



## Rachelle Bitton

Sr Res Scientist-Physical, Rad/Body MRI

 Curriculum Vitae available Online

### Bio

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#### CURRENT ROLE AT STANFORD

- Original research focusing on applications of MR guided Focused Ultrasound (MRgFUS) for ablative treatments of cancer and trans-cranial neurosurgical treatment of tremor.
- Developing new MRI imaging strategies and pulse sequence development of non-ablative applications of focused ultrasound, including MR Acoustic Radiation Force Imaging.
- Medical Physicist including ultrasound treatment planning and MRI imaging specialist of multiple ongoing human clinical trials, as well as clinical treatments at SHC, to image, treat, and monitor MRgFUS of bone metastases, soft tissue tumors of the extremities, uterine fibroids, and trans-cranial MRgFUS treatment of essential tremor.
- Bridge technical and clinical communication as a go between in collaborations with clinicians, interventional radiologists, imaging technologists, medical device companies, and research scientists, graduate students, and faculty.

#### HONORS AND AWARDS

- Featured Cover Article, Journal of Magnetic Resonance in Imaging (2016)
- NIH LRP Award for Clinical Research, National Institutes of Health (2014)
- Magna Cum Laude Merit Award, International Society of Magnetic Resonance in Medicine - 20th Annual Symposium (2012)
- Postdoctoral Fellowship Award, California Breast Cancer Research Program (2010-2012)
- Member, Tau Beta Pi Engineering Honor Society (2000)

#### EDUCATION AND CERTIFICATIONS

- Ph.D., University of Southern California , Biomedical Engineering (2008)
- M.S., University of Southern California , Biomedical Engineering (2005)
- B.S., University of South Florida , Electrical Engineering (2002)

### Professional

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#### PROFESSIONAL AFFILIATIONS AND ACTIVITIES

- Director, RSL Trainee Council (2012 - 2014)
- Member, International Society of Magnetic Resonance in Medicine (2009 - present)

## Publications

### PUBLICATIONS

- **Evaluation of an MRI receive head coil for use in transcranial MR guided focused ultrasound for functional neurosurgery.** *International journal of hyperthermia : the official journal of European Society for Hyperthermic Oncology, North American Hyperthermia Group*  
Bitton, R. R., Sheingauz, E., Assif, B., Kelm, N., Dayan, M., Butts Pauly, K., Ghanouni, P.  
2021; 38 (1): 22–29
- **Design and evaluation of an open-source, conformable skin-cooling system for body magnetic resonance guided focused ultrasound treatments.** *International journal of hyperthermia : the official journal of European Society for Hyperthermic Oncology, North American Hyperthermia Group*  
Merrill, R., Odeen, H., Dillon, C., Bitton, R., Ghanouni, P., Payne, A.  
2021; 38 (1): 679–90
- **MRI-Guided Focused Ultrasound of Osseous Metastases: Treatment Parameters Associated With Successful Pain Reduction.** *Investigative radiology*  
Bitton, R. R., Rosenberg, J. n., LeBlang, S. n., Napoli, A. n., Meyer, J. n., Butts Pauly, K. n., Hurwitz, M. n., Ghanouni, P. n.  
2020
- **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
- **A rapid beam simulation framework for transcranial focused ultrasound.** *Scientific reports*  
Leung, S. A., Webb, T. D., Bitton, R. R., Ghanouni, P. n., Butts Pauly, K. n.  
2019; 9 (1): 7965
- **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
- **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
- **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-?
- **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
- **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
- **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

- **Toward MR-guided high intensity focused ultrasound for presurgical localization: Focused ultrasound lesions in cadaveric breast tissue** *JOURNAL OF MAGNETIC RESONANCE IMAGING*  
Bitton, R. R., Kaye, E., Dirbas, F. M., Daniel, B. L., Pauly, K. B.  
2012; 35 (5): 1089-1097
- **A 3-D High-Frequency Array Based 16 Channel Photoacoustic Microscopy System for In Vivo Micro- Vascular Imaging** *IEEE TRANSACTIONS ON MEDICAL IMAGING*  
Bitton, R., Zemp, R., Yen, J., Wang, L. V., Shung, K. K.  
2009; 28 (8): 1190-1197
- **Realtime Photoacoustic Microscopy of Murine Cardiovascular Dynamics** *OPTICS EXPRESS*  
Zemp, R. J., Song, L., Bitton, R., Shung, K. K., Wang, L. V.  
2008; 16 (22): 18551-18556
- **Realtime photoacoustic microscopy in vivo with a 30-MHz ultrasound array transducer** *OPTICS EXPRESS*  
Zemp, R. J., Song, L., Bitton, R., Shung, K. K., Wang, L. V.  
2008; 16 (11): 7915-7928
- **Design of a high frequency array based photoacoustic Microscopy system for micro-vascular Imaging** *29th Annual International Conference of the IEEE-Engineering-in-Medicine-and-Biology-Society*  
Bitton, R., Zemp, R., Yen, J., Wang, L. H., Shung, K. K.  
IEEE.2007: 2175-2178
- **Photoacoustic imaging of the microvasculature with a high-frequency ultrasound array transducer** *JOURNAL OF BIOMEDICAL OPTICS*  
Zemp, R. J., Bitton, R., Li, M., Shung, K. K., Stoica, G., Wang, L. V.  
2007; 12 (1)
- **Photoacoustic Microscopy with a 30MHz Array and Receive System** *Proc IEEE Ultrasonics Symposium 2006*  
Bitton R, Zemp R, Li M.L., Yen J., Wang L.H., Shung K.K.  
2006: 389-392