PRINCETON
Mechanical & Aerospace Engineering

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Maeder Hall, ACEE
3:30 PM

Overview of the DOE Co-Optimization of Fuel and Engines (Co-Optima) Initiative

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The Co-Optimization of Fuels and Engines (Co-Optima) initiative is a DOE effort funded by both the Vehicle and Bioenergy Technology Offices focused on identifying the fuel properties and engine design characteristics needed to maximize vehicle performance and affordability, while deeply cutting harmful vehicle emissions. Multiple research efforts are underway focused on both spark-ignition and compression-ignition strategies. The fuel property focus of the R&D includes efforts directed towards characterizing and exploiting the unique properties available from biomass-based fuel blendstocks. While a significant focus of the work is targeted to improving efficiency, a number of projects are investigating the impacts of potential new fuels/engines on emissions. This talk will provide an overview of the Co-Optima effort and present select technical highlights related to identifying the fuel properties that maximizing efficiency and identifying suitable blendstocks that yield fuels that are sustainable, affordable, scalable, and compatible with infrastructure.

John is the Laboratory Program Manager for Vehicle Technologies at the National Renewable Energy Lab (NREL), in which capacity he manages the EERE Vehicle Technologies Office R&D portfolio. This work includes biofuel/engine interactions, energy storage, thermal management, fleet testing and analysis, vehicle/grid interactions, alternative fuels/vehicles deployment, and legislative support. John is also leading the Co-Optimization of Fuels and Engines (Co-Optima) effort, a multi-lab, multi-DOE-office initiative focused on the co-optimization of new high performance fuels and high efficiency engines.

Prior to joining NREL, John spent fifteen years at ExxonMobil's Corporate Research Laboratory where he conducted research focused on identifying fuel composition effects on vehicle efficiency and emissions. He also had a number of other technical, supervisory, and strategic planning assignments in diverse areas including life cycle assessment, algal biofuels development, electrochemical energy storage, the energy/water nexus, molecular separations, and process chemistry. He holds B.S. and Ph.D. degrees in chemistry and completed a postdoctoral fellowship at the Combustion Research Facility at Sandia National Laboratories.

Social Period outside of Maeder Hall following the seminar

ALL VISITORS ARE WELCOME