Prese: Dr. Gary Baker, Assistant Professor
University of Missouri, Department of Chemistry

Title: Ionic Liquids as Pan-Solvents?

Abstract: Ionic liquids feature prominently in modern chemical research. As molten salts comprising task-specific ions tailored to numerous tasks, they are in growing demand in chemistry’s sibling sciences as well, most particularly in physics, engineering, and biology. In this presentation, I will paint a broad overview of ionic liquids as molecularly-tunable solvents, highlighting along the way with a sequence of personal vignettes featuring instances where they’ve been (sometimes surprisingly) useful or interesting solvents or materials in a host of virtually-unrelated areas of science. I will begin with the premise that ionic liquids have only niche utility and slowly chip away at this proposition, hopefully leaving the audience with the impression that whilst ionic liquids may not be a solvent panacea, they surely warrant contemplation now and again in many dissimilar disciplines.

Biographical:

Gary A. Baker studied chemistry at S.U.N.Y. Oswego (New York) and obtained his doctoral degree in Analytical Chemistry under the supervision of Prof. Frank V. Bright at the University at Buffalo in 2001. Following graduate studies, he was a Frederick Reines postdoctoral fellow at Los Alamos National Laboratory and later entered Oak Ridge National Laboratory as an Eugene P. Wigner fellow and staff scientist. He remained at Oak Ridge National Laboratory until the end of 2010 at which time he accepted a position as Assistant Professor in the Chemistry department at the University of Missouri—Columbia. He is the author or co-author of more than 150 peer-reviewed scientific articles. He has won a number of awards for his research including a Presidential Early Career Award for Scientists and Engineers (PECASE) from the U.S. Department of Energy in 2008. His current research interests include shape-controlled nanochemistry, energy applications of ionic liquids, chemically-modified graphenes, biocatalysis in non-aqueous solvents, nanoporous materials, and all things luminescent.

Date • Time • Location:
Tuesday, October 11, 2011, 4:00 PM, 105 Agricultural Engineering Building

The Food for the 21st Century (F21C) program at the University of Missouri (MU) was established in the mid-1980's through state funding. The overall goal of the program is to help Missouri food producers and processors maintain their competitive edge in the global marketplace by conducting cutting-edge research in a number of food-related areas. The program involves faculty researchers from multiple colleges including College of Agriculture, Food and Natural Resources; College of Arts and Sciences; College of Engineering; School of Medicine; College of Human Environmental Sciences; and College of Veterinary Medicine. Based on the research emphases, the researchers are grouped into four Clusters: Plant Biotechnology; Animal Reproduction; Bioprocessing and Biosensing Center; and Human Nutrition.

Bioprocessing and Biosensing Center was formed in 1986. The Center currently consists of 27 faculty members, plus collaborators, support staff, and graduate students from six departments in the College of Agriculture, Food and Natural Resources and College of Engineering. These departments include Biological Engineering; Food Science; Animal Sciences; Chemical Engineering; Electrical Engineering; and Mechanical and Aerospace Engineering. This seminar is one of the educational activities in the Bioprocessing and Biosensing Center.