodd[2], Christian Wunder[3], Jeff H. Duyn[1]
[1]Advanced MRI Section, Laboratory of Functional & Molecular Imaging, National Institute of Neurological Disorders & Stroke, National Institutes of Health, Bethesda, MD, USA; [2]Functional & Molecular Metabolism Section, Laboratory of Functional & Molecular Imaging, National Institute of Neurological Disorders & Stroke, National Institutes of Health, Bethesda, MD, USA; [3]Traffic, Signaling & Delivery Laboratory, Curie Institute, France

10:42 **705**. **Amide Proton Transfer (APT) MR Signal As a Novel Imaging Biomarker for Charactering Radiation Necrosis in Rats**
Silun Wang[1], Erik Tryggestad[2], Michael Armour[2], Eric Ford[2], Tingting Zhou[1], Kun Yan[1], Zhibo Wen[1], Peter C. M. van Zijl[1,3], Jinyuan Zhou[1,3]
[1]Radiology, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [2]Radiation Oncology, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [3]F. M. Kirby Research Center for Functional Brain Imaging, Kennedy Krieger Institute

10:54 **706**. **CESTrho: A New Method for Studying Chemical Exchange at Intermediate Exchange Rates**
Feliks Kogan[1,2], Hari Hariharan[1], Ravinder Reddy[1]
[1]CMROI, Department of Radiology, University of Pennsylvania, Philadelphia, PA, USA; [2]Department of Bioengineering, University of Pennsylvania, Philadelphia, PA, USA

11:06 **707**. **Respiratory Triggered Chemical Exchange Saturation Transfer MRI for pH Mapping in the Kidneys at 3T**
Jochen Keupp[1], Edwin Heijman[2], Sander Langereis[2], Holger Grüll[2], Dario L. Longo[3], Enzo Terreno[3], Silvio Aime[3]
[1]Philips Research Europe, Hamburg, Germany; [2]Philips Research Europe, Eindhoven, Netherlands; [3]Center for Molecular Imaging, University of Turino, Turino, Italy

11:18 **708**. **Water-metabolite Hydroxyl Proton Exchange Studied using Spin-Locking & Chemical Exchange Saturation Transfer Approaches**
Tao Jin[1], Seong-Gi Kim[1]
[1]Neuroimaging laboratory, Department of Radiology, University of Pittsburgh, Pittsburgh, PA, USA

11:30 **709**. **Detection of paraCEST Agents with Reduced MT Interference using Frequency Labeled Exchange Transfer (FLEX)**
Chien-Yuan Lin[1,2], Nirbhay N. Yadav[2,3], Joshua I. Friedman[4], S. James Ratnakar[1], A. Dean Sherry[1,5], Peter C. M. van Zijl[2,3]
[1]Advanced Imaging Research Center, University of Texas Southwestern Medical Center, Dallas, TX, USA; [2]F. M. Kirby Center for Functional Brain Imaging, Kennedy Krieger Institute, Baltimore, MD, USA; [3]Division of MR Research, Russell H. Morgan Dept. of Radiology & Radiological Science, Johns Hopkins University, Baltimore, MD, USA; [4]Pharmacology & Molecular Sciences, Johns Hopkins University, Baltimore, MD, USA; [5]University of Texas at Dallas, Dallas, TX, USA

11:42 **710**. **Parallel RF Transmission based MRI Technique for Highly Sensitive Detection of Amide Proton Transfer in the Human Brain at 3T**
Jochen Keupp[1], Christof Baltes[2], Paul R. Harvey[2], Johan van den Brink[2]
[1]Philips Research Europe, Hamburg, Germany; [2]Philips Healthcare, Best, Netherlands

11:54 **711**. **Examining the Accuracy of Dual Echo B_0 Map for Field Inhomogeneity Correction with the Application of gagCEST in Articular Cartilage at 3T**
Wenbo Wei[1], Guang Jia[1], David C. Flanigan[2], Christopher C. Kaeding[2], Jinyuan Zhou[3], Steffen Sammet[1], Peter Arjan Wassenaar[1], Michael V. Knopp[1]
[1]Wright Center of Innovation in Biomedical Imaging & Department of Radiology, The Ohio State University, Columbus, OH, USA; [2]Department of Orthopedics, The Ohio State University, Columbus, OH, USA; [3]Department of Radiology, Johns Hopkins University, Baltimore, MD, USA

12:06 **712**. **MRI Detection of Brain Glucose Uptake using Gluco-CEST**
Kai-Hsiang Chuang[1], Cai Xian Yong, Ying Min Wang, George K. Radda, Xavier Golay[2]
[1]MRI Group, Singapore Bioimaging Consortium, A*STAR, Singapore, Singapore; [2]Institute of Neurology, University College of London, United Kingdom

12:18 **713**. **Dependence of CEST Effect from Amine Protons of Glutamate on pH**
Anup Singh[1], Kejia Cai[1], Mohammad Haris[1], Joel H. Greenberg[2], Hari Hariharan[1], Ravinder Reddy[1]
[1]CMROI, Department of Radiology, University of Pennsylvania, Philadelphia, PA, USA; [2]Department of Neurology, University of Pennsylvania, Philadelphia, PA, USA

Gradients & Shims

Room 511D-F 10:30-12:30 *Moderators:* Dennis L. Parker & Florian Wiesinger

10:30 **714**. **First *In-Vivo* Results with a PatLoc Gradient Insert Coil for Human Head Imaging**
Chris A. Cocosco[1], Daniel Gallichan[1], Andrew J. Dewdney[2], Gerrit Schultz[1], Anna M. Welz[1], Walter R. T. Witschey[1], Hans Weber[1], Juergen Hennig[1], Maxim Zaitsev[1]
[1]Dept. of Radiology, Medical Physics, University Medical Center Freiburg, Freiburg (i.Br.), B.W., Germany; [2]Siemens Healthcare Imaging, Erlangen, Germany

10:42 **715**. **B_0 Shimming in 3T Bilateral Breast Imaging with Local Shim Coils**
Seung-Kyun Lee[1], Lorne Hofstetter[1], Ileana Hancu[1]
[1]GE Global Research, Niskayuna, NY, USA

10:54 **716**. **Dynamic Multi-Coil Shimming of the Human Brain at 7 Tesla**
Christoph Juchem[1], Terence W. Nixon[1], Scott McIntyre[1], Vincent O. Boer[2], Douglas L. Rothman[1], Robin A. de Graaf[1]
[1]MR Research Center, Yale University, New Haven, CT, USA; [2]Department of Radiology, UMC, Utrecht, Netherlands

11:06 **717**. **First O-Space Images using a High-Power, Actively-Shielded, 12-Cm Z2 Gradient Insert On a Human 3T Scanner**
Jason Peter Stockmann[1], Gigi Galiana[2], Leo Tam[1], Terry Nixon[3], Robert Todd Constable[1,2]
[1]Biomedical Engineering, Yale University, New Haven, CT, USA; [2]Diagnostic Radiology, Yale University, New Haven, CT, USA; [3]Diagnostic Radiology, Yale University, New Have, CT, USA

11:18 **718**. **Advances in Software Compensation of Eddy Current Fields in Multislice Higher Order Dynamic Shimming.**
Saikat Sengupta[1,2], Malcolm Avison[2,3], John Gore[2,3], Edward Brian Welch[2,3]
[1]Biomedical Engineering, Vanderbilt University, Nashville, TN, USA; [2]Vanderbilt University Institute of Imaging Science, Nashville, USA; [3]Radiology & Radiological Sciences, Vanderbilt University, Nashville, USA

11:30 **719**. **Fast Characterization of Higher-Order Shim Dynamics By Impulse Response Measurements with a Dynamic Field Camera**
Johanna Vannesjö[1], Ariane Fillmer[1], Christoph Barmet[1], Peter Boesiger[1], Anke Henning[1], Klaas Paul Pruessmann[1]
[1]Institute for Biomedical Technology, University & ETH Zurich, Zurich, Switzerland

11:42 **720**. **Fourier Series Network Method for 3D Simulations of Eddy Currents Induced in Multilayer Cryostats by Arbitrary Coils**
Michael Stephen Poole[1], Hector Sanchez Lopez[1], Shin-ichi Urayama[2], Hitohsi Kitaguchi[3], Osamu Ozaki[4], Stuart Crozier[1]
[1]ITEE, University of Queensland, Brisbane, QLD, Australia; [2]Human Brain Research Center, Kyoto University Graduate School of Medicine, Kyoto, Japan; [3]National Institute for Materials Science, Tsukuba, Japan; [4]Kobe Steel Ltd., Kobe, Japan

11:54 **721**. **Magnetic Gradient Shape Optimization for Highly Accelerated Null Space Imaging**
Leo K. Tam[1], Jason P. Stockmann[1], Gigi Galiana[2], Robert Todd Constable[1]
[1]Biomedical Engineering, Yale University, New Haven, CT, USA; [2]Diagnostic Radiology & Neurosurgery, Yale University, New Haven, CT

12:06 **722**. **Distortion of Gradient Coils Performances in Presence of Iron**
Alice Borceto[1], Andrea Viale[1], Franco Bertora[1], Leonardo Bertora[2], Richard Bowtell[3]
[1]Robotics,Brain & Cognitive Science, Italian Institute of Technology, Genoa, GE, Italy; [2]Paramed Medical system, Genoa, (GE), Italy; [3]Sir Peter Mansfield Magnetic Resonace Center, University of Nottingham, Nottingham, United Kingdom

12:18 **723**. **A Target Field Approach to the Design of RF Phase-Gradient Coils**
Jesse Bellec[1], Chen-Yi Liu[1], Scott B. King[2], Christopher Paul Bidinosti[1,3]
[1]Physics & Astronomy, University of Manitoba, Winnipeg, Manitoba, Canada; [2]MR Technology, NRC Institute for Biodiagnostics, Winnipeg, Manitoba, Canada; [3]Physics, University of Winnipeg, Winnipeg, Manitoba, Canada

Flow Quantification & Cardiovascular Image Processing

Room 512A-G 10:30-12:30 *Moderators:* John N. Oshinski & Smita Sampath

10:30 **724**. **Assessment of Left Ventricular 2D Pseudo Flow Pathway during Early Diastole using SPAMM-PAV**
Ziheng Zhang[1], Donald P. Dione[2], Ben A. Lin[2], Albert J. Sinusas[2], Smita Sampath[1]
[1]Department of Diagnositc Radiology, Yale University, School of Medicine, New Haven, CT, USA; [2]Section of Cardiovascular Medicine, Yale University, School of Medicine, New Haven, CT, USA

10:42 **725**. **3D Aortic Blood Flow in Patients with Marfan Syndrome: Changes in Hemodynamics & Correlation with Aortic Geometry**
Michael Markl[1], Julia Geiger[2], Lena Herzer[3], Brigitte Stiller[3], Raoul Arnold[3]
[1]Radiology, Medical Physics, University Medical Center, Freiburg , Germany; [2]Radiology, Medical Physics, University Medical Center, Freiburg, Germany; [3]Pediatric Cardiology, University Medical Center, Freiburg, Germany

10:54 **726**. **Assessment of Blood Flow Patterns in the Pulmonary Artery with 4D Flow MRI**
Pablo Bächler[1], Natalia Pinochet[1], Gérard Crelier[2], Cristián Tejos[3,4], Pablo Irarrazaval[3,4], Sergio Uribe[4,5]
[1]School of Medicine, Pontificia Universidad Católica, Santiago, Chile; [2]Institute for Biomedical Engineering, University & ETH, Zurich, Switzerland; [3]Electrical Engineering Department, Pontificia Universidad Católica, Chile; [4]Biomedical Imaging Center, Pontificia Universidad Católica, Chile; [5]Radiology Department, Pontificia Universidad Católica, Chile

11:06 **727**. **Absolute Quantification of Pulmonary Pressure Waveforms with MRI in Pulmonary Hypertension Patients**
Octavia Biris[1,2], Sanjiv Shah[3,4], Jeremy Collins[1], Amir Davarpanah[1], James Carr[1,3], Timothy J. Carroll[1,2]
[1]Radiology, Northwestern University, Chicago, IL, USA; [2]Biomedical Engineering, Northwestern University, Evanston, IL, USA; [3]Feinberg School of Medicine, Northwestern University, Chicago, IL, USA; [4]Cardiology, Northwestern University, Chicago, IL, USA

11:18 **728**. **4D MR Velocity Mapping using PC VIPR to Quantify Blood Flow in Portal Hypertension**
Alejandro Roldán-Alzate[1], Alex Frydrychowicz[1], Eric J. Niespodzany[1], Benjamin R. Landgraf[1], Oliver Wieben[1,2], Scott B. Reeder[1,2]
[1]Radiology, University of Wisconsin, Madison, WI, USA; [2]Medical Physics, University of Wisconsin, Madison, WI, USA

11:30 **729**. **4-Dimensional Magnetic Resonance Velocity Mapping of Blood Flow Patterns in Chronic Aortic Dissections at 3T**
Alex Frydrychowicz[1], Michael Markl[2], Eric Niespodzany[1], Christian Schlensak[3], Mark Schiebler[1], Christopher J. François[1]
[1]Department of Radiology, University of Wisconsin - Madison, Madison, WI, USA; [2]Department of Radiology, Medical Physics, University Hospital Freiburg, Freiburg, Germany; [3]Department of Cardiac Surgery, University Hospital Freiburg, Freiburg, Germany

11:42 **730**. **Analysis of Reynolds, Strouhal & Womersley Numbers in the Healthy Thoracic Aorta**
Aurelien F. Stalder[1,2], Alex Frydrychowicz[3], Max F. Russe[4], Jan G. Korvink[5,6], Jürgen Hennig[4], Kun Cheng Li[1], Michael Markl[4]
[1]Dept. of Radiology, Xuanwu Hospital of Capital Medical University, Beijing, China, People's Republic of; [2]Dept. of Radiology - Medical Physics, University Hospital Freiburg, N/A , Germany; [3]Dept. of Radiology, University of Wisconsin, Madisson, USA; [4]Dept. of Radiology - Medical Physics, University Hospital Freiburg, Germany; [5]Dept. of Microsystems Engineering, University of Freiburg, Germany; [6]Freiburg Institute for Advanced Studies (FRIAS), Freiburg, Germany

11:54 **731**. **Accelerated Phase-Contrast MRI using Compressed Sensing & Parallel Imaging**
Daniel Kim[1], Hadrien A. Dyvorne[1], Ricardo Otazo[1], Daniel K. Sodickson[1], Vivian S. Lee[1]
[1]Radiology, Center for Biomedical Imaging, New York University School of Medicine, New York, USA

12:06 **732**. **Pulse Wave Velocity Assessment in a Single Breathhold using Compartment k-t PCA**
Daniel Giese[1,2], Tobias Schaeffter[1], Sebastian Kozerke[1,2]
[1]Division of Imaging Sciences & Biomedical Engineering, King's College London, London, United Kingdom; [2]Institute for Biomedical Engineering, Univeristy & ETH Zurich, Zurich, Switzerland

12:18 **733**. **Automated Cardiac Strain Estimation from 2D Cine DENSE MRI**
Andrew D. Gilliam[1], Xiaodong Zhong[2], Kenneth C. Bilchick[3], Frederick H. Epstein[4]
[1]Andrew D. Gilliam Consulting, Providence, RI, USA; [2]MR R&D Collaborations, Siemens Healthcare, Atlanta, GA, USA; [3]Cardiology, University of Virginia, Charlottesville, VA, USA; [4]Radiology & Biomedical Engineering, University of Virginia, Charlottesville, VA, USA

Diabetes & Obesity

Room 513A-D 10:30-12:30 *Moderators:* Scott B. Reeder & Amita Shukla-Dave

10:30 **734**. **Liver Fat & Water MR T_2 Values at 3T: Dependence Upon Steatosis Level**
Andrew James Gilman[1], Aliya Qayyum[1], Michelle Nystrom[1], Susan Moyher Noworolski[1]
[1]Radiology & Biomedical Imaging, University of California, San Francisco, San Francisco, CA, USA

10:42 **735**. ***In Vivo* Detection & Quantification of Diet Induced Changes in Adipose Tissue Composition by Non Linear NMR Spectroscopy**
Rosa Tamara Branca[1], Warren Sloan Warren[2]
[1]Chemistry, Duke University, Durham, NC, USA; [2]Chemistry Department, Duke University

10:54 **736**. **Direct Multi-Tissue Assessment of *In Vivo* Postprandial Lipid Handling in ZDF Rats using Localized ^{1}H-[^{13}C] MRS**
Richard Jonkers[1], Luc van Loon[2], Klaas Nicolay[1], Jeanine Prompers[1]
[1]Biomedical NMR, Department of Biomedical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands; [2]Department of Human Movement Sciences, Maastricht University Medical Centre+, Maastricht, Netherlands

11:06 **737**. **Longitudinal Hepatocellular Lipid Levels (IHCL) On Ob/Ob Mice & the Correlation to Insulin Levels**
Qiong Ye[1], Carsten Friedrich Danzer[2], Divya Vats[1], Markus Rudin[1,3]
[1]University & ETH Zürich, Institute for Biomedical Engineering, Zürich, 8093, Switzerland; [2]Institute of Cell Biology, Zürich, Switzerland; [3]Institute of Pharmacology & Toxicology, Zürich, Switzerland

11:18 **738**. **Compartmental Analysis of R_2 measurements of Hepatic Lipid & Iron *In Vivo* using Breath-Hold Multi-Echo ^{1}H Spectroscopy (HISTO)**
Puneet Sharma[1], Hiroumi D. Kitajima[1], Xiaodong Zhong[2], Bobby Kalb[3], Diego R. Martin[3]
[1]Radiology, Emory Healthcare, Atlanta, GA, USA; [2]MR R&D Collaborations, Siemens Healthcare, Atlanta, GA, USA; [3]Radiology, Emory University, Atlanta, GA, USA

11:30 **739**. **Differences in Insulin Sensitivity & Adipose Tissue Distribution in Obese Subjects – Is there a Benign Form of Adiposity?**
Jürgen Machann[1], Norbert Stefan[2], Nina Schwenzer[1], Fabian Springer[1], Hans-Ulrich Häring[2], Claus Claussen[3], Andreas Fritsche[2], Fritz Schick[1]
[1]Section on Experimental Radiology, University Hospital Tübingen, Tübingen, Germany; [2]Department of Internal Medicine IV, University Hospital Tübingen, Tübingen, Germany; [3]Department for Diagnostic & Interventional Radiology, University Hospital Tübingen, Tübingen, Germany

11:42 **740**. **Reversal of Type 2 Diabetes is Associated with Decrease in Pancreas & Liver Fat**
Kieren G. Hollingsworth[1], Ee Lin Lim[1], Benjamin S. Aribisala[1], Mei Jun Chen[1], John C. Mathers[2], Roy Taylor[1]
[1]Newcastle Magnetic Resonance Centre, Newcastle University, Newcastle upon Tyne, Tyne & Wear, United Kingdom; [2]Institute of Human Nutrition, Newcastle University, Newcastle upon Tyne, Tyne & Wear, United Kingdom

11:54 **741**. **Model for Manganese Dynamic Contrast-Enhanced MRI of Passive & Glucose-Stimulated Active Pancreatic β Cell Function**
Anita Himansu Dhyani[1], Xiaobing Fan[1], Lara Leoni[1], Brian B. Roman[1]
[1]Radiology, University of Chicago, Chicago, IL, USA

12:06 **742**. **Validation of Imaging Biomarkers of Steatosis in ob/ob Mice with Multiple SPIO Injections**
Catherine D. G. Hines[1], Ian Rowland[2], Calista Roen[1], Diego Hernando[1], Debra Horng[2], Huanzhou Yu[3], Jean Brittain[4], Scott B. Reeder[1]
[1]Radiology, University of Wisconsin-Madison, Madison, WI, USA; [2]Medical Physics, University of Wisconsin-Madison, Madison, WI, USA; [3]Global Applied Science Laboratory, GE Healthcare, Menlo Park, CA, USA; [4]Global Applied Science Laboratory, GE Healthcare, Waukesha, WI, USA

12:18 **743**. **Quantitative Pancreatic B-Cell MRI using Manganese-Enhanced Look-Locker Imaging & Two-Site Water Exchange Analysis**
Patrick F. Antkowiak[1], Moriel Vandsburger, Frederick H. Epstein
[1]University of Virginia, Charlottesville, VA, USA

Advanced Topics in Image Reconstruction

Room 516A-C 10:30-12:30 *Moderators:* David O. Brunner & Craig H. Meyer

10:30 **744**. **The Variable-Order Fractional Fourier Transform: A New Tool For Efficient Reconstruction of Images Encoded By Linear & Quadratic Gradients with Reduced Sensitivity to Calibration Errors**
Jason Peter Stockmann[1], Gigi Galiana[2], Vicente Parot[3,4], Leo Tam[1], Robert Todd Constable[1,2]
[1]Biomedical Engineering, Yale University, New Haven, CT, USA; [2]Diagnostic Radiology, Yale University, New Haven, CT, USA; [3]Biomedical Imaging Center, Pontificia Universidad Católica de Chile, Santiago, Chile; [4]Department of Electrical Engineering, Pontificia Universidad Católica de Chile, Santiago, Chile

10:42 **745**. **Correlation-Based Reconstruction For Parallel Imaging**
Yu Li[1], Charles L. Dumoulin[1]
[1]Radiology, Cincinnati Children's Hospital Medical Center, Cincinnati, OH, USA

10:54 **746**. **Quantitative Susceptibility Map Reconstruction with Magnitude Prior**
Berkin Bilgic[1], Audrey P. Fan[1], Elfar Adalsteinsson[1,2]
[1]EECS, MIT, Cambridge, MA, USA; [2]Harvard-MIT Division of Health Sciences & Technology, Cambridge, MA, USA

11:06 **747**. **Anomalous Noise Behaviour in ZTE Imaging**
Markus Weiger[1,2], Klaas Paul Pruessmann[3]
[1]Bruker BioSpin AG, Faellanden, Switzerland; [2]Bruker BioSpin MRI GmbH, Ettlingen, Germany; [3]Institute for Biomedical Engineering, University & ETH Zurich, Zurich, Switzerland

11:18 **748**. **Highly-Accelerated Real-Time Cine MRI using Compressed Sensing & Parallel Imaging with Cardiac Motion Constrained Reconstruction**
Li Feng[1], Ricardo Otazo[2], Monvadi B. Srichai[2,3], Ruth P. Lim[2], Daniel K. Sodickson[2], Daniel Kim[2]
[1]Sackler Institute of Graduate Biomedical Sciences, New York University School of Medicine, New York, USA; [2]Radiology, New York University School of Medicine, New York, USA; [3]Medicine, New York University School of Medicine, New York, USA

11:30 **749**. **High Spatial & Temporal Resolution Cardiac Imaging Reconstructed from Real-Time Golden Angle Radial Acquisitions using Motion Correction & Parallel Imaging**
Michael Schacht Hansen[1], Thomas Sangild Sørensen[2], Peter Kellman[1]
[1]National Heart, Lung & Blood Institute, National Institutes of Health, Bethesda, MD, USA; [2]Department of Computer Science, Aarhus University, Aarhus, Denmark

11:42 **750**. **Correction of Signal Loss in HYPR FLOW Reconstruction**
Yijing Wu[1], Steven Kecskemeti[1], Patrick A. Turski, Charles A. Mistretta
[1]Medical Physics, University of Wisconsin, Madison, MADISON, WI, USA

11:54 **751**. **Closed-Form Solution for the Three-Point Dixon Method with Advanced Spectrum Modeling**
Johan Berglund[1], Håkan Ahlström[1], Lars Johansson[1], Joel Kullberg[1]
[1]Oncology, Radiology & Clinical Immunology, Uppsala University, Uppsala, Sweden

12:06 **752**. **Spiral Water-Fat Imaging with Integrated Off-Resonance Correction on a Clinical Scanner**
Holger Eggers[1], Peter Boernert[1], Peter Koken[1]
[1]Philips Research, Hamburg, Germany

12:18 **753**. **Addressing Phase Errors in Fat-Water Imaging using a Mixed Magnitude/Complex Fitting Method**
Diego Hernando[1], Catherine D. G. Hines[1], Huanzhou Yu[2], Scott B. Reeder[1,3]
[1]Radiology, University of Wisconsin, Madison, WI, USA; [2]Global Applied Science Laboratory, GE Healthcare, Menlo Park, CA, USA; [3]Medical Physics, University of Wisconsin, Madison, WI, USA

Cancer: Multi Modal Imaging Including PRI/MRI

Room 518-A-C 10:30-12:30 *Moderators:* Zahi A. Fayad & Martin O. Leach

10:30 **754**. **Introduction**
Zahi A. Fayad

10:42 **755**. **FDG-PET Imaging with First Combined Whole-Body MR-PET vs. Conventional PET/CT: Qualitative & Quantitative Comparison of Results**
DAVID IZQUIERDO-GARCIA[1], VALENTIN FUSTER[2,3], JEFFREY KASTE[4], TROY HAVENS[4], GARY MUSWICK[5], NAVDEEP OJHA[4], ZHIQIANG HU[4], JOSEF MACHAC[6], ZAHI A. FAYAD[1,2]
[1]Translational & Molecular Imaging Institute, Mount Sinai School of Medicine, New York, NY, USA; [2]Department of Cardiology, Zena & Michael A. Weiner Cardiovascular Institute, Mount Sinai School of Medicine, New York, NY, USA; [3]Department of Cardiology, Marie-Josée & Henry R. Kravis Cardiovascular Health Center, Mount Sinai School of Medicine, New York, NY, USA; [4]Philips Healthcare, Cleveland, OH, USA; [5]Philips Healthcare, Cleveland, OH, USA; [6]Division of Nuclear Medicine, Department of Radiology, Mount Sinai School of Medicine, New York, NY, USA

10:54 **756**. **The Effect of MR Acoustic Noise on FDG-PET Uptake in a Simultaneous MR/PET System**
Daniel Burje Chonde[1,2], Nasreddin Abolmaali[3], Alma Gregory Sorensen[1], Ciprian Catana[1]
[1]Athinoula A. Martinos Center for Biomedical Imaging, Charlestown, MA, USA; [2]Department of Biophysics, Harvard University, Cambridge, MA; [3]OncoRay - Center for Radiation Research in Oncology, Dresden, Germany

11:06 **757**. **Comparison of Diffusion Weighted Imaging with [^{18}F]-FLT Uptake in a Human Colon Cancer Xenograft Model using Treatment Strategies**
Valerie Simone Honndorf[1], Sally-Ann Ricketts[2], Jane Halliday[2], Hans F. Wehrl[3], Stefan Wiehr[3], Damaris Kukuk[3], Maren K. Koenig[3], Mareike Lehnhoff[3], Julia Mannheim[3], Gerald Reischl[4], Bernd J. Pichler[3]
[1]Laboratory for Preclinical Imaging and Imaging Technology of the Werner Siemens-Foundation , University of Tuebingen, Tuebingen, Germany; [2]Imaging, Translational Sciences, AstraZeneca, Alderley Park, Macclesfield, Cheshire, United Kingdom; [3]Laboratory for Preclinical Imaging & Imaging Technology of the Werner Siemens-Foundation, University of Tuebingen, Tuebingen, Germany; [4]Radiopharmacy & PET-Center, University of Tuebingen, Tuebingen, Germany

11:18 **758**. **Multi-Scale Imaging of Angiogenesis in a Breast Cancer Model**
Jana Cebulla[1], [2], Eugene Kim[3], Jiangyang Zhang[4], Arvind P. Pathak[5]
[1]University Halle-Wittenberg, Halle, Germany; [2]Johns Hopkins University School of Medicine, Baltimore, MD, USA; [3]Department of Biomedical Engineering, Johns Hopkins University School of Medicine, Baltimore, MD, USA; [4]Russell H. Morgan Department of Radiology & Radiological Science, Johns Hopkins University Shool of Medicine, Baltimore, MD, USA; [5]JHU ICMIC Program, Russell H. Morgan Department of Radiology & Radiological Science, Johns Hopkins University, Baltimore, MD, USA

11:30 **759**. **Multimodal Imaging of a Dual PI3K/mTOR Inhibitor Demonstrates Strong Effects on Vascular Function**
Shelby Katherine Wyatt[1], Kai H. Barck[1], Jason R. Oeh[2], Hani Bou-Reslan[1], Tim C. Cao[1], Hartmut Koeppen[3], Lori S. Friedman[2], Deepak Sampath[2], Richard A. D. Carano[1]
[1]Biomedical Imaging, Genentech, Inc, South San Francisco, CA, USA; [2]Translational Oncology, Genentech, Inc, South San Francisco, CA, USA; [3]Pathology, Genentech, Inc, South San Francisco, CA, USA

11:42 **760**. **Molecular Imaging of Breast Lesions with PET-MRI: Proof of Concept**
Katja Pinker[1], Stephan Gruber[1], Wolfgang Bogner[1], Siegfried Trattnig[1], Thomas H. Helbich[1]
[1]Department of Radiology, Medical University Vienna, Vienna, Austria

11:54 **761**. **Whole Body PET-MRI Scanner: First Experience in Oncology**
Osman Ratib[1], Magalie Viallon[2], Habib Zaidi[1], Minerva Becker[3], Jean-Paul Vallée, Michael Wissmeyer[1], Jean-pierre Willi[1], Pierre Loubeyre[4], Navdeep Ojha[5], Piotr Maniawski[5], Christoph Becker[3]
[1]Nuclear Medicine, Hopital Universitaire de Genève, GENEVE, Switzerland; [2]Radiology, Hopital Universitaire de Genève, GENEVA, Switzerland; [3]Radiology, Hopital Universitaire de Genève, GENEVE, Switzerland; [4]Breast Oncology, Hopital Universitaire de Genève, GENEVE, Switzerland; [5]Philips Healthcare, Cleveland, USA

12:06 **762**. **Diffusion Weighted MR Imaging: Predictive Capability for Chemoradiotherapeutic Effect in Non-Small Cell Lung Cancer Patients as Compared with FDG-PET/CT**
Keiko Matsumoto[1], Yoshiharu Ohno[2], Hisanobu Koyama[2], Takeshi Yoshikawa[2], Mizuho Nishio[2], Yumiko Onishi[2], Nobukazu Aoyama[3], Daisuke Takenaka[2], Kazuro Sugimura[2]
[1]Radiology, Yamanashi Hospital of Social Insurance, Kofu, Yamanashi, Japan; [2]Radiology, Kobe University Graduate School of Medicine, Kobe, Hyogo, Japan; [3]Radiology, Kobe University Hospital, Kobe, Hyogo, Japan

12:18 **763**. **Combined use of DWI, DCE-MRI & PET/CT in Treatment Response For Preoperative Chemoradiation in Primary Rectal Adenocarcinoma**
Jing Gu[1], Tao Chan[1], Wailun LAW[2], JingBo Zhang[3], Pek-Lan Khong[1]
[1]Diagnostic Radiology, The University of Hong Kong, Hong Kong, China, People's Republic of; [2]Colorectal Surgery, Queen Mary Hospital, the University of Hong Kong, Hong Kong, China, People's Republic of; [3]Radiology, Memorial Sloan-Kettering Cancer Center, USA

Quantitative & Calibrated fMRI

Room 520B-F 10:30-12:30 *Moderators:* Daniel P. Bulte & Hanzhang Lu

10:30 **764**. **Assessing the Accuracy of Calculations of the Functional Changes in $CMRO_2$ From Blood Oxygenation Data**
Alberto L. Vazquez[1], Mitsuhiro Fukuda[1], Seong-Gi Kim[1]
[1]Radiology, University of Pittsburgh, Pittsburgh, PA, USA

10:42 **765**. **Effect of Graded O_2 Challenge On Vascular & Metabolic Parameters**
Feng Xu[1], Peiying Liu[1], Hanzhang Lu[1]
[1]University of Texas Southwestern Medical Center, Dallas, TX, USA

10:54 **766**. **Hyperoxic versus Hypercapnic BOLD Calibration Under Precise End-Tidal Control to Improve the Estimation of Oxygen Consumption**
Clarisse Ildiko Mark[1], Gilbert Bruce Pike[1]
[1]McConnell Brain Imaging Center, Montreal Neurological Institute, McGill University, Montreal, Quebec, Canada

11:06 **767**. **Elevated CO_2 Mitigates the Rise in $CMRO_2$ During Acute Hypoxia & Improves Cerebral Tissue Oxygenation**
Zachary Myles Smith[1], John S. Hunt, Jr. [1], Ethan Li[1], Jia Guo[1], David D. Shin[1], Richard B. Buxton[1], David J. Dubowitz[1]
[1]Radiology, University of California San Diego, La Jolla, CA, USA

11:18 **768**. **Can the Calibrated BOLD Scaling Factor M Be Estimated Just From R_2′ in the Baseline State Without Administering Gases?**
Nicholas P. Blockley[1], Valerie E M Griffeth[1], Richard B. Buxton[1]
[1]Center for fMRI, Department of Radiology, University of California San Diego, La Jolla, CA, USA

11:30 **769**. **Comparative Oxidative Demands in Cortex & Subcortex Revealed By High Field Calibrated fMRI**
Basavaraju G. Sanganahalli[1,2], Peter Herman[1,2], Douglas L. Rothman[2,3], Hal Blumenfeld[2,4], Fahmeed Hyder[2,3]
[1]Diagnostic Radiology, Yale University, New Haven, CT, USA; [2]Quantitative Neuroscience with Magnetic Resonance in Medicine (QNMR), Yale University, New Haven, CT, USA; [3]Diagnostic Radiology & Biomedical Engineering, Yale University, New Haven, CT, USA; [4]Neurology, Neurosurgery, Neuroscience, Yale University, New Haven, CT, USA

11:42 **770**. **The Ratio of CBF to $CMRO_2$ Change with Brain Activation Remains Unchanged between Simple & Complex Stimuli in the Human Visual Cortex**
Valerie Griffeth[1], Richard Buxton[2]
[1]Department of Bioengineering, UC San Diego, La Jolla, CA, USA; [2]Department of Radiology, UC San Diego, La Jolla, CA, USA

11:54 **771**. **Calibration & Validation of TRUST MRI for the Estimation of Cerebral Blood Oxygenation**
Hanzhang Lu[1], Feng Xu[1], Ksenija Grgac[2,3], Peiying Liu[1], Qin Qin[2,3], Peter van Zijl[2,3]
[1]Advanced Imaging Research Center, University of Texas Southwestern Medical Center, Dallas, TX, USA; [2]Department of Radiology, Johns Hopkins University, Baltimore, MD, USA; [3]F.M. Kirby Center, Kennedy Krieger Institute, Baltimore, MD, USA

12:06 **772**. **A Generalized Procedure for Calibrated MRI Incorporating Hyperoxia & Hypercapnia**
Claudine Joëlle Gauthier[1], [2], Richard D. Hoge[1], [2]
[1]Physiology/Biomedical Engineering, Université de Montréal, Montreal, Quebec, Canada; [2]CRIUGM, Montreal, Quebec, Canada

12:18 **773**. **Evolution of the Dynamic Changes in Cerebral Oxidative Metabolism Evoked by Somato-Sensory Stimulation**
Alberto L. Vazquez[1], Mitsuhiro Fukuda[1], Seong-Gi Kim[1]
[1]Radiology, University of Pittsburgh, Pittsburgh, PA, USA

Normal Aging Brain

Room 710A 10:30-12:30 *Moderators:* Christopher P. Hess & Patrik Zamecnik

10:30 **774**. **Age Effects on the Amplitude & Frequency of Resting-State BOLD Fluctuations**
J. Jean Chen[1,2], Tyler D. Triggs[1], H. Diana Rosas[1,3], David H. Salat[1,2]
[1]Athinoula A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Charlestown, MA, USA; [2]Department of Radiology, Massachusetts General Hospital, Boston, MA, USA; [3]Department of Neurology, Massachusetts General Hospital, Boston, MA, USA

10:42 **775**. **Association between Cerebral Blood Flow & Age-Related Changes in White Matter Microstructure**
J. Jean Chen[1,2], H. Diana Rosas[1,3], David H. Salat[1,2]
[1]Athinoula A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Charlestown, MA, USA; [2]Department of Radiology, Massachusetts General Hospital, Boston, MA, USA; [3]Department of Neurology, Massachusetts General Hospital, Boston, MA, USA

10:54 **776**. **Aging Effect on Human Brain Transverse Relaxation Since Preadolescence**
Jianli Wang[1], Megha Patel[1], Deborah Dossick[1], Michele L. Shaffer[2], Christopher W. Weitekamp[1], Xiaoyu Sun[1], Jeffrey Vesek[1], Paul J. Eslinger[3], David J. Jill[3], James R. Connor[4], Qing X. Yang[1,4]
[1]Radiology, Penn State College of Medicine, Hershey, PA, USA; [2]Public Health Sciences, Penn State College of Medicine, Hershey, PA, USA; [3]Neurology, Penn State College of Medicine, Hershey, PA, USA; [4]Neurosurgery, Penn State College of Medicine, Hershey, PA, USA

11:06 **777**. **Genetic Influences on White Matter Microstructure in 280 Twins Scanned with 4 Tesla High Angular Resolution Diffusion Imaging (HARDI)**
Agatha D. Lee[1], Natasha Lepore[2], Caroline C. Brun[3], Marina Barysheva, Arthur Toga, Katie L. McMaho[4], Greig I. de Zubicaray[5], Nicholas G. Martin, Margaret Wright, Paul M. Thompson
[1]Neurology, LONI-UCLA, Los Angeles, CA, USA; [2]CHLA -USC; [3]UPENN; [4]Centre for Magnetic Resonance, University of Queensland; [5]Queensland Institute of Medical Research,

11:18 **778**. **Preliminary Evidence of Increased Brain Acetate Uptake & Oxidation in Heavy Drinkers Probed by ^{13}C-MRS**
Lihong Jiang[1], Barbara Gulanski[2], Stuart Weinzimer[3], Ismene Petrakis[3], Elizabeth Guidone[3], Julia Koretski[3], Graeme Mason
[1]Diagnostic Radiology, Yale University School of Medicine, New Haven, CT, USA; [2]Internal Medicine, Yale University School of Medicine; [3]Psychiatry, Yale University School of Medicine

11:30 **779**. **Age & Gender Related Alterations in Brain Perfusion Dynamics**
Yinan Liu[1,2], Xiaoping Zhu[1], David Feinberg[2,3], Matthias Guenther[4,5], Howard Rosen[6], Michael W. Weiner[1,2], Norbert Schuff[1,2]
[1]Center for Imaging of Neurodegenerative Diseases, Department of Veterans Affairs Medical Center, San Francisco, CA, USA; [2]Department of Radiology & Biomedical Imaging, University of California, San Francisco, CA, USA; [3]Advanced MRI Technology

LLC, Sebastopol, CA, USA; [4]Mediri GmbH, Heidelberg, Germany; [5]Department of Neurology, Klinikum Mannheim, University Heidelberg, Mannheim, Germany; [6]Department of Neurology, University of California, San Francisco, CA, USA

11:42 **780**. **Regional Changes of Cortical Mean Diffusivity with Ageing & Alzheimer Disease after Correction of Partial Volume Effects**

Tina Jeon[1], Virendra Mishra[1], Myron Weiner[2], Kristin Martin-Cook[3], Kimmo Hatanpaa[4], Chan Foong[4], Hao Huang[1]
[1]Advanced Imaging Research Center, University of Texas Southwestern Medical Center, Dallas, TX, USA; [2]Department of Psychiatry, University of Texas Southwestern Medical Center, Dallas, TX, USA; [3]Department of Neurology, University of Texas Southwestern Medical Center, Dallas, TX, USA; [4]Department of Pathology, University of Texas Southwestern Medical Center, Dallas, TX, USA

11:54 **781**. **Effect of Aging on CBF Mapping of Default Mode Network : An fMRI Study**

Ying Hao[1], Jing Liu[2], Yue Zhang[3], Xiaoying Wang[1,4], Jue Zhang[1,3], Jing Fang[3,5]
[1]Academy for Advanced Interdisciplinary Studies, Peking University, Beijing, China, People's Republic of; [2]Dept. of Radiology, Peking University First Hospital, Beijing, China, People's Republic of; [3]College of Engineering, Peking University, Beijing, China, People's Republic of; [4]Dept. of Radiology, Peking University First Hospital, Beijing, Beijing, China, People's Republic of; [5] Academy for Advanced Interdisciplinary Studies, Peking University, Beijing, China, People's Republic of

12:06 **782**. **Multi Modal MRI Reveals Early Life Brain Changes in Human Apoe-E4 Carriers**

Ory Levy[1], Anat Bar-Shira[2], Avi Orr-Urtreger[2,3], Yaniv Assaf[1]
[1]Department of Neurobiology, Life Sciences Faculty, Tel aviv University, Tel Aviv, Israel; [2]The Genetic Institute, Tel-Aviv Sourasky Medical Center, Tel-Aviv, Israel; [3]The Sackler Faculty of Medicine, Tel aviv University, Tel Aviv, Israel

12:18 **783**. **Paradoxically Reduced Cerebral Vascular Reactivity in Masters Athletes**

Binu P. Thomas[1,2], Uma Sreekumar Yezhuvath[1], Rong Zhang[3,4], Benjamin Yichen Tseng[3,4], Benjamin Levine[3,4], Hanzhang Lu[1,5]
[1]Advanced Imaging Research Center, University of Texas Southwestern Medical Center, Dallas, TX, USA; [2]Biomedical Engineering, University of Texas Southwestern Medical Center/University of Texas at Arlington, TX, USA; [3]Institute for Exercise & Environmental Medicine, Texas Health Presbyterian Hospital, Dallas, TX, USA; [4]Internal Medicine-Cardiology, University of Texas Southwestern Medical Center, Dallas, TX, USA; [5]Biomedical Engineering , University of Texas Southwestern Medical Center/University of Texas at Arlington, TX, USA

Perfusion MRI: DSC & DCE MRI

Room 710B 10:30-12:30 *Moderators:* Geoffrey J. M. Parker & Matúš Straka

10:30 **784**. **Separation of Intra- & Extra-Vascular Spaces in Human Brain with DCE-MRI & ^{11}C- Verapamil PET**

Xiaoping Zhu[1], John R. Cain[1], Shaonan Wang[1], Maria Feldmann[1,2], Gerry Thompson[1], Ka-Loh Li[1], Marie Claude Asselin[1], Alan Jackson[1]
[1]Wolfson Molecular Imaging Centre, University of Manchester, Manchester, United Kingdom; [2]Department of Clinical & Experimental Epilepsy, UCL Institute of Neurology, London, United Kingdom

10:42 **785**. **Whole-Brain CBF Measurements using DCE-MRI & 3D k-t PCA**

Henrik Pedersen[1], Adam E. Hansen[1], Henrik B. W. Larsson[1]
[1]Functional Imaging Unit (KFNA), Glostrup Hospital, Glostrup, Denmark

10:54 **786**. **Accurate Brain Tumor Blood Volume Estimation using DCE-MRI with Bookend T_1 Measurements & Phase-Derived AIFs**

Greg O. Cron[1], Claire Foottit[1], Jean Francois Mercier[1], Rebecca Thornhill[1], Viviane Thanh-Van Nguyen[2], Ian Cameron[1], Mark E. Schweitzer[1], J. J. Shankar[1], John Sinclair[1], John Woulfe[1], Matthew J. Hogan[3], Thanh B. Nguyen[1]
[1]The Ottawa Hospital, Ottawa, Ontario, Canada; [2]University of Montreal; [3]Neuroradiology, University of Ottawa, Ottawa, Ontario, Canada

11:06 **787**. **Discriminant Analysis to Classify the Glioma Grading using DCE MRI & Immunohistochemical Markers**

Rishi Awasthi[1], Prativa Sahoo[2], Nuzhat Husain[3], Priyanka Soni[3], Ashish Awasthi[4], Rohit Kumar Singh[5], Sanjay Behari[5], Chandra M. Pandey[4], Ram Kishan Singh Rathore[6], Rakesh Kumar Gupta[1]
[1]Radiodiagnosis, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India, Lucknow, Uttar Pradesh, India; [2]Indian Institute of Technology, Kanpur, Kanpur, Uttar Pradesh, India; [3]Pathology, Chatrapati Sahu ji Maharaj Medical University, Lucknow, Uttar Pradesh, India; [4]Biostatistics, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India, Lucknow, Uttar Pradesh, India; [5]Neurosurgery, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India, Lucknow, Uttar Pradesh, India; [6]Mathematics & Statistics, Indian Institute of Technology, Kanpur, Kanpur, Uttar Pradesh, India

11:18 **788**. **Spin- & Gradient-Echo EPI for Imaging of Brain Perfusion with MRI**
Heiko Schmiedeskamp[1], Matus Straka[1], Greg Zaharchuk[1], Nancy J. Fischbein[1], Marteen G. Lansberg[2], Jean-Marc Olivot[2], Greg W. Albers[2], Michael E. Moseley[1], Roland Bammer[1]
[1]Department of Radiology, Stanford University, Stanford, CA, USA; [2]Department of Neurology, Stanford University, Stanford, CA, USA

11:30 **789**. **Independent Component Analysis of Dynamic Susceptibility Contrast MRI in Brain Tumor: A New Biomarker for Measuring Tumor Perfusion Patterns**
Peter Sherman LaViolette[1], Alex D. Cohen[1], Scott D. Rand[2], Wade Mueller[3], Kathleen M. Schmainda[1,2]
[1]Biophysics, Medical College of Wisconsin, Milwaukee, WI, USA; [2]Radiology, Medical College of Wisconsin, Milwaukee, WI, USA; [3]Neurosurgery, Medical College of Wisconsin, Milwaukee, WI, USA

11:42 **790**. **Improved Differentiation of Brain Tumors by Phase Contrast Calibration of Dynamic Susceptibility Contrast MRI: Combined Use with Extravasation Correction**
David Bonekamp[1], Peter B. Barker[1]
[1]Russell H. Morgan Department of Radiology & Radiological Science, The Johns Hopkins University School of Medicine, Baltimore, MD, USA

11:54 **791**. **Does DSC-Derived CA Extravasation Correlate with DCE K^{trans}?**
Kyrre E. Emblem[1,2], Kim Mouridsen[1], Ronald J. H. Borra[1], Gregory Sorensen[1], Tracy T. Batchelor[3], Rakesh K. Jain[4], Atle Bjornerud[2,5]
[1]A. A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Boston, MA, USA; [2]The Interventional Center, Oslo University Hospital - Rikshospitalet, Oslo, Norway; [3]Pappas Center for Neuro-Oncology, Massachusetts General Hospital, Boston, MA, USA; [4]Department of Radiation Oncology, Massachusetts General Hospital, Boston, MA, USA; [5]Department of Physics, University of Oslo, Oslo, Norway

12:06 **792**. **Can We Separate the Contributions of Permeability & Diffusion of Contrast Agent? A Simulation Study**
Clément Stephan Debacker[1,2], Nicolas Pannetier[1,2], Franck Mauconduit[1,2], Thomas Christen[1,3], Emmanuel Luc Barbier[1,2]
[1]INSERM - U836, Grenoble, France; [2]Grenoble Institut des Neurosciences, Université Joseph Fourier, Grenoble, France; [3]Department of Radiology, Stanford University, Stanford, CA, USA

12:18 **793**. **Dynamic Ratio $\Delta r_{2ge}/\Delta r_{2se}^{3/2}$ in DSC Perfusion Imaging Reveals the Relative Arterial & Venous Blood Volume Fraction**
Chao Xu[1], Valerij Kiselev[2], Peter Brunecker[1], Jochen Fiebach[1]
[1]Center for Stroke Research Berlin (CSB), Berlin, Germany; [2]Department of Diagnostic Radiology, University Hospital Freiburg, Freiburg, Germany