Nicholas Whiting

Assistant Professor
Physics & Astronomy/Molecular & Cellular Biosciences

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Education:
BS (Chemistry), Southern Illinois University
PhD (Physical Chemistry), Southern Illinois University
Postdoctoral (Magnetic Resonance), University of Nottingham (UK)
Postdoctoral (Cancer Systems Imaging), The University of Texas MD Anderson Cancer Center

Research Expertise:
Hyperpolarized Magnetic Resonance | Molecular Imaging | Nanotherapeutics

My research focuses on improving nuclear magnetic resonance spectroscopy (NMR) and imaging (MRI) through the development of hyperpolarization methodologies, which temporarily improve NMR & MRI signals by several orders of magnitude through enhanced nuclear spin alignment. My primary goal is to apply these techniques to biocompatible nanomaterials, which can be utilized for both targeted molecular imaging and novel therapeutics. Along with developing additional MR-based contrast agents, I am also interested in determining the effects from prolonged usage of electronic nicotine delivery systems.

Honors and Awards:
Harold C. and Mary L. Daily Endowed Fund Fellowship 2016
Diane Denson Tobola Endowed Fellowship in Ovarian Cancer Research 2015
National Cancer Institute R25T Postdoctoral Fellowship in Cancer Prevention Research 2012
MD Anderson Cancer Center Odyssey Recruitment Postdoctoral Fellowship 2012
Baxter Young Investigator Award 2012
National Science Foundation International Research Postdoctoral Fellowship 2010
Participant: 57th Meeting of Nobel Laureates and Student Researchers in Lindau, Germany 2007

Recent Publications:

Whiting N, Hu J, Millward NZ, Lokesh GLR, Volk DE, Menter DG, Rupaimoole R, Previs R, Sood A, Bhattacharya PK (2016) Developing hyperpolarized silicon particles for in vivo MRI targeting of ovarian cancer. J Med Imag. 3:036001.

Whiting N, Hu J, Shah J, Cassidy MC, Cressman E, Millward NZ, Menter DG, Marcus CM, Bhattacharya PK (2015) Real-time MRI-guided catheter tracking using hyperpolarized silicon particles. Sci Rep. 5:12842.

Newton H, Walkup LL, Whiting N, West L, Carriere J, Havermeyer F, Ho L, Morris P, Goodson BM, Barlow MJ (2014) Comparative study of in situ N2 rotational Raman spectroscopy methods for probing energy thermalisation processes during spin-exchange optical pumping. Appl Phys B. 115:167-172.

Nikolaou P, Coffey A, Walkup L, Gust B, Whiting N, Newton H, Barcus A, Muradyan I, Moroz GD, Rosen M, Patz S, Barlow MJ, Chekmenev E, Goodson BM (2013) Near-unity nuclear polarization with an ‘open-source’ 129Xe hyperpolarizer for NMR and MRI. Proc Nat Acad Sci USA. 110:14150-14155.