

## CONTENTS

### ■ SPECTROSCOPIC METHODOLOGY

#### *Full Paper*

- Deep Learning Approaches for Detection and Removal of Ghosting Artifacts in MR Spectroscopy**, Sreenath P. Kyathanahally, André Döring, and Roland Kreis ..... 851  
*Published online 1 February 2018*

### ■ PRECLINICAL AND CLINICAL SPECTROSCOPY

#### *Full Papers*

- Development of Methods and Feasibility of Using Hyperpolarized Carbon-13 Imaging Data for Evaluating Brain Metabolism in Patient Studies**, Ilwoo Park, Peder E.Z. Larson, Jeremy W. Gordon, Lucas Carvajal, Hsin-Yu Chen, Robert Bok, Mark Van Criekinge, Marcus Ferrone, James B. Slater, Duan Xu, John Kurhanewicz, Daniel B. Vigneron, Susan Chang, and Sarah J. Nelson ..... 864  
*Published online 10 January 2018*

- Feasibility of In Vivo Measurement of Glucose Metabolism in the Mouse Hypothalamus by  $^1\text{H}$ - $^{13}\text{C}$  MRS at 14.1T**, Blanca Lizarbe, Hongxia Lei, Joao M.N. Duarte, Bernard Lanz, Antoine Cherix, and Rolf Gruetter ..... 874  
*Published online 9 February 2018*

### ■ IMAGING METHODOLOGY

#### *Rapid Communication*

- MR Fingerprinting Deep ReConstruction Network (DRONE)**, Ouri Cohen, Bo Zhu, and Matthew S. Rosen ..... 885  
*Published online 6 April 2018*

#### *Full Papers*

- CEST-Dixon for Human Breast Lesion Characterization at 3 T: A Preliminary Study**, Shu Zhang, Stephen Seiler, Xinzeng Wang, Ananth J. Madhuranthakam, Jochen Keupp, Emily E. Knippa, Robert E. Lenkinski, and Elena Vinogradov ..... 895  
*Published online 10 January 2018*

- Self-Gated Golden-Angle Spiral 4D Flow MRI**, Rene Bastkowski, Kilian Weiss, David Maintz, and Daniel Giese ..... 904  
*Published online 17 January 2018*

- Quality Evaluation of No-Reference MR Images Using Multidirectional Filters and Image Statistics**, Jinseong Jang, Kihun Bang, Hanbyol Jang, and Dosik Hwang, for the Alzheimer's Disease Neuroimaging Initiative ..... 914  
*Published online 30 January 2018*

- Improved Tolerance to Off-Resonance in Spectral-Spatial EPI of Hyperpolarized [ $^1\text{-}^{13}\text{C}$ ]Pyruvate and Metabolites**, Justin Y. C. Lau, Benjamin J. Geraghty, Albert P. Chen, and Charles H. Cunningham ..... 925  
*Published online 29 January 2018*

- Real-Time Correction of Respiration-Induced Distortions in the Human Spinal Cord Using a 24-Channel Shim Array**, Ryan Topfer, Alexandru Foias, Nikola Stikov, and Julien Cohen-Adad ..... 935  
*Published online 29 January 2018*

- Feasibility of Single-Shot Multi-Level Multi-Angle Diffusion Tensor Imaging of the Human Cervical Spinal Cord at 7T**, Aurélien Massire, Henitsoa Rasoanandrianina, Manuel Taso, Maxime Guye, Jean-Philippe Ranjeva, Thorsten Feiweler, and Virginie Callot ..... 947  
*Published online 25 January 2018*

- Autofocusing-Based Phase Correction**, Alexander Loktyushin, Philipp Eheses, Bernhard Schölkopf, and Klaus Scheffler ..... 958  
*Published online 19 January 2018*

- Cardiac-Triggered Pseudo-Continuous Arterial-Spin-Labeling: A Cost-Effective Scheme to Further Enhance the Reliability of Arterial-Spin-Labeling MRI**, Yang Li, Deng Mao, Zhiqiang Li, Michael Schär, Jay J. Pillai, James G. Pipe, and Hanzhang Lu ..... 969  
*Published online 25 January 2018*

- Retrospective Multi-Phase Non-Contrast-Enhanced Magnetic Resonance Angiography (ROMANCE MRA) for Robust Angiogram Separation in the Presence of Cardiac Arrhythmia**, Hahnsung Kim, Suhjung Park, Eung Yeop Kim, and Jaeseok Park ..... 976  
*Published online 9 February 2018*

# CONTENTS

**Improving Chemical Shift Encoding-Based Water-Fat Separation Based on a Detailed Consideration of Magnetic Field Contributions,** Maximilian N. Diefenbach, Stefan Ruschke, Holger Eggers, Jakob Meineke, Ernst J. Rummeny, and Dimitrios C. Karampinos ..... 990  
*Published online 9 February 2018*

**In Vivo Self-Gated  $^{23}\text{Na}$  MRI at 7 T Using an Oval-Shaped Body Resonator,** Tanja Platt, Reiner Umathum, Thomas M. Fiedler, Armin M. Nagel, Andreas K. Bitz, Florian Maier, Peter Bachert, Mark E. Ladd, Mark O. Wielpütz, Hans-Ulrich Kauczor, and Nicolas G.R. Behl ..... 1005  
*Published online 9 February 2018*

**Phase-Correcting Non-Local Means Filtering for Diffusion-Weighted Imaging of the Spinal Cord,** Sevgi Gokce Kafali, Tolga Çukur, and Emine Ulku Saritas ..... 1020  
*Published online 9 February 2018*

**Placental Perfusion Imaging Using Velocity-Selective Arterial Spin Labeling,** Zungho Zun and Catherine Limperopoulos ..... 1036  
*Published online 13 February 2018*

**High Spatiotemporal Resolution bSSFP Imaging of Hyperpolarized  $[1-^{13}\text{C}]$ Pyruvate and  $[1-^{13}\text{C}]$ Lactate With Spectral Suppression of Alanine and Pyruvate-Hydrate,** Eugene Milshteyn, Cornelius von Morze, Jeremy W. Gordon, Zihan Zhu, Peder E.Z. Larson, and Daniel B. Vigneron ..... 1048  
*Published online 16 February 2018*

**Wave-CAIPI ViSta: Highly Accelerated Whole-Brain Direct Myelin Water Imaging With Zero-Padding Reconstruction,** Zhe Wu, Berkin Bilgic, Hongjian He, Qiqi Tong, Yi Sun, Yiping Du, Kawin Setsompop, and Jianhui Zhong ..... 1061  
*Published online 1 February 2018*

**Quantifying Precision in Cardiac Diffusion Tensor Imaging With Second-Order Motion-Compensated Convex Optimized Diffusion Encoding,** Eric Aliotta, Kévin Moulin, Patrick Magrath, and Daniel B. Ennis ..... 1074  
*Published online 9 February 2018*

**Simultaneous Multislice Triple-Echo Steady-State (SMS-TESS)  $T_1$ ,  $T_2$ , PD, and Off-Resonance Mapping in the Human Brain,** Rahel Heule, Zarko Celicanin, Sebastian Kozerke, and Oliver Bieri ..... 1088  
*Published online 21 February 2018*

**Single-Scan z-Shim Method for Reducing Susceptibility Artifacts in Gradient Echo Myelin Water Imaging,** Doohee Lee, Jingu Lee, Jongho Lee, and Yoonho Nam ..... 1101  
*Published online 25 February 2018*

**Spin-Lock Imaging of 3-o-Methyl-D Glucose (3oMG) in Brain Tumors,** Zhongliang Zu, Xiaoyu Jiang, Junzhong Xu, and John C. Gore ..... 1110  
*Published online 9 February 2018*

**Notes**  
**Dynamic Measurement of Oxygen Extraction Fraction Using a Multiecho Asymmetric Spin Echo (MASE) Pulse Sequence,** Yayan Yin, Yaoyu Zhang, and Jia-Hong Gao ..... 1118  
*Published online 8 January 2018*

**Cross-Vendor Harmonization of  $T_2$ -Relaxation-Under-Spin-Tagging (TRUST) MRI for the Assessment of Cerebral Venous Oxygenation,** Dengrong Jiang, Peiying Liu, Yang Li, Deng Mao, Cuimei Xu, and Hanzhang Lu ..... 1125  
*Published online 25 January 2018*

**Interleaved Susceptibility-Weighted and FLAIR MRI for Imaging Lesion-Penetrating Veins in Multiple Sclerosis,** Refaat E. Gabr, Amol S. Pednekar, Arash Kamali, John A. Lincoln, Flavia M. Nelson, Jerry S. Wolinsky, and Ponnada A. Narayana ..... 1132  
*Published online 15 January 2018*

## ■ PRECLINICAL AND CLINICAL IMAGING

**Full Papers**  
**Imaging Macrophage Distribution and Density in Mammary Tumors and Lung Metastases Using Fluorine-19 MRI Cell Tracking,** Ashley V. Makela and Paula J. Foster ..... 1138  
*Published online 12 January 2018*

**MRI Quantification of Human Fetal  $\text{O}_2$  Delivery Rate in the Second and Third Trimesters of Pregnancy,** Ana E. Rodríguez-Soto, Michael C. Langham, Osheiza Abdulmalik, Erin K. Englund, Nadav Schwartz, and Felix W. Wehrli ..... 1148  
*Published online 22 January 2018*

**Notes**  
**Characterization of D-Maltose as a  $T_2$ -Exchange Contrast Agent for Dynamic Contrast-Enhanced MRI,** Joshua M. Goldenberg, Mark D. Pagel, and Julio Cárdenas-Rodríguez ..... 1158  
*Published online 25 January 2018*

**Dynamic Coronary MR Angiography in a Pig Model With Hyperpolarized Water,** Kasper Wigh Lipsø, Esben Søvsø Szocska Hansen, Rasmus Stilling Tougaard, Christoffer Laustsen, and Jan Henrik Ardenkjær-Larsen ..... 1165  
*Published online 12 January 2018*

# CONTENTS

## ■ BIOPHYSICS AND BASIC BIOMEDICAL RESEARCH

### Full Paper

- Pulsed Gradient Stimulated Echo (PGStE) NMR Shows Spatial Dependence of Fluid Diffusion in Human Stage IV Osteoarthritic Cartilage,** Sarah E. Mailhiot, Sarah L. Codd, Jennifer R. Brown, Joseph D. Seymour, and Ronald K. June ..... 1170  
*Published online 2 February 2018*

## ■ COMPUTER PROCESSING AND MODELING

### Full Papers

- A Bayesian Method for Accelerated Magnetic Resonance Elastography of the Liver,** Christopher Ebersole, Rizwan Ahmad, Adam V. Rich, Lee C. Potter, Huiming Dong, and Arunark Kolipaka ..... 1178  
*Published online 15 January 2018*
- Deep Learning With Domain Adaptation for Accelerated Projection-Reconstruction MR,** Yoseob Han, Jaejun Yoo, Hak Hee Kim, Hee Jung Shin, Kyunghyun Sung, and Jong Chul Ye ..... 1189  
*Published online 4 February 2018*
- Local Contrast-Enhanced MR Images Via High Dynamic Range Processing,** Shekhar S. Chandra, Craig Engstrom, Jurgen Fripp, Ales Neubert, Jin Jin, Duncan Walker, Olivier Salvado, Charles Ho, and Stuart Crozier ..... 1206  
*Published online 4 February 2018*

- Cartilage Cavity—An MRI Marker of Cartilage Lesions in Knee OA With Data from CCB, OAI, and PROOF,** Erik B. Dam, Jos Runhaar, Sita Bierma-Zienstra, and Morten Karsdal ..... 1219  
*Published online 28 February 2018*

## ■ HARDWARE AND INSTRUMENTATION

### Full Papers

- Transverse Slot Antennas for High Field MRI,** Leeor Alon, Riccardo Lattanzi, Karthik Lakshmanan, Ryan Brown, Cem M. Deniz, Daniel K. Sodickson, and Christopher M. Collins ..... 1233  
*Published online 1 February 2018*
- T<sub>1</sub>-Based Sensing of Mammographic Density Using Single-Sided Portable NMR,** Monique C. Tourell, Tonima S. Ali, Honor J Hugo, Chris Pyke, Samuel Yang, Thomas Lloyd, Erik W. Thompson, and Konstantin I. Momot ..... 1243  
*Published online 4 February 2018*
- An 8/15-Channel Tx/Rx Head Neck RF Coil Combination With Region-Specific B<sub>1</sub><sup>+</sup> Shimming for Whole-Brain MRI Focused on the Cerebellum at 7T,** Viktor Pfaffenrot, Sascha Brunheim, Stefan H. G. Rietsch, Peter J. Koopmans, Thomas M. Ernst, Oliver Kraff, Stephan Orzada, and Harald H. Quick ..... 1252  
*Published online 9 February 2018*