



Rachelle Bitton

Clinical Assistant Professor, Radiology

 Curriculum Vitae available Online

Bio

ACADEMIC APPOINTMENTS

- Clinical Assistant Professor, Radiology

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)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

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

PROFESSIONAL EDUCATION

- 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)

LINKS

- Body MRI Faculty Page: <https://bodymri.stanford.edu/faculty>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Developing interventional techniques and patient specific models in MR image guided High Intensity Focused Ultrasound (HIFU). PRF thermometry monitoring for ablative applications in cancer trans-cranial functional neurosurgery to treat essential tremor and Parkinson's disease.

Treatment efficacy and clinical outcomes analysis in multi-center trials of MR guided interventions to treat desmoid tumors, uterine leiomyomas, and osseous metastasis.

Photoacoustic imaging of microvasculature.

Publications

PUBLICATIONS

- **Optimizing prostate cancer treatment with MR-guided focused ultrasound: the role of expanded ablation-to-lesion volume ratio.** *European radiology*
Bitton, R. R., Vertosick, E., Khandwala, Y., Korol, G., Vickers, A., Ehdaie, B., Sonn, G., Ghanouni, P.
2026
- **MRI features that predict progression of residual disease after ablation of extra-abdominal desmoid fibromatosis.** *European radiology*
Dux, D. M., Chodakiewitz, Y., Bitton, R., Sewell, S., Sheth, V. R., Ghanouni, P., Brunsing, R. L.
2025
- **"Quality over quantity:" smaller, targeted lesions optimize quality of life outcomes after MR-guided focused ultrasound thalamotomy for essential tremor.** *Frontiers in neurology*
Buch, V. P., Purger, D., Datta, A., Wang, A., Barbosa, D., Chodakiewitz, Y., Lev-Tov, L., Li, C., Halpern, C., Henderson, J., McNab, J. A., Bitton, R. R., Ghanouni, et al
2024; 15: 1450699
- **Intraprocedural Diffusion-weighted Imaging for Predicting Ablation Zone during MRI-guided Focused Ultrasound of Prostate Cancer.** *Radiology. Imaging cancer*
Bitton, R. R., Shao, W., Chodakeiwitz, Y., Brunsing, R. L., Sonn, G., Rusu, M., Ghanouni, P.
2024; 6 (5): e240009
- **MR-guided focused ultrasound therapy of extra-abdominal desmoid tumors: a multicenter retrospective study of 105 patients.** *European radiology*
Düx, D. M., Baal, J. D., Bitton, R., Chen, J., Brunsing, R. L., Sheth, V. R., Rosenberg, J., Kim, K., Ozhinsky, E., Avedian, R., Ganjoo, K., Bucknor, M., Dobrotwir, et al
2023
- **What predicts durable symptom relief of uterine fibroids treated with MRI-guided focused ultrasound? A multicenter trial in 8 academic centers.** *European radiology*
Bitton, R. R., Fast, A., Vu, K. N., Lum, D. A., Chen, B., Hesley, G. K., Raman, S. S., Matsumoto, A. H., Price, T. M., Tempany, C., Dhawan, N., Dolen, E., Kohi, et al
2023
- **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., Sheingaouz, 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., Zerrip, 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