



UNIVERSITY OF CENTRAL FLORIDA

MECHANICAL AND AEROSPACE
ENGINEERING

Announcing MAE Spring 2013 Seminar Series Friday, April 19, 2013, 2:00pm-3:00pm, CL 1, Room 320

This event is hosted by the College of Engineering and Computer Science and the Mechanical and Aerospace Engineering Department at the University of Central Florida

“Future Fuels for Tomorrow’s Combustion Engines ”

S. Scott Goldsborough, PhD

Research Scientist

Center for Transportation Research

Argonne National Laboratory



Date:
Friday, 04/19/2013

Time:
2:00pm—3:00pm

Location:
CL 1, Room 320

**For more information
please contact:**

**Dr. Subith Vasu at
Subith@ucf.edu**

www.mae.ucf.edu

Abstract - To address growing global energy demands and mitigate environmental, economic and society stresses associated with these a range of advanced technologies must be developed. Transport of individuals and commodities accounts for about 30% of total US energy consumption as well as nearly one-third of national CO₂ emissions. The situation is similar across many OECD countries. Near and intermediate term solutions require significant improvements in the performance of combustion-based engines, as well as the development of non-petroleum derived, transportation fuels. Even after many years of intensive R&D however, our fundamental understanding of how fuels burn at engine-like conditions, and how engines respond to various fueling conditions is still limited. Predictive simulations that could be employed for advanced fuel and engine design is not yet possible. One significant barrier is the lack of detailed experimental data concerning how fuels decompose and oxidize at engine-relevant conditions. Many experimental challenges are being overcome towards acquiring requisite data, along with improved modeling approaches so that chemical kinetic mechanisms which describe these oxidation pathways can be formulated and validated based on this data. This talk will discuss efforts currently underway at Argonne to address these challenges. We will explore important trends that are observed in fuel reactivity for various fuel surrogates and fuel additives, and how these impact IC engine operation.

Bio - Dr. S. Scott Goldsborough is a research scientist in the Center for Transportation Research at Argonne National Laboratory where he leads investigations related to fuel chemistry and advanced combustion processes. He is also an adjunct associate professor in the Mechanical and Industrial Engineering Department at the University of Illinois Chicago and the Mechanical Engineering Department at Marquette University. Additional research interests include alternative fuels, fuel-engine interactions, novel engine architectures, multi-phase / multi-physics processes and numerical simulation. Dr. Goldsborough is a past recipient of SAE International’s Horning Memorial and Teetor Educational Awards. He received his MS and PhD degrees in Mechanical Engineering from Colorado State University, and is a member of The Combustion Institute, SAE, ACS, ASME and SIAM.