

## CONTENTS

### ■ SPECTROSCOPIC METHODOLOGY

#### Full Papers

**Classification of Single-Voxel  $^1\text{H}$  Spectra of Childhood Cerebellar Tumors Using LCMoDel and Whole Tissue Representations**, Felix Raschke, Nigel P. Davies, Martin Wilson, Andrew C. Peet, and Franklyn A. Howe ..... 1  
*Published online 10 August 2012*

**Non-Spin-Echo 3D Transverse Hadamard Encoded Proton Spectroscopic Imaging in the Human Brain**, Ouri Cohen, Assaf Tal, Gadi Goelman, and Oded Gonen ..... 7  
*Published online 24 August 2012*

#### Note

**Center-Out Echo-Planar Spectroscopic Imaging with Correction of Gradient-Echo Phase and Time Shifts**, Christian Labadie, Stefan Hetzer, Jessica Schulz, Toralf Mildner, Monique Aubert-Frécon, and Harald E. Möller ..... 16  
*Published online 27 July 2012*

### ■ PRECLINICAL AND CLINICAL SPECTROSCOPY

#### Full Paper

**Optimized Quantitative Magnetic Resonance Spectroscopy for Clinical Routine**, Olivier Scheidegger, Kevin Wingeier, Dan Stefan, Danielle Graveron-Demilly, Dirk van Ormondt, Roland Wiest, and Johannes Slotboom ..... 25  
*Published online 20 August 2012*

#### Note

**Evaluation of Heterogeneous Metabolic Profile in an Orthotopic Human Glioblastoma Xenograft Model Using Compressed Sensing Hyperpolarized 3D  $^{13}\text{C}$  Magnetic Resonance Spectroscopic Imaging**, Ilwoo Park, Simon Hu, Robert Bok, Tomoko Ozawa, Motokazu Ito, Joydeep Mukherjee, Joanna J. Phillips, C. David James, Russell O. Pieper, Sabrina M. Ronen, Daniel B. Vigneron, and Sarah J. Nelson ..... 33  
*Published online 31 July 2012*

### ■ IMAGING METHODOLOGY

#### Full Papers

**Reconstruction of Undersampled Radial PatLoc Imaging Using Total Generalized Variation**, Florian Knoll, Gerrit Schultz, Kristian Bredies, Daniel Gallichan, Maxim Zaitsev, Jürgen Hennig, and Rudolf Stollberger ..... 40  
*Published online 30 July 2012*

**Sparsity Transform k-t Principal Component Analysis for Accelerating Cine Three-Dimensional Flow Measurements**, Verena Knobloch, Peter Boesiger, and Sebastian Kozerke ..... 53  
*Published online 6 August 2012*

**Highly Accelerated Real-Time Cardiac Cine MRI Using k-t SPARSE-SENSE**, Li Feng, Monvadi B. Srichai, Ruth P. Lim, Alexis Harrison, Wilson King, Ganesh Adluru, Edward V. R. Dibella, Daniel K. Sodickson, Ricardo Otazo, and Daniel Kim ..... 64  
*Published online 6 August 2012*

**Gray Blood Magnetic Resonance for Carotid Wall Imaging and Visualization of Deep-Seated and Superficial Vascular Calcifications**, Ioannis Koktzoglou ..... 75  
*Published online 8 August 2012*

**Multidimensionally Encoded Magnetic Resonance Imaging**, Fa-Hsuan Lin ..... 86  
*Published online 24 August 2012*

**Spatially Selective Implementation of the Adiabatic  $T_2$ Prep Sequence for Magnetic Resonance Angiography of the Coronary Arteries**, Sahar Soleimanifard, Michael Schär, Allison G. Hays, Jerry L. Prince, Robert G. Weiss, and Matthias Stuber ..... 97  
*Published online 22 August 2012*

**SNR-Optimized Phase-Sensitive Dual-Acquisition Turbo Spin Echo Imaging: a Fast Alternative to FLAIR**, Hyunyeol Lee and Jaeseok Park ..... 106  
*Published online 13 August 2012*

**Catalytic Multiecho Phase Unwrapping Scheme (CAMPUS) in Multiecho Gradient Echo Imaging: Removing Phase Wraps on a Voxel-by-Voxel Basis**, Wei Feng, Jaladhar Neelavalli, and E. Mark Haacke ..... 117  
*Published online 10 August 2012*

**Commissioning of MRI-Only Based Treatment Planning Procedure for External Beam Radiotherapy of Prostate**, Mika Kapanen, Juhani Collan, Annette Beule, Tiina Seppälä, Kauko Saarilahti, and Mikko Tenhunen ..... 127  
*Published online 10 August 2012*

# CONTENTS

**Dynamic and Simultaneous MR Measurement of  $R_1$  and  $R_2^*$  Changes During Respiratory Challenges for the Assessment of Blood and Tissue Oxygenation**, Stefanie Remmele, Alois M. Sprinkart, Andreas Müller, Frank Träber, Marec von Lehe, Jürgen Gieseke, Sebastian Flacke, Winfried A. Willinek, Hans H. Schild, Julien Sénégas, Jochen Keupp, and Petra Mürtz ..... 136  
*Published online 24 August 2012*

## Notes

**One Component? Two Components? Three? The Effect of Including a Nonexchanging “Free” Water Component in Multicomponent Driven Equilibrium Single Pulse Observation of  $T_1$  and  $T_2$** , Sean C. L. Deoni, Lucy Matthews, and Shannon H. Kolind ..... 147  
*Published online 22 August 2012*

**Hierarchical IDEAL: Fast, Robust, and Multiresolution Separation of Multiple Chemical Species from Multiple Echo Times**, Jeffrey Tsao and Yun Jiang ..... 155  
*Published online 6 August 2012*

**3D Phase Unwrapping Using Global Expected Phase as a Reference: Application to MRI Global Shimming**, Wentao Liu, Xin Tang, Yajun Ma, and Jia-Hong Gao ..... 160  
*Published online 6 August 2012*

**Metabolic Imaging of Multiple X-Nucleus Resonances**, Isabell K. Steinseifer, Jannie P. Wijnen, Bob C. Hamans, Arend Heerschap, and Tom W. J. Scheenen ..... 169  
*Published online 6 August 2012*

## ■ PRECLINICAL AND CLINICAL IMAGING

### Full Papers

**Rapid Quantification of Oxygen Tension in Blood Flow with a Fluorine Nanoparticle Reporter and a Novel Blood Flow-Enhanced-Saturation-Recovery Sequence**, Lingzhi Hu, Junjie Chen, Xiaoxia Yang, Shelton D. Caruthers, Gregory M. Lanza, and Samuel A. Wickline ..... 176  
*Published online 22 August 2012*

**Ultrashort Echo Time MR Imaging with Off-Resonance Saturation for Characterization of Pathologically Altered Achilles Tendons at 3 T**, Ulrich Grosse, Roland Syha, Petros Martirosian, Christian Wuerslin, Marius Horger, Gerd Grözinger, Fritz Schick, and Fabian Springer ..... 184  
*Published online 31 July 2012*

**Characterization of Estrogen-Receptor-Targeted Contrast Agents in Solution, Breast Cancer Cells, and Tumors In Vivo**, Adi Pais, Inbal Eti Biton, Raanan Margalit, and Hadassa Degani ..... 193  
*Published online 10 August 2012*

**Direct Imaging of Hyperpolarized  $^{129}\text{Xe}$  Alveolar Gas Uptake in a Mouse Model of Emphysema**, Satoshi Iguchi, Hirohiko Imai, Yuki Hori, Junichi Nakajima, Atsuomi Kimura, and Hideaki Fujiwara ..... 207  
*Published online 8 August 2012*

**Amide Proton Transfer Imaging of the Breast at 3 T: Establishing Reproducibility and Possible Feasibility Assessing Chemotherapy Response**, Adrienne N. Dula, Lori R. Arlinghaus, Richard D. Dortch, Blake E. Dewey, Jennifer G. Whisenant, Gregory D. Ayers, Thomas E. Yankeelov, and Seth A. Smith ..... 216  
*Published online 20 August 2012*

## ■ BIOPHYSICS AND BASIC BIOMEDICAL RESEARCH

### Rapid Communication

**Angle-Sensitive MRI For Quantitative Analysis of Fiber-Network Deformations in Compressed Cartilage**, Nikita Garnov, Harald Busse, and Wilfried Gründer ..... 225  
*Published online 28 May 2013*

### Full Paper

**MRI-Related Static Magnetic Stray Fields and Postural Body Sway: A Double-Blind Randomized Crossover Study**, Lotte E. van Nierop, Pauline Slottje, Herman Kingma, and Hans Kromhout ..... 232  
*Published online 10 August 2012*

## ■ HARDWARE AND INSTRUMENTATION

### Rapid Communication

**Integrated Parallel Reception, Excitation, and Shimming (iPRES)**, Hui Han, Allen W. Song, and Trong-Kha Truong ..... 241  
*Published online 29 April 2013*

### Full Papers

**A 64-Channel 3T Array Coil for Accelerated Brain MRI**, Boris Keil, James N. Blau, Stephan Biber, Philipp Hoecht, Veneta Tountcheva, Kavin Setsompop, Christina Triantafyllou, and Lawrence L. Wald ..... 248  
*Published online 31 July 2012*

**Design of a Nested Eight-Channel Sodium and Four-Channel Proton Coil for 7T Knee Imaging**, Ryan Brown, Guillaume Madelin, Riccardo Lattanzi, Gregory Chang, Ravinder R. Regatte, Daniel K. Sodickson, and Graham C. Wiggins ..... 259  
*Published online 8 August 2012*

**Permittivity and Performance of Dielectric Pads with Sintered Ceramic Beads in MRI: Early Experiments and Simulations at 3 T**, Wei Luo, Michael T. Lanagan, Christopher T. Sica, YeunChul Ryu, Sukhoon Oh, Matthew Ketterman, Qing X. Yang, and Christopher M. Collins ..... 269  
*Published online 13 August 2012*

# CONTENTS

**On-Coil Multiple Channel Transmit System Based on Class-D Amplification and Pre-Amplification with Current Amplitude Feedback,** Natalia Gudino, Jeremiah A. Heilman, Matthew J. Riffe, Oliver Heid, Markus Vester, and Mark A. Griswold..... 276  
*Published online 13 August 2012*

## **Notes**

**Mitigation of  $B_1^+$  Inhomogeneity on Single-Channel Transmit Systems with TIAMO,** Stephan Orzada, Sören Johst, Stefan Maderwald, Andreas K. Bitz, Klaus Solbach, and Mark E. Ladd..... 290  
*Published online 8 August 2012*

**Multichannel Receiver Coils for Improved Coverage in Cardiac Metabolic Imaging Using Prepolarized  $^{13}\text{C}$  Substrates,** William Dominguez-Viqueira, Angus Z. Lau, Albert P. Chen, and Charles H. Cunningham ..... 295  
*Published online 20 August 2012*