

MAGNETIC RESONANCE IN MEDICINE

The highlighted papers are those papers recognized by the reviewers as supporting MRM's goal of Reproducible Research.

CONTENTS

■ SPECTROSCOPIC METHODOLOGY

Research Article

- Absolute quantification of cerebral metabolites using two-dimensional proton MR spectroscopic imaging with quantitative MRI-based water reference,** Dennis C. Thomas, Seyma Alcicek, Andrei Manzhurtsev, Elke Hattingen, Katharina J. Wenger, and Ulrich Pilatus 4
Published online 14 August 2025

- A data-driven algorithm to determine ¹H-MRS basis set composition,** Christopher W. Davies-Jenkins, Helge J. Zöllner, Dunja Simicic, Seyma Alcicek, Richard A. E. Edden, and Georg Oeltzschner 20
Published online 16 August 2025

- Accelerated water residual removal in MRS: Exploring deep learning versus fitting-based approaches,** Federico Turco, Johannes Slotboom, and Milena Capigliani 38
Published online 02 September 2025

■ IMAGING METHODOLOGY

Rapid Communication

- 7T ¹⁹F/¹H MRI with perfluorocarbon-labeled immune cells in pigs: Pilot results with a dedicated twin-array system with pTX support,** Maxim Terekhov, Ibrahim A. Elabyad, Marwan A. Hamid, Farzad Jabbarigargari, Rebekka Grampp, Mohammadreza Keshtkar, Anja Stadtmüller, Gabriele Ulm, Sofia Dembski, Anna Frey, Ulrich Hofmann, Wolfgang R. Bauer, and Laura M. Schreiber 51
Published online 10 October 2025

- A linear model-based, B₁ inhomogeneity-corrected, glutamate-weighted chemical exchange saturation transfer MRI at 5 T,** Hao Tang, Hao Chen, Qiting Wu, Ying Liu, Dawei Yin, Runyu Tang, Xiaopeng Song, Bingsheng Huang, Dong Liang, Hairong Zheng, and Yin Wu 62
Published online 13 October 2025

Review-Symposium

- Summary from the 2025 International Society for Magnetic Resonance in Medicine workshop on body MRI: Unsolved problems and unmet needs,** Elizabeth M. Hecht, Houchun Harry Hu, Suraj D. Serai, Holden H. Wu, Ryan L. Brunsing, Alexander R. Guimaraes, Sila Kurugol, Kristina I. Ringe, and Ali B. Syed, on behalf of the ISMRM Body MRI Study Group 74
Published online 04 September 2025

Research Article

- Block-interleaved segmented echo-planar imaging for improved activity detection in submillimeter high-resolution functional MRI at 7 T,** Guoxiang Liu, Takashi Ueguchi, and Seiji Ogawa 86
Published online 28 May 2025

- 3D Cartesian ultrashort double half-echo imaging of the lung parenchyma for water density imaging,** Richard B. Thompson, Christopher Keen, Richard Coulden, Hefin Jones, Robert W. Stobbe, and Justin G. Grenier 101
Published online 16 September 2025

- Enhancing cardiac MRI reliability at 3 T using motion-adaptive B₀ shimming,** Yuheng Huang, Archana Vadiraj Malagi, Xinqi Li, Xingmin Guan, Chia-Chi Yang, Li-Ting Huang, Ziyang Long, Jeremy Zepeda, Xinheng Zhang, Ghazal Yoosefian, Xioaming Bi, Chang Gao, Yun Shang, Nader Binesh, Hsu-Lei Lee, Debiao Li, Rohan Dharmakumar, Hui Han, and Hsin-Jung R. Yang 112
Published online 14 August 2025

- Characterizing the imaging environment for supine breast MRI,** Judith Zimmermann, Jana Vincent, Fraser Robb, Bruce L. Daniel, Brian A. Hargreaves, and Catherine J. Moran 125
Published online 06 September 2025

- Comparative evaluation of supervised and unsupervised deep learning strategies for denoising hyperpolarized ¹²⁹Xe lung MRI,** Abdullah S. Bdaawi, Matthew M. Willmering, Riaz Hussain, Erik Hysinger, Jason C. Woods, Laura L. Walkup, and Zackary I. Cleveland 138
Published online 14 August 2025

- Importance of R₂ accuracy in susceptibility source separation,** Tereza Beatriz Oliveira Assunção, Nashwan Naji, Jeff Snyder, Peter Seres, Gregg Blevins, Penelope Smyth, and Alan H. Wilman 157
Published online 16 August 2025

- Flow-suppressed 2D spin-echo imaging with high tolerance to B₁ inhomogeneity using hyperbolic secant pulses,** Jae-Youn Keum, Jeong Hee Yoon, Michael Garwood, and Jang-Yeon Park 172
Published online 11 August 2025

- Multiband Fast Spin Echo on portable low-field systems,** Philip K. Lee, Yueqi Qiu, Changyue Wang, and Zhiyong Zhang 188
Published online 11 August 2025

- Thermal noise lowers the accuracy of rotationally invariant harmonics of diffusion MRI data and their robustness to experimental variations,** Guillem París, Tomasz Pieciak, Derek K. Jones, Santiago Aja-Fernández, Antonio Tristán-Vega, and Jelle Veraart 204
Published online 12 September 2025

- Robust constrained weighted least squares for in vivo human cardiac diffusion kurtosis imaging,** Sam Coveney, Maryam Afzali, Lars Mueller, Irvin Teh, Filip Szczepankiewicz, Derek K. Jones, and Jürgen E. Schneider 220
Published online 25 August 2025

CONTENTS

Motion corrected 3D whole-heart SAVA T_1 mapping at 0.55 T, Rafael I. De la Sotta, Michael G. Crabb, Karl P. Kunze, René M. Botnar, and Claudia Prieto 234
Published online 25 August 2025

Optimized motion-insensitive PDFF mapping of the liver, Jiayi Tang, Daiki Tamada, Raphael do Vale Souza, Aaron Faacks, Jitka Starekova, Julius F. Heidenreich, Lukas Müller, Garrett C. Fullerton, Collin J. Buelo, Jeff Kammerman, Jean H. Brittain, Scott B. Reeder, and Diego Hernando 249
Published online 02 September 2025

Abdominal simultaneous 3D water T_1 and T_2 mapping using a free-breathing Cartesian acquisition with spiral profile ordering, Jonathan Stelter, Kilian Weiss, Lisa Steinhelfer, Jakob Meineke, Weitong Zhang, Bernhard Kainz, Rickmer F. Braren, and Dimitrios C. Karampinos 268
Published online 06 September 2025

Modeling the MRI gradient system with a temporal convolutional network: Improved reconstruction by prediction of readout gradient errors, Jonathan B. Martin, Hannah E. Alderson, John C. Gore, Mark D. Does, and Kevin D. Harkins 286
Published online 19 August 2025

Advanced microstructure imaging at high b-values and high resolution combining ultra-high performance gradient diffusion imaging and model-based deep learning demonstrated using 3D multi-slab acquisition, Chu-Yu Lee, Reza Ghorbani, Mahsa Rajabi, and Merry Mani 299
Published online 25 August 2025

Free-breathing phase-sensitive inversion recovery T_1 -weighted imaging for improved visualization of focal liver lesions, Yavuz Muslu, Julius F. Heidenreich, Jan-Peter Grunz, Ty A. Cashen, Sagar Mandava, Ali Pirasteh, Diego Hernando, and Scott B. Reeder 314
Published online 09 September 2025

Angle reduction for fast scans in gradient-coil-free portable MRI using rotational spatial encoding magnetic fields via an efficient encoding capability evaluation, Jun-Qi Yang, Shao Ying Huang, Yi-Feng Jiang, and Wenwei Yu 332
Published online 03 November 2025

Motion-robust T_2^* quantification from low-resolution gradient echo brain MRI with physics-informed deep learning, Hannah Eichhorn, Veronika Spieker, Kerstin Hammernik, Elisa Saks, Lina Felsner, Kilian Weiss, Christine Preibisch, and Julia A. Schnabel 346
Published online 22 August 2025

A network-assisted joint image and motion estimation approach for robust 3D MRI motion correction across severity levels, Brian Nghiem, Zhe Wu, Sriranga Kashyap, Lars Kasper, and Kâmil Uludağ 363
Published online 30 August 2025

Vessel segmentation for χ -separation in quantitative susceptibility mapping, Taechang Kim, Sooyeon Ji, Kyeongseon Min, Minjun Kim, Jonghyo Youn, Chungseok Oh, Jiye Kim, and Jongho Lee 382
Published online 02 September 2025

Exact, time-dependent analytical equations for spiral trajectories and matching gradient and density-correction waveforms, Guruprasad Krishnamoorthy and James G. Pipe 400
Published online 13 September 2025

In vitro characterization of hemodynamics in bicuspid aortic valves: The impact of valve and ascending aortic morphologies, Kaoru Hattori, Natsuki Nakama, Jumpei Takada, Michinobu Nagao, Yasuhiro Goto, Hiroshi Niinami, and Kiyotaka Iwasaki 411
Published online 02 September 2025

Free-breathing 3D pulmonary ventilation mapping at 0.55 T using stack-of-spiral out-in bSSFP, Ziwei Zhao, Nam G. Lee, Bilal Tasdelen, Xin Miao, Ye Tian, Bochao Li, Sophia X. Cui, and Krishna S. Nayak 430
Published online 17 September 2025

Comparison of cardiac diffusion MRI using multiple prospective respiratory motion correction techniques, Stephen Jermy, Aaron Hess, Zakariye Ashkir, Betty Raman, Ian Burger, Francesca Little, Ntobeko Ntusi, Ernesta Meintjes, and Elizabeth M. Tunnicliffe 442
Published online 15 September 2025

Technical Note
Alternating-contrast single-shot spiral MR-ARFI with model-based displacement map reconstruction, Saikat Sengupta, M. Anthony Phipps, Li Min Chen, Charles F. Caskey, and William A. Grissom 457
Published online 02 September 2025

Feasibility of tagged MRI at 0.55 T, Prakash Kumar and Krishna S. Nayak 465
Published online 02 September 2025

■ PRECLINICAL AND CLINICAL IMAGING

Research Article
MR-ARFI to evaluate intensity variability and enhance targeting of FUS: A brain study in rats, Abubakr Eldirdiri, Linda Chang, David A. Martin, Eric Cunningham, Segun Bernard, Donna J. Calu, Kim Butts Pauly, and Thomas Ernst 474
Published online 02 September 2025

Interpreting amide proton transfer-weighted imaging contrast between normal and tumor brain tissues using the asymmetry analysis method at 4.7 T, Malvika Viswanathan, Yashwant Kurmi, Xiaoyu Jiang, Junzhong Xu, and Zhongliang Zu 485
Published online 25 August 2025

Technical Note
Comparison between multiparametric arterial spin labeling and [^{18}O]H $_2$ O positron emission tomography in patients with moyamoya disease, Shota Ishida, Hirohiko Kimura, Makoto Isozaki, Kenji Takata, Yuki Matta, Tetsuya Tsujikawa, and Hidehiko Okazawa 506
Published online 30 August 2025

CONTENTS

■ BIOPHYSICS AND BASIC BIOMEDICAL RESEARCH

Research Article

The dynamic course of spontaneous muscular contractions assessed using multiple-point acquisition in diffusion-weighted stimulated echo imaging, Martin Schwartz, Petros Martirosian, Victor Fritz, Günter Steidle, Bin Yang, and Fritz Schick 517
Published online 18 June 2025

The contributions of aquaporin-4 to water exchange across the blood–brain barrier measured by filter-exchange imaging, Zejun Wang, Shuyuan Tan, Keyu Lu, Qingcheng Li, Bingjie Jiao, Weiyun Li, Xuetao Wu, Lili Zhang, Linghui Zeng, and Ruiliang Bai 531
Published online 30 August 2025

Technical Note

The choroid plexus water density, Abigail R. Dubois, Maeve Curtin, Kilian Hett, Melanie Leguizamon, Alexander K. Song, Maria Garza, Colin D. McKnight, Ciaran M. Considine, and Manus J. Donahue 545
Published online 11 August 2025

■ COMPUTER PROCESSING AND MODELING

Research Article

Evaluating the effectiveness of distortion self-correction for CEST-EPI, Yang Liu, Se Weon Park, Lok Hin Law, Kexin Wang, Licheng Ju, Jiadi Xu, Kannie W. Y. Chan, and Jianpan Huang 555
Published online 30 August 2025

Liver fat quantification at 0.55 T enabled by locally low-rank enforced deep learning reconstruction, Majd Helo, Dominik Nickel, Stephan Kannengiesser, and Thomas Kuestner 569
Published online 30 August 2025

Predictive signal modeling and multi-rate filtering in accelerated cardiac MRI, Aaron D. Curtis, Calder D. Sheagren, Alexander J. Mertens, Raviraj S. Adve, Raymond H. Kwong, Graham A. Wright, and Hai-Ling Margaret Cheng 585
Published online 30 August 2025

Impact of simultaneous exposure to RF and gradient electromagnetic fields on implant MR safety labeling, Umberto Zanollo, Alessandro Arduino, Carina Fuss, Tolga Goren, Luca Zilberti, and Oriano Bottauscio 601
Published online 30 August 2025

Navigator motion-resolved MR fingerprinting using implicit neural representation: Feasibility for free-breathing three-dimensional whole-liver multiparametric mapping, Chao Li, Jiahao Li, Jinwei Zhang, Eddy Solomon, Alexey V. Dimov, Pascal Spincemaille, Thanh D. Nguyen, Martin R. Prince, and Yi Wang 613
Published online 02 September 2025

Technical Note

A theoretical interpretation of diffusion weighted and intravoxel incoherent motion imaging for cerebrospinal fluid flow, Tomohiro Otani, Yoshitaka Bito, Shigeki Yamada, Yoshiyuki Watanabe, and Shigeo Wada 628
Published online 04 September 2025

■ HARDWARE AND INSTRUMENTATION

Rapid Communication

Design and performance of a toroidal radiofrequency volume coil with intrinsic electromagnetic interference rejection for low-field portable Halbach-based MRI systems, Jules Vliem, Chloe Najac, Beatrice Lena, Andrew Webb, and Irena Zivkovic 637
Published online 24 September 2025

Research Article

Fabric on fabric: A conductive fabric-based wearable coil using cutting plotter for MRI at 3T, Thejas Vishnu Ramesh, Sergio Martin-Moreno, Folk W. Narongrit, Christopher J. S. Chang, Vitaliy L. Rayz, and Joseph V. Rispoli 647
Published online 02 September 2025