

Stanford



John M. Pauly

Reid Weaver Dennis Professor

Electrical Engineering

Bio

BIO

Interests include medical imaging generally, and magnetic resonance imaging (MRI) in particular. Current efforts are focused on medical applications of MRI where real-time interactive imaging is important. Two examples are cardiac imaging, and the interactive guidance of interventional procedures. Specific interests include rapid methods for the excitation and acquisition of the MR signal, and the reconstruction of images from the data acquired using these approaches.

ACADEMIC APPOINTMENTS

- Professor, Electrical Engineering
- Member, Bio-X
- Member, Cardiovascular Institute
- Member, Stanford Cancer Institute
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- Fellow, International Society for Magnetic Resonance in Medicine (2005)
- Gold Medal, International Society of Magnetic Resonance in Medicine (2012)

PROFESSIONAL EDUCATION

- PhD, Stanford University (1990)

LINKS

- MRSRL Web Site: <http://www-mrsrl.stanford.edu>

Teaching

COURSES

2019-20

- RF Pulse Design for Magnetic Resonance Imaging: EE 469B (Aut)
- The Electrical Engineering Profession: EE 100 (Aut)

2018-19

- Dream It, Build It!: EE 11SC (Sum)
- Signal Processing and Linear Systems II: EE 102B (Spr)

- The Wireless World, and the Data You Leak: EE 26N (Win)

2017-18

- Medical Image Reconstruction: EE 369C (Aut)
- The Wireless World, and the Data You Leak: EE 26N (Win)

2016-17

- Analog and Digital Communication Systems: EE 179 (Spr)
- RF Pulse Design for Magnetic Resonance Imaging: EE 469B (Aut)
- Signal Processing and Linear Systems I: EE 102A (Win)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

George Alexopoulos, Rehman Ali, Shaimaa Bakr, Nandita Bhaskhar, Leah Brickson, Myungheon(Young) Chin, Tyler Cork, Anjali Datta, Jonathan Fisher, Jonathan Goodman, Yuxin Hu, Hayato Ikoma, Siavash Kananian, Brett Kuprel, Patricia Lan, Seul Lee, Andrew Ma, Christopher Sandino, Miaad Seyed Aliroteh, Michael Silvernagel, Jason Su, Siyi Tang, Seung Je Woo, Joon Yang

Postdoctoral Faculty Sponsor

Neerav Dixit, Frank Ong

Doctoral Dissertation Advisor (AC)

Elizabeth Cole, Lisa Lei, Liyue Shen, Christopher Vassos

Master's Program Advisor

Mike Chen, Jerry Huang, Nathan Staffa

Doctoral (Program)

Rehman Ali, Nicole Bienert, Arjun Desai, Beliz Gunel, Laurel Hales, Andrew Naber, Christopher Sandino, Jason Su, Christopher Vassos, Yirong Yang

Publications

PUBLICATIONS

- **Two-dimensional UTE overview imaging for dental application.** *Magnetic resonance in medicine*
Stumpf, K., Kaye, E., Paul, J., Wundrak, S., Pauly, J. M., Rasche, V.
2020
- **Compressed Sensing: From Research to Clinical Practice With Deep Neural Networks: Shortening Scan Times for Magnetic Resonance Imaging** *IEEE SIGNAL PROCESSING MAGAZINE*
Sandino, C. M., Cheng, J. Y., Chen, F., Mardani, M., Pauly, J. M., Vasanawala, S. S.
2020; 37 (1): 117–27
- **Ultra-low-dose PET Reconstruction using Generative Adversarial Network with Feature Matching and Task-Specific Perceptual Loss.** *Medical physics*
Ouyang, J., Chen, K. T., Gong, E., Pauly, J., Zaharchuk, G.
2019
- **An MRI Compatible RF MEMs Controlled Wireless Power Transfer System** *IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES*
Byron, K., Winkler, S. A., Robb, F., Vasanawala, S., Pauly, J., Scott, G.
2019; 67 (5): 1717–26
- **Evaluation of a Flexible 12-Channel Screen-printed Pediatric MRI Coil** *RADIOLOGY*
Winkler, S., Corea, J., Lechene, B., O'Brien, K., Bonanni, J., Chaulhari, A., Alley, M., Taviani, V., Grafendorfer, T., Robb, F., Seem, G., Pauly, J., Lustig, et al
2019; 291 (1): 179–84

- **Evaluation of a Flexible 12-Channel Screen-printed Pediatric MRI Coil.** *Radiology*
Winkler, S. A., Corea, J., Lechene, B., O'Brien, K., Bonanni, J. R., Chaudhari, A., Alley, M., Taviani, V., Grafendorfer, T., Robb, F., Scott, G., Pauly, J., Lustig, et al
2019; 181883
- **Data-driven self-calibration and reconstruction for non-cartesian wave-encoded single-shot fast spin echo using deep learning.** *Journal of magnetic resonance imaging : JMRI*
Chen, F., Cheng, J. Y., Taviani, V., Sheth, V. R., Brunsing, R. L., Pauly, J. M., Vasanawala, S. S.
2019
- **Thermo-acoustic ultrasound for noninvasive temperature monitoring at lead tips during MRI.** *Magnetic resonance in medicine*
Dixit, N., Pauly, J. M., Scott, G. C.
2019
- **An MRI Compatible RF MEMs Controlled Wireless Power Transfer System.** *IEEE transactions on microwave theory and techniques*
Byron, K., Winkler, S. A., Robb, F., Vasanawala, S., Pauly, J., Scott, G.
2019; 67 (5): 1717–26
- **Deep Generative Adversarial Neural Networks for Compressive Sensing MRI** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Mardani, M., Gong, E., Cheng, J. Y., Vasanawala, S. S., Zaharchuk, G., Xing, L., Pauly, J. M.
2019; 38 (1): 167–79
- **Automatically Determining the Confocal Parameters From OCT B-Scans for Quantification of the Attenuation Coefficients** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Dwork, N., Smith, G. T., Leng, T., Pauly, J. M., Bowden, A. K.
2019; 38 (1): 261–68
- **Deep residual network for off-resonance artifact correction with application to pediatric body MRA with 3D cones.** *Magnetic resonance in medicine*
Zeng, D. Y., Shaikh, J., Holmes, S., Brunsing, R. L., Pauly, J. M., Nishimura, D. G., Vasanawala, S. S., Cheng, J. Y.
2019
- **Ultra-Low-Dose 18F-Fluorbetaben Amyloid PET Imaging Using Deep Learning with Multi-Contrast MRI Inputs.** *Radiology*
Chen, K. T., Gong, E., de Carvalho Macruz, F. B., Xu, J., Boumis, A., Khalighi, M., Poston, K. L., Sha, S. J., Greicius, M. D., Mormino, E., Pauly, J. M., Srinivas, S., Zaharchuk, et al
2018; 180940
- **Hyperpolarized 13C MRI: Path to Clinical Translation in Oncology.** *Neoplasia (New York, N.Y.)*
Kurhanewicz, J., Vigneron, D. B., Ardenkjaer-Larsen, J. H., Bankson, J. A., Brindle, K., Cunningham, C. H., Gallagher, F. A., Keshari, K. R., Kjaer, A., Laustsen, C., Mankoff, D. A., Merritt, M. E., Nelson, et al
2018; 21 (1): 1–16
- **Technique development of 3D dynamic CS-EPSI for hyperpolarized C-13 pyruvate MR molecular imaging of human prostate cancer** *MAGNETIC RESONANCE IN MEDICINE*
Chen, H., Larson, P. Z., Gordon, J. W., Bok, R. A., Ferrone, M., van Criekinge, M., Carvajal, L., Cao, P., Pauly, J. M., Kerr, A. B., Park, I., Slater, J. B., Nelson, et al
2018; 80 (5): 2062–72
- **Variable-Density Single-Shot Fast Spin-Echo MRI with Deep Learning Reconstruction by Using Variational Networks** *RADIOLOGY*
Chen, F., Taviani, V., Malkiel, I., Cheng, J. Y., Tamir, J. I., Shaikh, J., Chang, S. T., Hardy, C. J., Pauly, J. M., Vasanawala, S. S.
2018; 289 (2): 366–73
- **Quantitative susceptibility mapping using deep neural network: QSMnet** *NEUROIMAGE*
Yoon, J., Gong, E., Chatnuntawech, I., Bilgic, B., Lee, J., Jung, W., Ko, J., Jung, H., Setsompop, K., Zaharchuk, G., Kim, E., Pauly, J., Lee, et al
2018; 179: 199–206
- **ISLES 2016 and 2017-Benchmarking Ischemic Stroke Lesion Outcome Prediction Based on Multispectral MRI** *FRONTIERS IN NEUROLOGY*
Winzeck, S., Hakim, A., McKinley, R., Pinto, J. R., Alves, V., Silva, C., Pisov, M., Krivov, E., Belyaev, M., Monteiro, M., Oliveira, A., Choi, Y., Palk, et al
2018; 9
- **Variable-Density Single-Shot Fast Spin-Echo MRI with Deep Learning Reconstruction by Using Variational Networks.** *Radiology*
Chen, F., Taviani, V., Malkiel, I., Cheng, J. Y., Tamir, J. I., Shaikh, J., Chang, S. T., Hardy, C. J., Pauly, J. M., Vasanawala, S. S.

2018: 180445

- **Body diffusion-weighted imaging using magnetization prepared single-shot fast spin echo and extended parallel imaging signal averaging** *MAGNETIC RESONANCE IN MEDICINE*
Gibbons, E. K., Vasanawala, S. S., Pauly, J. M., Kerr, A. B.
2018; 79 (6): 3032–44
- **Rapid compressed sensing reconstruction of 3D non-Cartesian MRI** *MAGNETIC RESONANCE IN MEDICINE*
Baron, C. A., Dwork, N., Pauly, J. M., Nishimura, D. G.
2018; 79 (5): 2685–92
- **Deep learning enables reduced gadolinium dose for contrast-enhanced brain MRI.** *Journal of magnetic resonance imaging : JMRI*
Gong, E., Pauly, J. M., Wintermark, M., Zaharchuk, G.
2018
- **Thermo-Acoustic Ultrasound for Detection of RF-Induced Device Lead Heating in MRI** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Dixit, N., Stang, P. P., Pauly, J. M., Scott, G. C.
2018; 37 (2): 536–46
- **Self-Calibrating Wave-Encoded Variable-Density Single-Shot Fast Spin Echo Imaging.** *Journal of magnetic resonance imaging : JMRI*
Chen, F., Taviani, V., Tamir, J. I., Cheng, J. Y., Zhang, T., Song, Q., Hargreaves, B. A., Pauly, J. M., Vasanawala, S. S.
2018; 47 (4): 954–66
- **A Wireless Power Transfer System for MRI Scanners**
Byron, K., Robb, F., Vasanawala, S., Pauly, J., Scott, G., IEEE
IEEE.2018
- **Neural Proximal Gradient Descent for Compressive Imaging**
Mardani, M., Sun, Q., Vasawanala, S., Pappas, V., Monajemi, H., Pauly, J., Donoho, D., Bengio, S., Wallach, H., Larochelle, H., Grauman, K., CesaBianchi, N., Garnett, et al
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2018
- **ISLES 2016 and 2017-Benchmarking Ischemic Stroke Lesion Outcome Prediction Based on Multispectral MRI.** *Frontiers in neurology*
Winzeck, S., Hakim, A., McKinley, R., Pinto, J. A., Alves, V., Silva, C., Pisov, M., Krivov, E., Belyaev, M., Monteiro, M., Oliveira, A., Choi, Y., Paik, et al
2018; 9: 679
- **Advancements in Low-cost, Long Endurance, Altitude Controlled Latex Balloons (ValBal)**
Sushko, A., Tedjarati, A., Creus-Costa, J., Marshland, K., Brown, P., Regland, D., Dean, J., Maldonado, S., Pauly, J. M., IEEE
IEEE.2018
- **Robust Self-Calibrating nCPMG Acquisition: Application to Body Diffusion-Weighted Imaging** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Gibbons, E. K., Le Roux, P., Vasanawala, S. S., Pauly, J. M., Kerr, A. B.
2018; 37 (1): 200–209
- **An RF-gated wireless power transfer system for wireless MRI receive arrays** *CONCEPTS IN MAGNETIC RESONANCE PART B-MAGNETIC RESONANCE ENGINEERING*
Byron, K., Robb, F., Stang, P., Vasanawala, S., Pauly, J., Scott, G.
2017; 47B (4)
- **Resolving phase ambiguity in dual-echo dixon imaging using a projected power method** *MAGNETIC RESONANCE IN MEDICINE*
Zhang, T., Chen, Y., Bao, S., Alley, M. T., Pauly, J. M., Hargreaves, B. A., Vasanawala, S. S.
2017; 77 (5): 2066-2076
- **Slice profile effects on nCPMG SS-FSE.** *Magnetic resonance in medicine*
Gibbons, E. K., Le Roux, P., Pauly, J. M., Kerr, A. B.
2017
- **Improved cortical bone specificity in UTE MR Imaging** *MAGNETIC RESONANCE IN MEDICINE*
Johnson, E. M., Vyas, U., Ghanouni, P., Pauly, K. B., Pauly, J. M.
2017; 77 (2): 684-695

- **A Millimeter-Wave Digital Link for Wireless MRI** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Aggarwal, K., Joshi, K. R., Rajavi, Y., Taghivand, M., Pauly, J. M., Poon, A. S., Scott, G.
2017; 36 (2): 574-583
- **Body Diffusion Weighted Imaging Using Non-CPMG Fast Spin Echo** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Gibbons, E. K., Le Roux, P., Vasanaawala, S. S., Pauly, J. M., Kerr, A. B.
2017; 36 (2): 549-559
- **An RF-gated wireless power transfer system for wireless MRI receive arrays.** *Concepts in magnetic resonance. Part B, Magnetic resonance engineering*
Byron, K., Robb, F., Stang, P., Vasanaawala, S., Pauly, J., Scott, G.
2017; 47B (4)
- **Comprehensive Multi-Dimensional MRI for the Simultaneous Assessment of Cardiopulmonary Anatomy and Physiology.** *Scientific reports*
Cheng, J. Y., Zhang, T., Alley, M. T., Uecker, M., Lustig, M., Pauly, J. M., Vasanaawala, S. S.
2017; 7 (1): 5330
- **Frequency shifting reduces but does not eliminate acoustic interference between echolocating bats: A theoretical analysis.** *The Journal of the Acoustical Society of America*
Perkins, M. L., Frank, H. K., Pauly, J. M., Hadly, E. A.
2017; 142 (4): 2133
- **Frequency shifting reduces but does not eliminate acoustic interference between echolocating bats: A theoretical analysis** *The Journal of the Acoustical Society of America*
Perkins, M. L., Frank, H. K., Pauly, J. M., Hadly, E. A.
2017; 142: 2133
- **Recurrent Generative Adversarial Neural Networks for Compressive Imaging**
Mardani, M., Gong, E., Cheng, J. Y., Pauly, J., Xing, L., IEEE
IEEE.2017
- **Formulation of image fusion as a constrained least squares optimization problem.** *Journal of medical imaging (Bellingham, Wash.)*
Dwork, N., Lasry, E. M., Pauly, J. M., Balbás, J.
2017; 4 (1): 014003-?
- **Autocalibrating motion-corrected wave-encoding for highly accelerated free-breathing abdominal MRI.** *Magnetic resonance in medicine*
Chen, F., Zhang, T., Cheng, J. Y., Shi, X., Pauly, J. M., Vasanaawala, S. S.
2016
- **Depletion-Mode GaN HEMT Q-Spoil Switches for MRI Coils** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Lu, J. Y., Grafendorfer, T., Zhang, T., Vasanaawala, S., Robb, F., Pauly, J. M., Scott, G. C.
2016; 35 (12): 2558-2567
- **Body diffusion weighted imaging using non-CPMG fast spin echo.** *IEEE transactions on medical imaging*
Gibbons, E., Le Roux, P., Vasanaawala, S., Pauly, J., Kerr, A.
2016: -?
- **Spectrally selective three-dimensional dynamic balanced steady-state free precession for hyperpolarized C-13 metabolic imaging with spectrally selective radiofrequency pulses.** *Magnetic resonance in medicine*
Shang, H., Sukumar, S., Von Morze, C., Bok, R. A., Marco-Rius, I., Kerr, A., Reed, G. D., Milshteyn, E., Ohliger, M. A., Kurhanewicz, J., Larson, P. E., Pauly, J. M., Vigneron, et al
2016
- **A semiflexible 64-channel receive-only phased array for pediatric body MRI at 3T.** *Magnetic resonance in medicine*
Zhang, T., Grafendorfer, T., Cheng, J. Y., Ning, P., Rainey, B., Giancola, M., Ortman, S., Robb, F. J., Calderon, P. D., Hargreaves, B. A., Lustig, M., Scott, G. C., Pauly, et al
2016; 76 (3): 1015-1021
- **Hybrid-Space SENSE Reconstruction for Simultaneous Multi-Slice MRI** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Zhu, K., Dougherty, R. F., Wu, H., Middione, M. J., Takahashi, A. M., Zhang, T., Pauly, J. M., Kerr, A. B.
2016; 35 (8): 1824-1836

- **Robust self-navigated body MRI using dense coil arrays.** *Magnetic resonance in medicine*
Zhang, T., Cheng, J. Y., Chen, Y., Nishimura, D. G., Pauly, J. M., Vasanaawala, S. S.
2016; 76 (1): 197-205
- **Comprehensive motion-compensated highly accelerated 4D flow MRI with ferumoxytol enhancement for pediatric congenital heart disease.** *Journal of magnetic resonance imaging*
Cheng, J. Y., Hanneman, K., Zhang, T., Alley, M. T., Lai, P., Tamir, J. I., Uecker, M., Pauly, J. M., Lustig, M., Vasanaawala, S. S.
2016; 43 (6): 1355-1368
- **Resolving phase ambiguity in dual-echo dixon imaging using a projected power method.** *Magnetic resonance in medicine*
Zhang, T., Chen, Y., Bao, S., Alley, M. T., Pauly, J. M., Hargreaves, B. A., Vasanaawala, S. S.
2016
- **Fat-suppressed alternating-SSFP for whole-brain fMRI using breath-hold and visual stimulus paradigms.** *Magnetic resonance in medicine*
Jou, T., Patterson, S., Pauly, J. M., Bowen, C. V.
2016; 75 (5): 1978-1988
- **Improved cortical bone specificity in UTE MR Imaging.** *Magnetic resonance in medicine*
Johnson, E. M., Vyas, U., Ghanouni, P., Pauly, K. B., Pauly, J. M.
2016
- **Development and testing of hyperpolarized (13)C MR calibrationless parallel imaging.** *Journal of magnetic resonance*
Feng, Y., Gordon, J. W., Shin, P. J., Von Morze, C., Lustig, M., Larson, P. E., Ohliger, M. A., Carvajal, L., Tropp, J., Pauly, J. M., Vigneron, D. B.
2016; 262: 1-7
- **Multiband RF pulses with improved performance via convex optimization** *JOURNAL OF MAGNETIC RESONANCE*
Shang, H., Larson, P. E., Kerr, A., Reed, G., Sukumar, S., Elkhalel, A., Gordon, J. W., Ohliger, M. A., Pauly, J. M., Lustig, M., Vigneron, D. B.
2016; 262: 81-90
- **Automated, Depth-Resolved Estimation of the Attenuation Coefficient From Optical Coherence Tomography Data** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Smith, G. T., Dwork, N., O'Connor, D., Sikora, U., Lurie, K. L., Pauly, J. M., Ellerbee, A. K.
2015; 34 (12): 2592-2602
- **Controlling Radiofrequency-Induced Currents in Guidewires Using Parallel Transmit** *MAGNETIC RESONANCE IN MEDICINE*
Etezadi-Amoli, M., Stang, P., Kerr, A., Pauly, J., Scott, G.
2015; 74 (6): 1790-1802
- **Clinical performance of a free-breathing spatiotemporally accelerated 3-D time-resolved contrast-enhanced pediatric abdominal MR angiography.** *Pediatric radiology*
Zhang, T., Yousaf, U., Hsiao, A., Cheng, J. Y., Alley, M. T., Lustig, M., Pauly, J. M., Vasanaawala, S. S.
2015; 45 (11): 1635-1643
- **Chemical Shift Separation with Controlled Aliasing for Hyperpolarized C-13 Metabolic Imaging** *MAGNETIC RESONANCE IN MEDICINE*
Shin, P. J., Larson, P. E., Uecker, M., Reed, G. D., Kerr, A. B., Tropp, J., Ohliger, M. A., Nelson, S. J., Pauly, J. M., Lustig, M., Vigneron, D. B.
2015; 74 (4): 978-989
- **Free-breathing pediatric MRI with nonrigid motion correction and acceleration** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Cheng, J. Y., Zhang, T., Ruangwattanapaisarn, N., Alley, M. T., Uecker, M., Pauly, J. M., Lustig, M., Vasanaawala, S. S.
2015; 42 (2): 407-420
- **T1 rho Dispersion in Articular Cartilage: Relationship to Material Properties and Macromolecular Content** *CARTILAGE*
Keenan, K. E., Besier, T. F., Pauly, J. M., Smith, R. L., Delp, S. L., Beaupre, G. S., Gold, G. E.
2015; 6 (2): 113-122
- **Offline Impedance Measurements for Detection and Mitigation of Dangerous Implant Interactions: An RF Safety Prescreen** *MAGNETIC RESONANCE IN MEDICINE*
Ellenor, C. W., Stang, P. P., Etezadi-Amoli, M., Pauly, J. M., Scott, G. C.
2015; 73 (3): 1328-1339

- **Interventional Device Visualization with Toroidal Transceiver and Optically Coupled Current Sensor for Radiofrequency Safety Monitoring** *MAGNETIC RESONANCE IN MEDICINE*
Etezadi-Amoli, M., Stang, P., Kerr, A., Pauly, J., Scott, G.
2015; 73 (3): 1315-1327
- **Fast pediatric 3D free-breathing abdominal dynamic contrast enhanced MRI with high spatiotemporal resolution.** *Journal of magnetic resonance imaging*
Zhang, T., Cheng, J. Y., Potnick, A. G., Barth, R. A., Alley, M. T., Uecker, M., Lustig, M., Pauly, J. M., Vasanawala, S. S.
2015; 41 (2): 460-473
- **Accelerating Parameter Mapping with a Locally Low Rank Constraint** *MAGNETIC RESONANCE IN MEDICINE*
Zhang, T., Pauly, J. M., Levesque, I. R.
2015; 73 (2): 655-661
- **Controlling radiofrequency-induced currents in guidewires using parallel transmit.** *Magnetic resonance in medicine*
Etezadi-Amoli, M., Stang, P., Kerr, A., Pauly, J., Scott, G.
2015; 74 (6): 1790-1802
- **Free-breathing pediatric MRI with nonrigid motion correction and acceleration.** *Journal of magnetic resonance imaging : JMRI*
Cheng, J. Y., Zhang, T., Ruangwattanapaisarn, N., Alley, M. T., Uecker, M., Pauly, J. M., Lustig, M., Vasanawala, S. S.
2015; 42 (2): 407-20
- **Calibrationless Parallel Imaging Reconstruction Based on Structured Low-Rank Matrix Completion** *MAGNETIC RESONANCE IN MEDICINE*
Shin, P. J., Larson, P. E., Ohliger, M. A., Elad, M., Pauly, J. M., Vigneron, D. B., Lustig, M.
2014; 72 (4): 959-970
- **Clinical performance of contrast enhanced abdominal pediatric MRI with fast combined parallel imaging compressed sensing reconstruction.** *Journal of magnetic resonance imaging : JMRI*
Zhang, T., Chowdhury, S., Lustig, M., Barth, R. A., Alley, M. T., Grafendorfer, T., Calderon, P. D., Robb, F. J., Pauly, J. M., Vasanawala, S. S.
2014; 40 (1): 13-25
- **Near-contiguous spin echo imaging using matched-phase RF and its application in velocity-selective arterial spin labeling.** *Magnetic resonance in medicine*
Zun, Z., Hargreaves, B. A., Pauly, J., Zaharchuk, G.
2014; 71 (6): 2043-2050
- **Homogenous Fat Suppression for Bilateral Breast Imaging Using Independent Shims** *MAGNETIC RESONANCE IN MEDICINE*
Han, M., Cunningham, C. H., Pauly, J. M., Daniel, B. L., Hargreaves, B. A.
2014; 71 (4): 1511-1517
- **ESPIRiT-An Eigenvalue Approach to Autocalibrating Parallel MRI: Where SENSE Meets GRAPPA** *MAGNETIC RESONANCE IN MEDICINE*
Uecker, M., Lai, P., Murphy, M. J., Virtue, P., Elad, M., Pauly, J. M., Vasanawala, S. S., Lustig, M.
2014; 71 (3): 990-1001
- **Improved Slice-Selective Adiabatic Excitation** *MAGNETIC RESONANCE IN MEDICINE*
Balchandani, P., Glover, G., Pauly, J., Spielman, D.
2014; 71 (1): 75-82
- **Quantitative Measurement of Cancer Metabolism Using Stimulated Echo Hyperpolarized Carbon-13 MRS** *MAGNETIC RESONANCE IN MEDICINE*
Swisher, C. L., Larson, P. E., Kruttwig, K., Kerr, A. B., Hu, S., Bok, R. A., Goga, A., Pauly, J. M., Nelson, S. J., Kurhanewicz, J., Vigneron, D. B.
2014; 71 (1): 1-11
- **Optimal variable flip angle schemes for dynamic acquisition of exchanging hyperpolarized substrates** *JOURNAL OF MAGNETIC RESONANCE*
Xing, Y., Reed, G. D., Pauly, J. M., Kerr, A. B., Larson, P. E.
2013; 234: 75-81
- **Perfusion and diffusion sensitive C-13 stimulated-echo MRSI for metabolic imaging of cancer** *MAGNETIC RESONANCE IMAGING*
Larson, P. E., Hurd, R. E., Kerr, A. B., Pauly, J. M., Bok, R. A., Kurhanewicz, J., Vigneron, D. B.
2013; 31 (5): 635-642
- **Optimization of Transcutaneous Energy Transmission Systems Suitable for Left Ventricular Assist Devices** *JOURNAL OF MEDICAL DEVICES-TRANSACTIONS OF THE ASME*

-
- Byron, K., Bluvshtein, V., Lucke, L., Pauly, J.
2013; 7 (2)
- **Coil compression for accelerated imaging with Cartesian sampling** *MAGNETIC RESONANCE IN MEDICINE*
Zhang, T., Pauly, J. M., Vasanaawala, S. S., Lustig, M.
2013; 69 (2): 571-582
 - **A rapid method for direct detection of metabolic conversion and magnetization exchange with application to hyperpolarized substrates** *JOURNAL OF MAGNETIC RESONANCE*
Larson, P. E., Kerr, A. B., Swisher, C. L., Pauly, J. M., Vigneron, D. B.
2012; 225: 71-80
 - **Nonrigid motion correction in 3D using autofocusing with localized linear translations** *MAGNETIC RESONANCE IN MEDICINE*
Cheng, J. Y., Alley, M. T., Cunningham, C. H., Vasanaawala, S. S., Pauly, J. M., Lustig, M.
2012; 68 (6): 1785-1797
 - **Reducing artifacts in one-dimensional Fourier velocity encoding for fast and pulsatile flow** *MAGNETIC RESONANCE IN MEDICINE*
Lee, D., Santos, J. M., Hu, B. S., Pauly, J. M., Kerr, A. B.
2012; 68 (6): 1876-1885
 - **Self-Refocused Adiabatic Pulse for Spin Echo Imaging at 7 T** *MAGNETIC RESONANCE IN MEDICINE*
Balchandani, P., Khalighi, M. M., Glover, G., Pauly, J., Spielman, D.
2012; 67 (4): 1077-1085
 - **RF Field Visualization of RF Ablation at the Larmor Frequency** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Shultz, K., Stang, P., Kerr, A., Pauly, J., Scott, G.
2012; 31 (4): 938-947
 - **A method for simultaneous echo planar imaging of hyperpolarized C-13 pyruvate and C-13 lactate** *JOURNAL OF MAGNETIC RESONANCE*
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