

CHEMICAL & BIOMEDICAL ENGINEERING GRAD STUDENT SEMINAR

# Dynamics of Energy Materials Probed by Quasielastic Neutron Scattering

Wednesday, April 8  
11:00 AM  
IRCB 3070

**Naresh C. Osti, Ph.D.**

**BASIS R&D STAFF/BEAMLINE SCIENTIST**  
ORNL Neutron Scattering Division

A fundamental understanding of diffusion mechanisms and the factors influencing dynamics within energy materials is critical for designing and synthesizing new materials with enhanced properties and improved performance. Quasielastic neutron scattering (QENS) predominantly depends on the incoherent scattering cross-section of atoms and probes single-particle dynamics, thereby providing the self-diffusion coefficients of mobile species. Since hydrogen has the highest incoherent neutron scattering cross-section among all elements, this technique is particularly sensitive to hydrogen and is often used to explore the dynamics of hydrogen-bearing species. The use of QENS, together with inelastic neutron scattering and electrochemical measurements, to investigate the dynamics of various energy material systems—such as confined water and ionic liquids, as well as polymer and solid-state electrolytes—will be discussed.



This event is sponsored by FAMU-FSU College of Engineering and  
Department of Chemical & Biomedical Engineering

