



## Brian Hargreaves

Professor of Radiology (Radiological Sciences Laboratory) and, by courtesy, of Electrical Engineering and of Bioengineering

### CONTACT INFORMATION

- **Alternate Contact**

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### Bio

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#### BIO

Dr. Hargreaves is Professor of Radiology, with a research focus on body magnetic resonance imaging (MRI). He completed his PhD at Stanford University in Electrical Engineering before moving to the Radiology Department in 2005. He directs the Body MRI research group, which develops and implements new MRI techniques with the goal of improving patient care. His group's contributions affect hundreds of patients each year at Stanford and in other imaging centers around the world. In addition to research, Dr. Hargreaves teaches two graduate level courses, and lectures in numerous other courses at Stanford. He is a Fellow of the International Society for Magnetic Resonance in Medicine, where he served as chair of the Web Editorial Board and on the Board of Trustees for 5 years, and Fellow of the American Institute for Medical and Biological Engineering (AIMBE).

#### ACADEMIC APPOINTMENTS

- Professor, Radiology
- Professor (By courtesy), Bioengineering
- Professor (By courtesy), Electrical Engineering
- Member, Bio-X
- Member, Stanford Cancer Institute

#### ADMINISTRATIVE APPOINTMENTS

- Associate Chair, Research, Radiology, (2018- present)

#### HONORS AND AWARDS

- Fellow of the American Institute for Medical and Biological Engineering, AIMBE (Mar 2019)
- Basic Scientist Faculty of the Year, Stanford Radiology (Dec 2018)
- Fellow of the Society of Breast MRI, SBMR (May 2018)
- Fellow of the International Society for Magnetic Resonance in Medicine, ISMRM (June 2015)
- Biodesign Mentorship Award, Stanford Biodesign (June 2015)
- Distinguished Investigator, Association of Radiology Research (Dec 2014)

- John Charnley Award, The Hip Society (Feb 2013)
- Outstanding Teacher Award, ISMRM (May 2013)
- Edward C. Nagy New Investigator, NIH / NIBIB (April 2011)
- Thought Leader Award, GE Healthcare (May 2010)

## **BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS**

- Editorial Board, Magnetic Resonance in Medicine (2014 - present)
- Board of Trustees, ISMRM (2013 - 2018)
- Chair, Web Editorial Board, ISMRM (2013 - 2018)

## **PROFESSIONAL EDUCATION**

- Ph.D., Stanford University , Electrical Engineering (2001)
- M.S., Stanford University , Electrical Engineering (1997)
- B.A.Sc, Simon Fraser University , Engineering Science (1994)

## **LINKS**

- Research Group: Body MRI: <http://med.stanford.edu/bmrgroup>
- IMMERS AR/VR Group: <http://immers.stanford.edu>

## **Research & Scholarship**

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### **CURRENT RESEARCH AND SCHOLARLY INTERESTS**

I am interested in magnetic resonance imaging (MRI) applications and augmented reality applications in medicine. These include abdominal, breast and musculoskeletal imaging, which require development of faster, quantitative, and more efficient MRI methods that provide improved diagnostic contrast compared with current methods. My work includes novel excitation schemes, efficient imaging methods and reconstruction tools and augmented reality in medicine.

### **CLINICAL TRIALS**

- Magnetic Resonance Imaging of Breast Cancer, Recruiting
- High Resolution 3D Diffusion-weighted Breast MRI, Not Recruiting

## **Teaching**

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### **COURSES**

#### **2018-19**

- MRI Sequences and Signals: RAD 229 (Aut)
- Magnetic Resonance Imaging Programming Topics: RAD 228 (Spr)
- Mixed-Reality in Medicine: RAD 206 (Aut)

#### **2017-18**

- MRI Sequences and Signals: RAD 229 (Aut)
- Magnetic Resonance Imaging Programming Topics: RAD 228 (Spr)

#### **2016-17**

- Magnetic Resonance Imaging Programming Topics: RAD 228 (Spr)

#### **2015-16**

- MRI Sequences and Signals: RAD 229 (Aut)
- Magnetic Resonance Imaging Programming Topics: RAD 228 (Spr)

## STANFORD ADVISEES

### Doctoral Dissertation Reader (AC)

Marianne Black

### Doctoral Dissertation Advisor (AC)

Philip Lee, Steffi Perkins, Alex Toews, Grant Yang

## Publications

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### PUBLICATIONS

- **Diagnosis and Successful Management of an Unusual Presentation of Chronic Foot Pain Using Positron Emission Tomography/Magnetic Resonance Imaging and a Simple Surgical Procedure.** *Clinical journal of sport medicine : official journal of the Canadian Academy of Sport Medicine*  
Cipriano, P. W., Yoon, D., Holley, D., Hargreaves, B. A., Carroll, I. R., Curtin, C. M., Biswal, S.  
2019
- **Combined 5-minute double-echo in steady-state with separated echoes and 2-minute proton-density-weighted 2D FSE sequence for comprehensive whole-joint knee MRI assessment.** *Journal of magnetic resonance imaging : JMRI*  
Chaudhari, A. S., Stevens, K. J., Sveinsson, B., Wood, J. P., Beaulieu, C. F., Oei, E. H., Rosenberg, J. K., Kogan, F., Alley, M. T., Gold, G. E., Hargreaves, B. A.  
2018
- **Accelerated imaging of metallic implants using model-based nonlinear reconstruction.** *Magnetic resonance in medicine*  
Shi, X., Levine, E., Weber, H., Hargreaves, B. A.  
2018
- **View-Sharing Artifact Reduction With Retrospective Compressed Sensing Reconstruction in the Context of Contrast-Enhanced Liver MRI for Hepatocellular Carcinoma (HCC) Screening.** *Journal of magnetic resonance imaging : JMRI*  
Shaikh, J., Stoddard, P. B., Levine, E. G., Roh, A. T., Saranathan, M., Chang, S. T., Muelly, M. C., Hargreaves, B. A., Vasanaawala, S. S., Loening, A. M.  
2018
- **Motion-robust reconstruction of multishot diffusion-weighted images without phase estimation through locally low-rank regularization.** *Magnetic resonance in medicine*  
Hu, Y., Levine, E. G., Tian, Q., Moran, C. J., Wang, X., Taviani, V., Vasanaawala, S. S., McNab, J. A., Daniel, B. A., Hargreaves, B. L.  
2018
- **Fast Intensity Non-Uniformity Correction for MR Images Using Sparse Samples**  
Shi, L., Perkins, S., Moran, C., Hargreaves, B., Daniel, B.  
WILEY.2018: E360
- **Internal Breast Tumor Heterogeneity On T2-Weighted Imaging: Double Echo Steady State(DESS) Versus 3D Fast Spin Echo (CUBE)**  
Shi, L., Alley, M., Hargreaves, B., Daniel, B., Moran, C.  
WILEY.2018: E192
- **Super-resolution musculoskeletal MRI using deep learning.** *Magnetic resonance in medicine*  
Chaudhari, A. S., Fang, Z., Kogan, F., Wood, J., Stevens, K. J., Gibbons, E. K., Lee, J. H., Gold, G. E., Hargreaves, B. A.  
2018
- **Accelerated three-dimensional multispectral MRI with robust principal component analysis for separation of on- and off-resonance signals** *MAGNETIC RESONANCE IN MEDICINE*  
Levine, E., Stevens, K., Beaulieu, C., Hargreaves, B.  
2018; 79 (3): 1495–1505
- **On-the-Fly Adaptive k-Space Sampling for Linear MRI Reconstruction Using Moment-Based Spectral Analysis** *IEEE TRANSACTIONS ON MEDICAL IMAGING*  
Levine, E., Hargreaves, B.

2018; 37 (2): 557–67

- **Fat-based registration of breast dynamic contrast enhanced water images.** *Magnetic resonance in medicine*  
Srinivasan, S., Hargreaves, B. A., Daniel, B. L.  
2018; 79 (4): 2408–14
- **SNR-weighted regularization of ADC estimates from double-echo in steady-state (DESS).** *Magnetic resonance in medicine*  
Sveinsson, B., Gold, G. E., Hargreaves, B. A., Yoon, D.  
2018
- **Quantitative imaging of bone-cartilage interactions in ACL-injured patients with PET-MRI.** *Osteoarthritis and cartilage*  
Kogan, F., Fan, A. P., Monu, U., Iagaru, A., Hargreaves, B. A., Gold, G. E.  
2018
- **Imaging of magnetic ink patterns via off-resonance sensitivity.** *Magnetic resonance in medicine*  
Perkins, S. L., Daniel, B. L., Hargreaves, B. A.  
2018
- **The impact of computed high b-value images on the diagnostic accuracy of DWI for prostate cancer: A receiver operating characteristics analysis.** *Scientific reports*  
Ning, P., Shi, D., Sonn, G. A., Vasanawala, S. S., Loening, A. M., Ghanouni, P., Obara, P., Shin, L. K., Fan, R. E., Hargreaves, B. A., Daniel, B. L.  
2018; 8 (1): 3409
- **Artifact-reduced imaging of biopsy needles with 2D multispectral imaging.** *Magnetic resonance in medicine*  
Weber, H., Hargreaves, B. A., Daniel, B. L.  
2018; 80 (2): 655–61
- **Simultaneous bilateral-knee MR imaging.** *Magnetic resonance in medicine*  
Kogan, F., Levine, E., Chaudhari, A. S., Monu, U. D., Epperson, K., Oei, E. H., Gold, G. E., Hargreaves, B. A.  
2018; 80 (2): 529–37
- **MRI monitoring of focused ultrasound sonications near metallic hardware.** *Magnetic resonance in medicine*  
Weber, H., Ghanouni, P., Pascal-Tenorio, A., Pauly, K. B., Hargreaves, B. A.  
2018; 80 (1): 259–71
- **Anatomical Road Mapping Using CT and MR Enterography for Ultrasound Molecular Imaging of Small Bowel Inflammation in Swine.** *European radiology*  
Wang, H., Felt, S. A., Guracar, I., Taviani, V., Zhou, J., Sigrist, R. M., Zhang, H., Liau, J., Vilches-Moure, J. G., Tian, L., Saenz, Y., Bettinger, T., Hargreaves, et al  
2018; 28 (5): 2068–76
- **Five-minute knee MRI for simultaneous morphometry and T2 relaxometry of cartilage and meniscus and for semiquantitative radiological assessment using double-echo in steady-state at 3T.** *Journal of magnetic resonance imaging : JMRI*  
Chaudhari, A. S., Black, M. S., Eijgenraam, S., Wirth, W., Maschek, S., Sveinsson, B., Eckstein, F., Oei, E. H., Gold, G. E., Hargreaves, B. A.  
2018; 47 (5): 1328–41
- **Mitigation of near-band balanced steady-state free precession through-plane flow artifacts using partial dephasing.** *Magnetic resonance in medicine*  
Datta, A., Cheng, J. Y., Hargreaves, B. A., Baron, C. A., Nishimura, D. G.  
2018; 79 (6): 2944–53
- **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
- **Automatic renal segmentation for MR urography using 3D-GrabCut and random forests.** *Magnetic resonance in medicine*  
Yoruk, U., Hargreaves, B. A., Vasanawala, S. S.  
2018; 79 (3): 1696–1707
- **Metallic Implant Geometry and Susceptibility Estimation Using Multispectral B-0 Field Maps** *MAGNETIC RESONANCE IN MEDICINE*  
Shi, X., Yoon, D., Koch, K. M., Hargreaves, B. A.  
2017; 77 (6): 2402-2413

- **Multispectral diffusion-weighted imaging near metal implants.** *Magnetic resonance in medicine*  
Koch, K. M., Bhawe, S., Gaddipati, A., Hargreaves, B. A., Gui, D., Peters, R., Bedi, M., Mannem, R., Kaushik, S. S.  
2017
- **3D Cartesian MRI with compressed sensing and variable view sharing using complementary poisson-disc sampling** *MAGNETIC RESONANCE IN MEDICINE*  
Levine, E., Daniel, B., Vasanaawala, S., Hargreaves, B., Saranathan, M.  
2017; 77 (5): 1774-1785
- **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.  
2017; 77 (5): 2066-2076
- **A simple analytic method for estimating T2 in the knee from DESS** *MAGNETIC RESONANCE IMAGING*  
Sveinsson, B., Chaudhari, A. S., Gold, G. E., Hargreaves, B. A.  
2017; 38: 63-70
- **2D multi-spectral imaging for fast MRI near metal.** *Magnetic resonance in medicine*  
Hargreaves, B. A., Taviani, V., Litwiller, D. V., Yoon, D.  
2017
- **Cluster analysis of quantitative MRI T-2 and T-1 rho relaxation times of cartilage identifies differences between healthy and ACL-injured individuals at 3T** *OSTEOARTHRITIS AND CARTILAGE*  
Monu, U. D., Jordan, C. D., Samuelson, B. L., Hargreaves, B. A., Gold, G. E., McWalter, E. J.  
2017; 25 (4): 513-520
- **Improved field-mapping and artifact correction in multispectral imaging.** *Magnetic resonance in medicine*  
Quist, B., Shi, X., Weber, H., Hargreaves, B. A.  
2017
- **Volumetric Multislice GagCEST Imaging of Articular Cartilage: Optimization and Comparison With T1rho** *MAGNETIC RESONANCE IN MEDICINE*  
Kogan, F., Hargreaves, B. A., Gold, G. E.  
2017; 77 (3): 1134-1141
- **MR Thermometry Near Metallic Devices Using Multispectral Imaging** *MAGNETIC RESONANCE IN MEDICINE*  
Weber, H., Taviani, V., Yoon, D., Ghanouni, P., Pauly, K. B., Hargreaves, B. A.  
2017; 77 (3): 1162-1169
- **connective tissues in the knee using ultrashort echo-time double-echo steady-state (UTEDESS).** *Magnetic resonance in medicine*  
Chaudhari, A. S., Sveinsson, B., Moran, C. J., McWalter, E. J., Johnson, E. M., Zhang, T., Gold, G. E., Hargreaves, B. A.  
2017
- **High-resolution diffusion-weighted imaging of the breast with multiband 2D radiofrequency pulses and a generalized parallel imaging reconstruction** *MAGNETIC RESONANCE IN MEDICINE*  
Taviani, V., Alley, M. T., Banerjee, S., Nishimura, D. G., Daniel, B. L., Vasanaawala, S. S., Hargreaves, B. A.  
2017; 77 (1): 209-220
- **A Mixed-Reality System for Breast Surgical Planning**  
Perkins, S. L., Lin, M. A., Srinivasan, S., Wheeler, A. J., Hargreaves, B. A., Daniel, B. L., Broll, W., Regenbrecht, H., Swan, J. E., Bruder, G., Servieres, M., Sugimoto, M.  
IEEE.2017: 269-74
- **Feasibility of 7T MRI for Imaging Fascicular Structures of Peripheral Nerves.** *Muscle & nerve*  
Yoon, D., Biswal, S., Rutt, B., Lutz, A., Hargreaves, B.  
2017
- **18F-FDG PET/MRI in Chronic Sciatica: Early Results Revealing Spinal and Non-spinal Abnormalities.** *Journal of nuclear medicine : official publication, Society of Nuclear Medicine*  
Cipriano, P., Yoon, D., Gandhi, H., Holley, D., Thakur, D., Ith, M., Hargreaves, B., Kennedy, D., Smuck, M., Cheng, I., Biswal, S.  
2017

- **Relative value of three whole-body MR approaches for PET-MR, including gadofosveset-enhanced MR, in comparison to PET-CT.** *Clinical imaging*  
Obara, P., Loening, A., Taviani, V., Jagaru, A., Hargreaves, B. A., Vasawala, S.  
2017; 48: 62–68
- **Cluster analysis of quantitative MRI T2 and T1? relaxation times of cartilage identifies differences between healthy and ACL-injured individuals at 3T.** *Osteoarthritis and cartilage*  
Monu, U. D., JORDAN, C. D., Samuelson, B. L., Hargreaves, B. A., Gold, G. E., McWalter, E. J.  
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
- **field maps.** *Magnetic resonance in medicine*  
Shi, X., Yoon, D., Koch, K. M., Hargreaves, B. A.  
2016
- **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., Vasawala, S. S.  
2016
- **Combined parenchymal and vascular imaging: High spatiotemporal resolution arterial evaluation of hepatocellular carcinoma** *JOURNAL OF MAGNETIC RESONANCE IMAGING*  
Hope, T. A., Petkovska, I., Saranathan, M., Hargreaves, B. A., Vasawala, S. S.  
2016; 43 (4): 859-865
- **Combined parenchymal and vascular imaging: High spatiotemporal resolution arterial evaluation of hepatocellular carcinoma.** *Journal of magnetic resonance imaging*  
Hope, T. A., Petkovska, I., Saranathan, M., Hargreaves, B. A., Vasawala, S. S.  
2016; 43 (4): 859-865
- **MR thermometry near metallic devices using multispectral imaging.** *Magnetic resonance in medicine*  
Weber, H., Taviani, V., Yoon, D., Ghanouni, P., Pauly, K. B., Hargreaves, B. A.  
2016
- **High temporal resolution dynamic MRI and arterial input function for assessment of GFR in pediatric subjects.** *Magnetic resonance in medicine*  
Yoruk, U., Saranathan, M., Loening, A. M., Hargreaves, B. A., Vasawala, S. S.  
2016; 75 (3): 1301-1311
- **Volumetric multislice gagCEST imaging of articular cartilage: Optimization and comparison with T1rho.** *Magnetic resonance in medicine*  
Kogan, F., Hargreaves, B. A., Gold, G. E.  
2016
- **High-resolution diffusion-weighted imaging of the breast with multiband 2D radiofrequency pulses and a generalized parallel imaging reconstruction.** *Magnetic resonance in medicine*  
Taviani, V., Alley, M. T., Banerjee, S., Nishimura, D. G., Daniel, B. L., Vasawala, S. S., Hargreaves, B. A.  
2016
- **Assessment of Tumor Morphology on Diffusion- Weighted (DWI) Breast MRI: Diagnostic Value of Reduced Field of View DWI** *JOURNAL OF MAGNETIC RESONANCE IMAGING*  
Barentsz, M. W., Taviani, V., Chang, J. M., Ikeda, D. M., Miyake, K. K., Banerjee, S., Van den Bosch, M. A., Hargreaves, B. A., Daniel, B. L.  
2015; 42 (6): 1656-1665
- **[18F]FDG PET/MRI of patients with chronic pain alters management: early experience.** *EJNMMI physics*  
Biswal, S., Behera, D., Yoon, D. H., Holley, D., Ith, M. A., Carroll, I., Smuck, M., Hargreaves, B.  
2015; 2: A84-?
- **Combined Outer Volume Suppression and T-2 Preparation Sequence for Coronary Angiography** *MAGNETIC RESONANCE IN MEDICINE*  
Luo, J., Addy, N. O., Ingle, R. R., Hargreaves, B. A., Hu, B. S., Nishimura, D. G., Shin, T.

2015; 74 (6): 1632-1639

- **Balanced SSFP Dixon imaging with banding-artifact reduction at 3 Tesla** *MAGNETIC RESONANCE IN MEDICINE*  
Quist, B., Hargreaves, B. A., Daniel, B. L., Saranathan, M.  
2015; 74 (3): 706-715
- **Improved multislice perfusion imaging with velocity-selective arterial spin labeling.** *Journal of magnetic resonance imaging*  
Zun, Z., Hargreaves, B. A., Rosenberg, J., Zaharchuk, G.  
2015; 41 (5): 1422-1431
- **AUTOMATED, NON-CONTRAST MRI FOR DETECTION OF SYNOVITIS USING DIFFUSION-WEIGHTED DESS**  
Fan, A. P., Fong, G., Sveinsson, B., McWalter, E. J., Oei, E. H., Robinson, W. H., Genovese, M. C., Hargreaves, B. A., Gold, G. E.  
ELSEVIER SCI LTD.2015: A240–A241
- **MR Imaging Near Metallic Implants Using MAVRIC SL: Initial Clinical Experience at 3T** *ACADEMIC RADIOLOGY*  
Gutierrez, L. B., Do, B. H., Gold, G. E., Hargreaves, B. A., Koch, K. M., Worters, P. W., Stevens, K. J.  
2015; 22 (3): 370-379
- **Improved Frequency Selective Fat Suppression in the Posterior Neck With Tissue Susceptibility Matched Pyrolytic Graphite Foam** *JOURNAL OF MAGNETIC RESONANCE IMAGING*  
Lee, G., Jordan, C., Tiet, P., Ruiz, C., McCormick, J., Phuong, K., Hargreaves, B., Conolly, S.  
2015; 41 (3): 684-693
- **Hexagonal Undersampling for Faster MRI Near Metallic Implants** *MAGNETIC RESONANCE IN MEDICINE*  
Sveinsson, B., Worters, P. W., Gold, G. E., Hargreaves, B. A.  
2015; 73 (2): 662-668
- **Metal Artifact Reduction With MAVRIC SL at 3-T MRI in Patients With Hip Arthroplasty** *AMERICAN JOURNAL OF ROENTGENOLOGY*  
Choi, S., Koch, K. M., Hargreaves, B. A., Stevens, K. J., Gold, G. E.  
2015; 204 (1): 140-147
- **High resolution multi-arterial phase MRI improves lesion contrast in chronic liver disease.** *Clinical and investigative medicine. Médecine clinique et expérimentale*  
Clarke, S. E., Saranathan, M., Rettmann, D. W., Hargreaves, B. A., Vasanawala, S. S.  
2015; 38 (3): E90-9
- **High resolution multi-arterial phase MRI improves lesion contrast in chronic liver disease.** *Clinical and investigative medicine. Me'decine clinique et expérimentale*  
Clarke, S. E., Saranathan, M., Rettmann, D. W., Hargreaves, B. A., Vasanawala, S. S.  
2015; 38 (3): E90-9
- **Variable Spatiotemporal Resolution Three-Dimensional Dixon Sequence for Rapid Dynamic Contrast-Enhanced Breast MRI** *JOURNAL OF MAGNETIC RESONANCE IMAGING*  
Saranathan, M., Rettmann, D. W., Hargreaves, B. A., Lipson, J. A., Daniel, B. L.  
2014; 40 (6): 1392-?
- **Variability of CubeQuant T-1 rho, quantitative DESS T-2, and cones sodium MRI in knee cartilage** *OSTEOARTHRITIS AND CARTILAGE*  
Jordan, C. D., McWalter, E. J., Monu, U. D., Watkins, R. D., Chen, W., Bangerter, N. K., Hargreaves, B. A., Gold, G. E.  
2014; 22 (10): 1559-1567
- **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
- **Optimizing isotropic three-dimensional fast spin-echo methods for imaging the knee.** *Journal of magnetic resonance imaging*  
Li, C. Q., Chen, W., Rosenberg, J. K., Beatty, P. J., Kijowski, R., Hargreaves, B. A., Busse, R. F., Gold, G. E.  
2014; 39 (6): 1417-1425
- **Imaging Near Metal: The Impact of Extreme Static Local Field Gradients on Frequency Encoding Processes** *MAGNETIC RESONANCE IN MEDICINE*  
Koch, K. M., King, K. F., Carl, M., Hargreaves, B. A.  
2014; 71 (6): 2024-2034

- **Mechanisms of osteoarthritis in the knee: MR imaging appearance.** *Journal of magnetic resonance imaging*  
Shapiro, L. M., McWalter, E. J., Son, M., Levenston, M., Hargreaves, B. A., Gold, G. E.  
2014; 39 (6): 1346-1356
- **Optimizing Isotropic Three-Dimensional Fast Spin-Echo Methods for Imaging the Knee** *JOURNAL OF MAGNETIC RESONANCE IMAGING*  
Li, C. Q., Chen, W., Rosenberg, J. K., Beatty, P. J., Kijowski, R., Hargreaves, B. A., Busse, R. F., Gold, G. E.  
2014; 39 (6): 1417-1425
- **High-resolution, three-dimensional diffusion-weighted breast imaging using DESS.** *Magnetic resonance imaging*  
Granlund, K. L., Staroswiecki, E., Alley, M. T., Daniel, B. L., Hargreaves, B. A.  
2014; 32 (4): 330-341
- **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
- **NON-CONTRAST DIFFUSION WEIGHTED IMAGING FOR THE ASSESSMENT OF KNEE SYNOVITIS: A COMPARATIVE STUDY AGAINST CONTRAST-ENHANCED MRI**  
Oei, E. H., McWalter, E. J., Sveinsson, B., Alley, M. T., Hargreaves, B. A., Gold, G. E.  
ELSEVIER SCI LTD.2014: S252
- **3D T2-Weighted Spin Echo Imaging in the Breast** *JOURNAL OF MAGNETIC RESONANCE IMAGING*  
Moran, C. J., Hargreaves, B. A., Saranathan, M., Lipson, J. A., Kao, J., Ikeda, D. M., Daniel, B. L.  
2014; 39 (2): 332-338
- **The John Charnley Award: Diagnostic Accuracy of MRI Versus Ultrasound for Detecting Pseudotumors in Asymptomatic Metal-on-Metal THA** *Open Scientific Meeting of the Hip-Society in Conjunction with the Annual Meeting of the American-Academy-of-Orthopaedic-Surgeons (AAOS)*  
Garbuz, D. S., Hargreaves, B. A., Duncan, C. P., Masri, B. A., Wilson, D. R., Forster, B. B.  
SPRINGER.2014: 417-23
- **High-Frequency Subband Compressed Sensing MRI Using Quadruplet Sampling** *MAGNETIC RESONANCE IN MEDICINE*  
Sung, K., Hargreaves, B. A.  
2013; 70 (5): 1306-1318
- **Improvement of gadoxetate arterial phase capture with a high spatio-temporal resolution multiphase three-dimensional SPGR-dixon sequence.** *Journal of magnetic resonance imaging*  
Hope, T. A., Saranathan, M., Petkovska, I., Hargreaves, B. A., Herfkens, R. J., Vasanaawala, S. S.  
2013; 38 (4): 938-945
- **Simultaneous T-1 and B-1(+) Mapping Using Reference Region Variable Flip Angle Imaging** *MAGNETIC RESONANCE IN MEDICINE*  
Sung, K., Saranathan, M., Daniel, B. L., Hargreaves, B. A.  
2013; 70 (4): 954-961
- **Location constrained approximate message passing for compressed sensing MRI** *MAGNETIC RESONANCE IN MEDICINE*  
Sung, K., Daniel, B. L., Hargreaves, B. A.  
2013; 70 (2): 370-381
- **Transmit B-1(+) Field Inhomogeneity and T-1 Estimation Errors in Breast DCE-MRI at 3 Tesla** *JOURNAL OF MAGNETIC RESONANCE IMAGING*  
Sung, K., Daniel, B. L., Hargreaves, B. A.  
2013; 38 (2): 454-459
- **Regional variation in T1? and T2 times in osteoarthritic human menisci: correlation with mechanical properties and matrix composition.** *Osteoarthritis and cartilage*  
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