

CONTENTS

■ SPECTROSCOPIC METHODOLOGY

Full Papers

Adaptive Baseline Fitting for ¹H MR Spectroscopy Analysis, Martin Wilson..... 13
Published online 14 August 2020

Accelerated J-Resolved ¹H-MRSI with Limited and Sparse Sampling of (k, t₁, t₂)-Space, Lihong Tang, Yibo Zhao, Yudu Li, Rong Guo, Bryan Clifford, Georges El Fakhri, Chao Ma, Zhi-Pei Liang, and Jie Luo..... 30
Published online 29 July 2020

Note

Trehalose as an Alternative to Glycerol as a Glassing Agent for In Vivo DNP MRI, Jeffrey R. Brender, Shun Kishimoto, Gareth R. Eaton, Sandra S. Eaton, Yu Saida, James Mitchell, and Murali C. Krishna..... 42
Published online 22 July 2020

■ IMAGING METHODOLOGY

Review

Quantitative ¹H MRI and MRS of Fatty Acid Composition, Pernilla Peterson, Lena Trinh, and Sven Månsson..... 49
Published online 25 August 2020

Rapid Communication

Variable Anisotropic FOV for 3D Radial Imaging with Spiral Phyllotaxis (VASP), Guruprasad Krishnamoorthy, Jouke Smink, Joao Tourais, Marcel Breeuwer, and Marc Kouwenhoven 68
Published online 27 August 2020

Full Papers

Diffusion-Prepared 3D Gradient Spin-Echo Sequence for Improved Oscillating Gradient Diffusion MRI, Dan Wu, Dapeng Liu, Yi-Cheng Hsu, Haotian Li, Yi Sun, Qin Qin, and Yi Zhang..... 78
Published online 8 July 2020

Free-Breathing Whole-Heart Multi-Slice Myocardial T₁ Mapping in 2 Minutes, Rui Guo, Xiaoying Cai, Selcuk Kucukseymen, Jennifer Rodriguez, Amanda Paskavitz, Patrick Pierce, Beth Goddu, and Reza Nezafat 89
Published online 14 July 2020

Myocardial T₁ and T₂ Quantification and Water-Fat Separation Using Cardiac MR Fingerprinting with Rosette Trajectories at 3T and 1.5T, Yuchi Liu, Jesse Hamilton, Brendan Eck, Mark Griswold, and Nicole Seiberlich..... 103
Published online 27 July 2020

Ultra-High Spatial Resolution BOLD fMRI in Humans Using Combined Segmented-Accelerated VFA-FLEET with a Recursive RF Pulse Design, Avery J. L. Berman, William A. Grissom, Thomas Witzel, Shahin Nasr, Daniel J. Park, Kawin Setsompop, and Jonathan R. Polimeni 120
Published online 23 July 2020

Enhanced POCS Reconstruction for Partial Fourier Imaging in Multi-Echo and Time-Series Acquisitions, Peter J. Koopmans and Viktor Pfaffenrot..... 140
Published online 25 July 2020

Accelerating Cardiac Cine MRI Using a Deep Learning-Based ESPIRiT Reconstruction, Christopher M. Sandino, Peng Lai, Shreyas S. Vasanawala, and Joseph Y. Cheng 152
Published online 22 July 2020

Quantitative Perfusion Mapping with Induced Transient Hypoxia Using BOLD MRI, Chau Vu, Yaqiong Chai, Julie Coloigner, Aart J. Nederveen, Matthew Borzage, Adam Bush, and John C. Wood 168
Published online 27 July 2020

B₀ Shimming of the Human Heart at 7T, Michael Hock, Maxim Terekhov, Maria Roxana Stefanescu, David Lohr, Stefan Herz, Theresa Reiter, Markus Ankenbrand, Aleksander Kosmala, Tobias Gassenmaier, Christoph Juchem, and Laura Maria Schreiber..... 182
Published online 23 July 2020

Cerebrospinal Fluid Pulse Wave Velocity Measurements: In Vitro and In Vivo Evaluation of a Novel Multiband Cine Phase-Contrast MRI Sequence, Kristina Sonnabend, Gerrit Brinker, David Maintz, Alexander C. Bunck, and Kilian Weiss 197
Published online 21 July 2020

CONTENTS

Fast and High-Resolution Myelin Water Imaging: Accelerating Multi-Echo GRASE with CAIPIRINHA, Gian Franco Piredda, Tom Hilbert, Erick Jorge Canales-Rodríguez, Marco Pizzolato, Constantin von Deuster, Reto Meuli, Josef Pfeuffer, Alessandro Daducci, Jean-Philippe Thiran, and Tobias Kober209
Published online 27 July 2020

Simultaneous Proton Density Fat-Fraction and R_2^* Imaging with Water-Specific T_1 Mapping (PROFIT1): Application in Liver, Richard B. Thompson, Kelvin Chow, Diana Mager, Joseph J. Pagano, and Justin Grenier223
Published online 4 August 2020

Combined Imaging of Potassium and Sodium in Human Skeletal Muscle Tissue at 7 T, Lena V. Gast, Stefanie Völker, Matthias Utschneider, Peter Linz, Tobias Wilferth, Max Müller, Christoph Kopp, Bernhard Hensel, Michael Uder, and Armin M. Nagel.....239
Published online 31 August 2020

Relayed Nuclear Overhauser Enhancement Imaging with Magnetization Transfer Contrast Suppression at 3 T, Jianpan Huang, Xiongqi Han, Lin Chen, Xiang Xu, Jiadi Xu, and Kannie W. Y. Chan254
Published online 1 August 2020

Quantifying the Fractional Concentrations and Exchange Rates of Small-Linewidth CEST Agents Using the QUCESOP Method Under Multi-Solute Conditions in MRI Signals, Yi Wang, Jin-Fang Chen, Pengyu Li, and Jia-Hong Gao268
Published online 29 July 2020

Notes

A Geometric Approach to Separate the Effects of Magnetic Susceptibility and Chemical Shift/Exchange in a Phantom with Isotropic Magnetic Susceptibility, Hyunsung Eun, Hwihun Jeong, Jingu Lee, Hyeong-Geol Shin, and Jongho Lee281
Published online 8 July 2020

Validation of T_2 -Based Oxygen Extraction Fraction Measurement with ^{15}O Positron Emission Tomography, Dengrong Jiang, Shengwen Deng, Crystal G. Franklin, Michael O'Boyle, Wei Zhang, Betty L. Heyl, Li Pan, Paul A. Jerabek, Peter T. Fox, and Hanzhang Lu290
Published online 8 July 2020

qMTNet: Accelerated Quantitative Magnetization Transfer Imaging with Artificial Neural Networks, Huan Minh Luu, Dong-Hyun Kim, Jae-Woong Kim, Seung-Hong Choi, and Sung-Hong Park.....298
Published online 8 July 2020

Post-Hoc Physiological Waveform Extraction from Motion Estimation in Simultaneous Multislice (SMS) Functional MRI Using Separate Stack Processing, Lia M. Hocke and Blaise B. Frederick309
Published online 27 July 2020

A Novel Sequence for Simultaneous Measurement of Whole-Brain Static and Dynamic MRI, Intracranial Vessel Wall Image, and T_1 -Weighted Structural Brain MRI, Zhensen Chen, Zechen Zhou, Haikun Qi, Huijun Chen, Baocheng Chu, Thomas S. Hatsukami, Chun Yuan, and Niranjana Balu316
Published online 1 August 2020

■ PRECLINICAL AND CLINICAL IMAGING

Rapid Communication

Increased Blood-Brain Barrier Permeability to Water in the Aging Brain Detected Using Noninvasive Multi-TE ASL MRI, Yolanda Ohene, Ian F. Harrison, Phoebe G. Evans, David L. Thomas, Mark F. Lythgoe, and Jack A. Wells.....326
Published online 10 September 2020

Full Papers

Physiological System Analysis of the Kidney by High-Temporal-Resolution T_2^* Monitoring of an Oxygenation Step Response, Kaixuan Zhao, Andreas Pohlmann, Qijian Feng, Yingjie Mei, Guixiang Yang, Peiwei Yi, Qianjin Feng, Wufang Chen, Lili Zhou, Ed X. Wu, Erdmann Seeliger, Thoralf Niendorf, and Yanqiu Feng.....334
Published online 25 July 2020

Evaluation of Renal Ischemia-Reperfusion Injury by Magnetic Resonance Imaging Texture Analysis: An Experimental Study, Liang Pan, Jie Chen, Tingting Zha, Liqiu Zou, Jinggang Zhang, Peijie Jin, Jiao Luo, and Wei Xing.....346
Published online 29 July 2020

Head-To-Head Comparison of Cardiovascular MR Feature Tracking Cine Versus Acquisition-Based Deformation Strain Imaging Using Myocardial Tagging and Strain Encoding, Sören J. Backhaus, Georg Metschies, Victoria Zieschang, Jennifer Erley, Seyedeh Mahsa Zamani, Johannes T. Kowallick, Tomas Lapinskas, Burkert Pieske, Joachim Lotz, Shelby Kutty, Gerd Hasenfuß, Sebastian Kelle, and Andreas Schuster357
Published online 27 August 2020

CONTENTS

Notes

Determination of Optimal Parameters for 3D Single-Point Macromolecular Proton Fraction Mapping at 7T in Healthy and Demyelinated Mouse Brain, Lucas Soustelle, Maria Cristina Antal, Julien Lamy, Laura-Adela Harsan, and Paulo Loureiro de Sousa..... 369
Published online 27 July 2020

Artificial Neural Network for Multi-Echo Gradient Echo-Based Myelin Water Fraction Estimation, Soozy Jung, Hongpyo Lee, Kanghyun Ryu, Jae Eun Song, Mina Park, Won-Jin Moon, and Dong-Hyun Kim..... 380
Published online 19 July 2020

■ BIOPHYSICS AND BASIC BIOMEDICAL RESEARCH

Full Papers

Probing In Vivo Cortical Myeloarchitecture in Humans Via Line-Scan Diffusion Acquisitions at 7 T with 250-500 Micron Radial Resolution, Mukund Balasubramanian, Robert V. Mulkern, Jeffrey J. Neil, Stephan E. Maier, and Jonathan R. Polimeni 390
Published online 1 August 2020

Probing the Ballistic Microcirculation in Placenta Using Flow-Compensated and Non-Compensated Intravoxel Incoherent Motion Imaging, Ling Jiang, Taotao Sun, Yuhao Liao, Yi Sun, Zhaoxia Qian, Yi Zhang, and Dan Wu..... 404
Published online 27 July 2020

■ COMPUTER PROCESSING AND MODELING

Full Papers

Training a Neural Network for Gibbs and Noise Removal in Diffusion MRI, Matthew J. Muckley, Benjamin Ades-Aron, Antonios Papaioannou, Gregory Lemberskiy, Eddy Solomon, Yvonne W. Lui, Daniel K. Sodickson, Els Fieremans, Dmitry S. Novikov, and Florian Knoll..... 413
Published online 14 July 2020

Individualized SAR Calculations Using Computer Vision-Based MR Segmentation and a Fast Electromagnetic Solver, Eugene Milshteyn, Georgy Guryev, Angel Torrado-Carvajal, Elfar Adalsteinsson, Jacob K. White, Lawrence L. Wald, and Bastien Guerin 429
Published online 8 July 2020

Optimized Rectification of Fiber Orientation Density Function, Hunter G. Moss and Jens H. Jensen..... 444
Published online 25 July 2020

Modeling of Vascular Space Occupancy and BOLD Functional MRI from First Principles Using Real Microvascular Angiograms, Élie Genois, Louis Gagnon, and Michèle Desjardins..... 456
Published online 29 July 2020

Synthetic Generation of DSC-MRI-Derived Relative CBV Maps from DCE MRI of Brain Tumors, Jeremiah W. Sanders, Henry Szu-Meng Chen, Jason M. Johnson, Donald F. Schomer, Jorge E. Jimenez, Jingfei Ma, and Ho-Ling Liu..... 469
Published online 29 July 2020

Comparison of Parameter Optimization Methods for Quantitative Susceptibility Mapping, Carlos Milovic, Claudia Prieto, Berkin Bilgic, Sergio Uribe, Julio Acosta-Cabronero, Pablo Irarrazaval, and Cristian Tejos 480
Published online 1 August 2020

■ HARDWARE AND INSTRUMENTATION

Full Papers

In Vivo 3D Brain and Extremity MRI at 50 mT Using a Permanent Magnet Halbach Array, Thomas O'Reilly, Wouter M. Teeuwisse, Danny de Gans, Kirsten Koolstra, and Andrew G. Webb 495
Published online 5 July 2020

Multifield and Inverse-Contrast Switching of Magnetocaloric High Contrast Ratio MRI Labels, Mladen Barbic, Stephen J. Dodd, Hatem ElBidweihy, Neil R. Dilley, Barbara Marcheschi, Alan L. Huston, H. Douglas Morris, and Alan P. Koretsky..... 506
Published online 7 July 2020

⁵⁵Mn-Based Fiducial Markers for Rapid and Automated RF coil Localization for Hyperpolarized ¹³C MRI, Michael A. Ohliger, Jeremy W. Gordon, Lucas Carvajal, Peder E. Z. Larson, Jao J. Ou, Shubhangi Agarwal, Zihan Zhu, Daniel B. Vigneron, and Cornelius von Morze 518
Published online 1 August 2020

Dynamic B₀ Shimming for Multiband Imaging Using High Order Spherical Harmonic Shims, Hoby P. Hetherington, Chan Hong Moon, Michael Schwerter, Nadim Joni Shah, and Jullie W. Pan 531
Published online 28 August 2020

CONTENTS

Notes

Three-Element Matching Networks for Receive-Only MRI Coil Decoupling, Wenjun Wang, Vitaliy Zhurbenko, Juan Diego Sánchez-Heredia, and Jan Henrik Ardenkjær-Larsen.....544
Published online 19 July 2020

A 32-Channel Receive Array Coil for Bilateral Breast Imaging and Spectroscopy at 7T, Romina Del Bosque, Jiaming Cui, Stephen Ogier, Sergey Cheshkov, Ivan E. Dimitrov, Craig Malloy, Steven M. Wright, and Mary McDougall551
Published online 9 August 2020

■ ESR

Rapid Communication

Differences in Pharmacokinetic Behaviors of Two Lipophilic 3-Substituted 2,2,5,5-Tetramethylpyrrolidine-N-oxyl Radicals, In Vivo Probes to Assess the Redox Status in the Brain Using Magnetic Resonance Techniques, Keizo Takeshita, Hana Okazaki, Megumi Tsukamoto, and Shoko Okazaki.....560
Published online 9 September 2020

■ ERRATUM

Corrigendum570
Published online 27 August 2020