

Stanford



Kim Butts Pauly

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

Bio

ACADEMIC APPOINTMENTS

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

ADMINISTRATIVE APPOINTMENTS

- Director, Center for Biomedical Imaging at Stanford, (2010-2015)
- Director, Radiological Sciences Laboratory, (2017- present)

HONORS AND AWARDS

- Fellow, ISMRM (2009)
- Distinguished Investigator, The Academy of Radiology Research (2012)
- Fellow, American Institute For Medical and Biological Engineering (2015)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Board Member, ISMRM (2004 - 2008)
- Board Member, ISTU (2009 - 2012)
- Chair, Scientific Program Committee, ISMRM (2007 - 2008)
- Chair, Technical Program Committee, ISTU (2013 - 2014)
- Secretary General, ISTU (2018 - present)

PROFESSIONAL EDUCATION

- B.S., Duke University , Physics (1989)
- Ph.D., Mayo Graduate School , Biophysical Sciences (1993)

LINKS

- My Webpage: <http://kbplab.stanford.edu/>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

We are investigating and developing, and applying focused ultrasound in neuromodulation, blood brain barrier opening, and ablation for both neuro and body applications.

Our study of focused ultrasound neuromodulation of deep brain structures includes study of the mechanism and how to monitor/ensure accurate intensities reach the brain. We are studying neuromodulation in both small rodent models and in larger brain models.

We are using focused ultrasound in the presence of microbubbles to open the blood brain barrier in order to enhance drug delivery to cancers of the brain. We are studying how ultrasound modulates the immune system and how that can be directed toward cancer therapy. Engineering efforts are centered around finding the in situ pressure and tissue strain from the radiation force displacement measured on MRI.

We are also using focused ultrasound to thermally ablate tissue for movement disorders such as essential tremor, as well as for cancers in the body. Robust volumetric MR thermometry in the presence of motion and transducers is an ongoing engineering focus.

Teaching

COURSES

2020-21

- Intro to Ultrasound Physics and Ultrasound Neuromodulation: BIOE 225 (Aut)
- Introduction to Imaging and Image-based Human Anatomy: BIOE 220, RAD 220 (Win)

2019-20

- Introduction to Imaging and Image-based Human Anatomy: BIOE 220, RAD 220 (Win)
- Ultrasound Imaging and Therapeutic Applications: BIOE 225, RAD 225 (Aut)

2018-19

- Introduction to Imaging and Image-based Human Anatomy: BIOE 220, RAD 220 (Win)

2017-18

- Introduction to Imaging and Image-based Human Anatomy: BIOE 220, RAD 220 (Win)
- Surgery, Without All the Blood: RAD 70N (Aut)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Fanrui Fu, Zhihai Qiu

Doctoral Dissertation Advisor (AC)

Mihyun Choi, Steven Leung, Ningrui Li, Kasra Naftchi-Ardebili

Doctoral Dissertation Co-Advisor (AC)

Jeffrey Wang

Doctoral (Program)

Jeremiah Hess, Patricia Lan, Julio Oscanoa Aida

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Bioengineering (Phd Program)

Publications

PUBLICATIONS

- **Remote, brain region-specific control of choice behavior with ultrasonic waves** *SCIENCE ADVANCES*
Kubaneck, J., Brown, J., Ye, P., Pauly, K., Moore, T., Newsome, W.
2020; 6 (21)
- **Histologic safety of transcranial focused ultrasound neuromodulation and magnetic resonance acoustic radiation force imaging in rhesus macaques and sheep.** *Brain stimulation*
Gaur, P., Casey, K. M., Kubaneck, J., Li, N., Mohammadjavadi, M., Saenz, Y., Glover, G. H., Bouley, D. M., Pauly, K. B.
2020; 13 (3): 804–14
- **Elimination of peripheral auditory pathway activation does not affect motor responses from ultrasound neuromodulation.** *Brain stimulation*
Mohammadjavadi, M., Ye, P. P., Xia, A., Brown, J., Popelka, G., Pauly, K. B.
2019
- **A rapid beam simulation framework for transcranial focused ultrasound.** *Scientific reports*
Leung, S. A., Webb, T. D., Bitton, R. R., Ghanouni, P., Butts Pauly, K.
2019; 9 (1): 7965
- **Radiation force as a physical mechanism for ultrasonic neurostimulation of the ex vivo retina.** *The Journal of neuroscience : the official journal of the Society for Neuroscience*
Menz, M. D., Ye, P., Firouzi, K., Nikoozadeh, A., Butts Pauly, K., Khuri-Yakub, P., Baccus, S. A.
2019
- **Measurements of the Relationship Between CT Hounsfield Units and Acoustic Velocity and How It Changes With Photon Energy and Reconstruction Method** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
Webb, T. D., Leung, S. A., Rosenberg, J., Ghanouni, P., Dahl, J. J., Pelc, N. J., Pauly, K.
2018; 65 (7): 1111–24
- **Diffusion MRI tractography for improved transcranial MRI-guided focused ultrasound thalamotomy targeting for essential tremor.** *NeuroImage. Clinical*
Tian, Q., Wintermark, M., Jeffrey Elias, W., Ghanouni, P., Halpern, C. H., Henderson, J. M., Huss, D. S., Goubran, M., Thaler, C., Airan, R., Zeineh, M., Pauly, K. B., McNab, et al
2018; 19: 572–80
- **Transcranial MRI-Guided Focused Ultrasound: A Review of the Technologic and Neurologic Applications** *AMERICAN JOURNAL OF ROENTGENOLOGY*
Ghanouni, P., Pauly, K. B., Elias, W. J., Henderson, J., Sheehan, J., Monteith, S., Wintermark, M.
2015; 205 (1): 150-159
- **Remote, brain region-specific control of choice behavior with ultrasonic waves.** *Science advances*
Kubaneck, J., Brown, J., Ye, P., Pauly, K. B., Moore, T., Newsome, W.
2020; 6 (21): eaaz4193
- **Improved Vim targeting for focused ultrasound ablation treatment of essential tremor: A probabilistic and patient-specific approach.** *Human brain mapping*
Su, J. H., Choi, E. Y., Tourdias, T., Saranathan, M., Halpern, C. H., Henderson, J. M., Pauly, K. B., Ghanouni, P., Rutt, B. K.
2020
- **MR elastography frequency-dependent and independent parameters demonstrate accelerated decrease of brain stiffness in elder subjects.** *European radiology*
Lv, H., Kurt, M., Zeng, N., Ozkaya, E., Marcuz, F., Wu, L., Laksari, K., Camarillo, D. B., Pauly, K. B., Wang, Z., Wintermark, M.
2020
- **Case Report on Deep Brain Stimulation Rescue After Suboptimal MR-Guided Focused Ultrasound Thalamotomy for Essential Tremor: A Tractography-Based Investigation.** *Frontiers in human neuroscience*
Saluja, S., Barbosa, D. A., Parker, J. J., Huang, Y., Jensen, M. R., Ngo, V., Santini, V. E., Pauly, K. B., Ghanouni, P., McNab, J. A., Halpern, C. H.

2020; 14: 191

- **Prolonged heating in nontargeted tissue during MR-guided focused ultrasound of bone tumors** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Bitton, R. R., Webb, T. D., Pauly, K., Ghanouni, P.
2019; 50 (5): 1526–33
- **Anatomic and Thermometric Analysis of Cranial Nerve Palsy after Laser Amygdalohippocampotomy for Mesial Temporal Lobe Epilepsy.** *Operative neurosurgery (Hagerstown, Md.)*
Huang, Y., Leung, S. A., Parker, J. J., Ho, A. L., Wintermark, M., Patel, S. H., Pauly, K. B., Kakusa, B. W., Beres, S. J., Henderson, J. M., Grant, G. A., Halpern, C. H.
2019
- **Optimization of a Multifrequency Magnetic Resonance Elastography Protocol for the Human Brain** *JOURNAL OF NEUROIMAGING*
Kurt, M., Wu, L., Laksari, K., Ozkaya, E., Suar, Z. M., Lv, H., Epperson, K., Epperson, K., Sawyer, A. M., Camarillo, D., Pauly, K., Wintermark, M.
2019; 29 (4): 440–46
- **Elimination of peripheral auditory pathway activation does not affect motor responses from ultrasound neuromodulation** *BRAIN STIMULATION*
Mohammadjavadi, M., Ye, P., Xia, A., Brown, J., Popelka, G., Pauly, K.
2019; 12 (4): 901–10
- **Optimization of a Multifrequency Magnetic Resonance Elastography Protocol for the Human Brain.** *Journal of neuroimaging : official journal of the American Society of Neuroimaging*
Kurt, M., Wu, L., Laksari, K., Ozkaya, E., Suar, Z. M., Lv, H., Epperson, K., Epperson, K., Sawyer, A. M., Camarillo, D., Pauly, K. B., Wintermark, M.
2019
- **Prolonged Heating in Nontargeted Tissue During MR-guided Focused Ultrasound of Bone Tumors.** *Journal of magnetic resonance imaging : JMRI*
Bitton, R. R., Webb, T. D., Pauly, K. B., Ghanouni, P.
2019
- **TESTING DIFFERENT COMBINATIONS OF ACOUSTIC PRESSURE AND DOSES OF QUINOLINIC ACID FOR INDUCTION OF FOCAL NEURON LOSS IN MICE USING TRANSCRANIAL LOW-INTENSITY FOCUSED ULTRASOUND** *ULTRASOUND IN MEDICINE AND BIOLOGY*
Zhang, Y., Liao, C., Qu, H., Huang, S., Jiang, H., Zhou, H., Abrams, E., Habte, F. G., Yuan, L., Bertram, E. H., Lee, K. S., Pauly, K., Buckmaster, et al
2019; 45 (1): 129–36
- **Impact of skull density ratio on efficacy and safety of magnetic resonance-guided focused ultrasound treatment of essential tremor.** *Journal of neurosurgery*
D'Souza, M., Chen, K. S., Rosenberg, J., Elias, W. J., Eisenberg, H. M., Gwinn, R., Taira, T., Chang, J. W., Lipsman, N., Krishna, V., Igase, K., Yamada, K., Kishima, et al
2019: 1–6
- **Enhanced microbubble contrast agent oscillation following 250 kHz insonation** *SCIENTIFIC REPORTS*
Ilovitsh, T., Ilovitsh, A., Foiret, J., Caskey, C. F., Kusunose, J., Fite, B. Z., Zhang, H., Mahakian, L. M., Tam, S., Butts-Pauly, K., Qin, S., Ferrara, K. W.
2018; 8
- **Enhanced microbubble contrast agent oscillation following 250kHz insonation.** *Scientific reports*
Ilovitsh, T., Ilovitsh, A., Foiret, J., Caskey, C. F., Kusunose, J., Fite, B. Z., Zhang, H., Mahakian, L. M., Tam, S., Butts-Pauly, K., Qin, S., Ferrara, K. W.
2018; 8 (1): 16347
- **Testing Different Combinations of Acoustic Pressure and Doses of Quinolinic Acid for Induction of Focal Neuron Loss in Mice Using Transcranial Low-Intensity Focused Ultrasound.** *Ultrasound in medicine & biology*
Zhang, Y., Liao, C., Qu, H., Huang, S., Jiang, H., Zhou, H., Abrams, E., Habte, F. G., Yuan, L., Bertram, E. H., Lee, K. S., Pauly, K. B., Buckmaster, et al
2018
- **Brain stiffens post mortem** *JOURNAL OF THE MECHANICAL BEHAVIOR OF BIOMEDICAL MATERIALS*
Weickenmeier, J., Kurt, M., Ozkaya, E., de Rooij, R., Ovaert, T. C., Ehman, R. L., Pauly, K., Kuhl, E.
2018; 84: 88–98
- **Hearing out Ultrasound Neuromodulation** *NEURON*
Airan, R. D., Pauly, K.
2018; 98 (5): 875–77
- **Hearing out Ultrasound Neuromodulation.** *Neuron*

- Airan, R. D., Butts Pauly, K.
2018; 98 (5): 875–77
- **A spiral-based volumetric acquisition for MR temperature imaging** *MAGNETIC RESONANCE IN MEDICINE*
Fielden, S. W., Feng, X., Zhao, L., Miller, G., Geeslin, M., Dallapiazza, R. F., Elias, W., Wintermark, M., Pauly, K., Meyer, C. H.
2018; 79 (6): 3122–27
 - **Brain stiffens post mortem.** *Journal of the mechanical behavior of biomedical materials*
Weickenmeier, J., Kurt, M., Ozkaya, E., de Rooij, R., Ovaert, T. C., Ehman, R. L., Butts Pauly, K., Kuhl, E.
2018; 84: 88–98
 - **High sensitivity MR acoustic radiation force imaging using transition band balanced steady-state free precession** *MAGNETIC RESONANCE IN MEDICINE*
Zheng, Y., Marx, M., Miller, G., Pauly, K.
2018; 79 (3): 1532–37
 - **Printed Receive Coils with High Acoustic Transparency for Magnetic Resonance Guided Focused Ultrasound** *SCIENTIFIC REPORTS*
Corea, J., Ye, P., Seo, D., Butts-Pauly, K., Arias, A., Lustig, M.
2018; 8: 3392
 - **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
 - **Diffusion MRI tractography for improved transcranial MRI-guided focused ultrasound thalamotomy targeting for essential tremor** *NEUROIMAGE-CLINICAL*
Tian, Q., Wintermark, M., Elias, W., Ghanouni, P., Halpern, C. H., Henderson, J. M., Huss, D. S., Goubran, M., Thaler, C., Airan, R., Zeineh, M., Pauly, K., McNab, et al
2018; 19: 572–80
 - **Magnetic resonance elastography of the brain: A comparison between pigs and humans** *JOURNAL OF THE MECHANICAL BEHAVIOR OF BIOMEDICAL MATERIALS*
Weickenmeier, J., Kurt, M., Ozkaya, E., Wintermark, M., Pauly, K., Kuhl, E.
2018; 77: 702–10
 - **Treatment of Low-Flow Vascular Malformations of the Extremities Using MR-Guided High Intensity Focused Ultrasound: Preliminary Experience** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Ghanouni, P., Kishore, S., Lungren, M. P., Bitton, R., Chan, L., Avedian, R., Bazzocchi, A., Pauly, K., Napoli, A., Hovsepian, D. M.
2017; 28 (12): 1739–44
 - **Cost-effectiveness of focused ultrasound, radiosurgery, and DBS for essential tremor.** *Movement disorders*
Ravikumar, V. K., Parker, J. J., Hornbeck, T. S., Santini, V. E., Pauly, K. B., Wintermark, M., Ghanouni, P., Stein, S. C., Halpern, C. H.
2017
 - **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
 - **Magnetic resonance-guided focused ultrasound treatment of extra-abdominal desmoid tumors: a retrospective multicenter study** *EUROPEAN RADIOLOGY*
Ghanouni, P., Dobrotwir, A., Bazzocchi, A., Bucknor, M., Bitton, R., Rosenberg, J., Telischak, K., Busacca, M., Ferrari, S., Albinini, U., Walters, S., Gold, G., Ganjoo, et al
2017; 27 (2): 732–740
 - **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 meta-analysis of palliative treatment of pancreatic cancer with high intensity focused ultrasound.** *Journal of therapeutic ultrasound*
Dababou, S., Marrocchio, C., Rosenberg, J., Bitton, R., Pauly, K. B., Napoli, A., Hwang, J. H., Ghanouni, P.
2017; 5: 9-?

- **A 1-MHz 2-D CMUT Array for HIFU Thermal Ablation**
Yoon, H., Vaithilingam, S., Park, K., Nikoozadeh, A., Firouzi, K., Choe, J., Watkins, R. D., Oguz, H., Kupnik, M., Pauly, K., Khuri-Yakub, P., Fowlkes, J. B., Salgaonkar, et al
AMER INST PHYSICS.2017
- **Correlation Of p63 Immunohistochemistry With Histology And Contrast Enhanced MRI In Characteristic Lesions Induced By Minimally Invasive Thermal Treatments In A Dog Prostate**
Pascal, A., Butts-Pauly, K., Plata, J., Sommer, G., Daniel, B., Bouley, D. M., Fowlkes, J. B., Salgaonkar, V. A.
AMER INST PHYSICS.2017
- **Experimental Investigations of an Endoluminal Ultrasound Applicator for MR-guided Thermal Therapy of Pancreatic Cancer**
Adams, M., Salgaonkar, V., Jones, P., Plata, J., Chen, H., Pauly, K., Sommer, G., Diederich, C., Fowlkes, J. B., Salgaonkar, V. A.
AMER INST PHYSICS.2017
- **Transcranial MRI-guided high-intensity focused ultrasound for treatment of essential tremor: A pilot study on the correlation between lesion size, lesion location, thermal dose, and clinical outcome.** *Journal of magnetic resonance imaging : JMRI*
Federau, C., Goubran, M., Rosenberg, J., Henderson, J., Halpern, C. H., Santini, V., Wintermark, M., Butts Pauly, K., Ghanouni, P.
2017
- **Ex Vivo HIFU Experiments Using a 32 x 32-Element CMUT Array** *IEEE TRANSACTIONS ON ULTRASONICS FERROELECTRICS AND FREQUENCY CONTROL*
Yoon, H., Chang, C., Jang, J. H., Bhuyan, A., Choe, J. W., Nikoozadeh, A., Watkins, R. D., Stephens, D. N., Pauly, K. B., Khuri-Yakub, B. T.
2016; 63 (12): 2150-2158
- **Specialized volumetric thermometry for improved guidance of MRgFUS in brain.** *Magnetic resonance in medicine*
Marx, M., Ghanouni, P., Butts Pauly, K.
2016
- **Predicting variation in subject thermal response during transcranial magnetic resonance guided focused ultrasound surgery: Comparison in seventeen subject datasets.** *Medical physics*
Vyas, U., Ghanouni, P., Halpern, C. H., Elias, J., Pauly, K. B.
2016; 43 (9): 5170-?
- **Improved MRI thermometry with multiple-echo spirals.** *Magnetic resonance in medicine*
Marx, M., Butts Pauly, K.
2016; 76 (3): 747-756
- **A Randomized Trial of Focused Ultrasound Thalamotomy for Essential Tremor.** *New England journal of medicine*
Elias, W. J., Lipsman, N., Ondo, W. G., Ghanouni, P., Kim, Y. G., Lee, W., Schwartz, M., Hynynen, K., Lozano, A. M., Shah, B. B., Huss, D., Dallapiazza, R. F., Gwinn, et al
2016; 375 (8): 730-739
- **Correcting Heat-Induced Chemical Shift Distortions in Proton Resonance Frequency-Shift Thermometry** *MAGNETIC RESONANCE IN MEDICINE*
Gaur, P., Partanen, A., Werner, B., Ghanouni, P., Bitton, R., Pauly, K. B., Grissom, W. A.
2016; 76 (1): 172-182
- **Correcting heat-induced chemical shift distortions in proton resonance frequency-shift thermometry.** *Magnetic resonance in medicine*
Gaur, P., Partanen, A., Werner, B., Ghanouni, P., Bitton, R., Butts Pauly, K., Grissom, W. A.
2016; 76 (1): 172-182
- **FREQUENCY DEPENDENCE OF ULTRASOUND NEUROSTIMULATION IN THE MOUSE BRAIN** *ULTRASOUND IN MEDICINE AND BIOLOGY*
Ye, P. P., Brown, J. R., Pauly, K. B.
2016; 42 (7): 1512-1530
- **Endoluminal ultrasound applicators for MR-guided thermal ablation of pancreatic tumors: Preliminary design and evaluation in a porcine pancreas model** *MEDICAL PHYSICS*
Adams, M. S., Salgaonkar, V. A., Plata-Camargo, J., Jones, P. D., Pascal-Tenorio, A., Chen, H., Bouley, D. M., Sommer, G., Pauly, K. B., Diederich, C. J.
2016; 43 (7): 4184-4197
- **Magnetic resonance-guided focused ultrasound treatment of extra-abdominal desmoid tumors: a retrospective multicenter study.** *European radiology*

- Ghanouni, P., Dobrotwir, A., Bazzocchi, A., Bucknor, M., Bitton, R., Rosenberg, J., Telischak, K., Busacca, M., Ferrari, S., Albinini, U., Walters, S., Gold, G., Ganjoo, et al
2016: -?
- **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
 - **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
 - **Is MR-guided High-intensity Focused Ultrasound a Feasible Treatment Modality for Desmoid Tumors?** *CLINICAL ORTHOPAEDICS AND RELATED RESEARCH*
Avedian, R. S., Bitton, R., Gold, G., Butts-Pauly, K., Ghanouni, P.
2016; 474 (3): 697-704
 - **Improving thermal dose accuracy in magnetic resonance-guided focused ultrasound surgery: Long-term thermometry using a prior baseline as a reference.** *Journal of magnetic resonance imaging*
Bitton, R. R., Webb, T. D., Pauly, K. B., Ghanouni, P.
2016; 43 (1): 181-189
 - **A feasibility study on monitoring the evolution of apparent diffusion coefficient decrease during thermal ablation** *MEDICAL PHYSICS*
Plata, J. C., Holbrook, A. B., Marx, M., Salgaonkar, V., Jones, P., Pascal-Tenorio, A., Bouley, D., Diederich, C., Sommer, G., Pauly, K. B.
2015; 42 (9): 5130-5137
 - **A feasibility study on monitoring the evolution of apparent diffusion coefficient decrease during thermal ablation.** *Medical physics*
Plata, J. C., Holbrook, A. B., Marx, M., Salgaonkar, V., Jones, P., Pascal-Tenorio, A., Bouley, D., Diederich, C., Sommer, G., Pauly, K. B.
2015; 42 (9): 5130-5137
 - **Toward Volumetric MR Thermometry With the MASTER Sequence** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Marx, M., Plata, J., Pauly, K. B.
2015; 34 (1): 148-155
 - **Dual-Mode Integrated Circuit for Imaging and HIFU With 2-D CMUT Arrays**
Jang, J., Rasmussen, M., Bhuyan, A., Yoon, H., Moini, A., Chang, C., Watkins, R. D., Choe, J., Nikoozadeh, A., Stephens, D., Oralkan, O., Pauly, K., Khuri-Yakub, et al
IEEE.2015
 - **Autonomous Real-Time Interventional Scan Plane Control With a 3-D Shape-Sensing Needle** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
Elayaperumal, S., Plata, J. C., Holbrook, A. B., Park, Y., Pauly, K. B., Daniel, B. L., Cutkosky, M. R.
2014; 33 (11): 2128-2139
 - **Localization of ultrasound-induced in vivo neurostimulation in the mouse model.** *Ultrasound in medicine and biology*
King, R. L., Brown, J. R., Pauly, K. B.
2014; 40 (7): 1512-1522
 - **MR-acoustic radiation force imaging (MR-ARFI) and susceptibility weighted imaging (SWI) to visualize calcifications in ex vivo swine brain.** *Journal of magnetic resonance imaging*
Bitton, R. R., Pauly, K. R.
2014; 39 (5): 1294-1300
 - **Transcranial phase aberration correction using beam simulations and MR-ARFI.** *Medical physics*
Vyas, U., Kaye, E., Pauly, K. B.
2014; 41 (3): 032901-?
 - **Voltage-Based Device Tracking in a 1.5 Tesla MRI During Imaging: Initial Validation in Swine Models** *MAGNETIC RESONANCE IN MEDICINE*
Schmidt, E. J., Tse, Z. T., Reichlin, T. R., Michaud, G. F., Watkins, R. D., Butts-Pauly, K., Kwong, R. Y., Stevenson, W., Schweitzer, J., Byrd, I., Dumoulin, C. L.
2014; 71 (3): 1197-1209
 - **Respiration Based Steering for High Intensity Focused Ultrasound Liver Ablation** *MAGNETIC RESONANCE IN MEDICINE*

- Holbrook, A. B., Ghanouni, P., Santos, J. M., Dumoulin, C., Medan, Y., Pauly, K. B.
2014; 71 (2): 797-806
- **Respiration based steering for high intensity focused ultrasound liver ablation.** *Magnetic resonance in medicine*
Holbrook, A. B., Ghanouni, P., Santos, J. M., Dumoulin, C., Medan, Y., Pauly, K. B.
2014; 71 (2): 797-806
 - **Investigating the Feasibility of Rapid MRI for Image-Guided Motion Management in Lung Cancer Radiotherapy** *BIOMED RESEARCH INTERNATIONAL*
Sawant, A., Keall, P., Pauly, K. B., Alley, M., Vasanaawala, S., Loo, B. W., Hinkle, J., Joshi, S.
2014
 - **Comparison of Temperature Processing Methods for Monitoring Focused Ultrasound Ablation in the Brain** *JOURNAL OF MAGNETIC RESONANCE IMAGING*
Rieke, V., Instrella, R., Rosenberg, J., Grissom, W., Werner, B., Martin, E., Pauly, K. B.
2013; 38 (6): 1462-1471
 - **Quantifying the local tissue volume and composition in individual brains with magnetic resonance imaging** *NATURE MEDICINE*
Mezer, A., Yeatman, J. D., Stikov, N., Kay, K. N., Cho, N., Dougherty, R. F., Perry, M. L., Parvizi, J., Hua, L. H., Butts-Pauly, K., Wandell, B. A.
2013; 19 (12): 1667-1672
 - **Improved sleep MRI at 3 tesla in patients with obstructive sleep apnea.** *Journal of magnetic resonance imaging*
Shin, L. K., Holbrook, A. B., Capasso, R., Kushida, C. A., Powell, N. B., Fischbein, N. J., Pauly, K. B.
2013; 38 (5): 1261-1266
 - **Applicators for magnetic resonance-guided ultrasonic ablation of benign prostatic hyperplasia.** *Investigative radiology*
Sommer, G., Pauly, K. B., Holbrook, A., Plata, J., Daniel, B., Bouley, D., Gill, H., Prakash, P., Salgaonkar, V., Jones, P., Diederich, C.
2013; 48 (6): 387-394
 - **Focal ablation of prostate cancer: four roles for magnetic resonance imaging guidance** *CANADIAN JOURNAL OF UROLOGY*
Sommer, G., Bouley, D., Gill, H., Daniel, B., Pauly, K. B., Diederich, C.
2013; 20 (2): 6672-6681
 - **Adapting MRI acoustic radiation force imaging for in vivo human brain focused ultrasound applications** *MAGNETIC RESONANCE IN MEDICINE*
Kaye, E. A., Pauly, K. B.
2013; 69 (3): 724-733
 - **Prospective motion correction using tracking coils** *MAGNETIC RESONANCE IN MEDICINE*
Qin, L., Schmidt, E. J., Tse, Z. T., Santos, J., Hoge, W. S., Tempny-Afdhal, C., Butts-Pauly, K., Dumoulin, C. L.
2013; 69 (3): 749-759
 - **EFFECTIVE PARAMETERS FOR ULTRASOUND-INDUCED IN VIVO NEUROSTIMULATION** *ULTRASOUND IN MEDICINE AND BIOLOGY*
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