



David P. Arnold is currently the George Kirkland Engineering Leadership Professor in the Department of Electrical and Computer Engineering, Deputy Director of the NSF Multi-functional Integrated System Technology (MIST) Center, and Director of the Interdisciplinary Microsystems Group at the University of Florida. He received dual B.S. (1999) and M.S. degrees (2001) from University of Florida and the Ph.D. degree in electrical and computer engineering from Georgia Tech (2004). His research focuses on micro/nanostructured magnetic materials, magnetic microsystems, electromechanical transducers, and miniaturized power/energy systems. He is an active participant in the magnetics and MEMS communities, including various conference committees and the editorial boards of *J. Micromechanics and Microengineering* and *Energy Harvesting and Systems*. He has co-authored over 170 refereed journal and conference publications, and holds 14 U.S. patents. His research innovations have been recognized by the 2008 Presidential Early Career Award in Science and Engineering (PECASE) and the 2009 DARPA Young Faculty Award. He is a Senior Member of IEEE and also a member of Tau Beta Pi and Eta Kappa Nu. Beyond his passion for research and teaching, he most enjoys spending time with his wife and three children.

Magnetic Microsystems - Tiny Magnets Solving Big Problems

Wednesday October 4, 2017

12:00 PM – 1:00 PM

Birck Nanotechnology Center RM 2001

This talk will highlight my group's development of microfabricated permanent magnets and their application in various functional microsystems. To set the stage, I'll first describe some basic concepts about magnets and physical scaling laws that motivate our efforts. I'll then discuss two types of permanent magnet materials—electroplated layers and bonded powders—that overcome certain manufacturing and integration challenges. Next, I'll explain how we batch-fabricate complex magnetic pole patterns in these thick films and characterize the stray fields at the micro-scale. Lastly, I'll showcase how these tiny magnets are being used for electromechanical transducers, nanomanufacturing, microrobots and more.

This seminar is a ECE and Birck Joint Colloquium .
Pizza will be served. Hosted by Sunil Bhawe