Technology and Policy Tools for Energy in an Uncertain World

August 7 – 12th, 2011
Livermore, CA

SSI
SANDIA SUMMER INSTITUTE

Sandia's Summer Institute: Technology and Policy Tools for Energy in an Uncertain World is a new cross-discipline week-long research program for top graduate students from the nation's premier universities. Twenty select graduate students will collaborate in small teams, working side-by-side with leading scientists from Sandia. Participants will develop new career skills by solving challenging problems in a fast-paced, collegial work environment.

The Institute addresses technical topics of national interest through hands-on projects using world-class facilities and is led by top scientists and engineers. It also offers networking opportunities with the best and brightest scientists and students in the nation.

Students will have the opportunity to select from the following technical focus areas:

- *Uncertainty Quantification in Predictive Simulation – Focus on Chemical Systems*
  Participants will work on the development and testing of uncertainty quantification (UQ) methods for chemical systems of relevance in combustion. The work will involve algorithmic research on Bayesian inference and Polynomial Chaos UQ methods.

- *Measurement Uncertainty with Imaging Detectors – Focus on Optical Engine Diagnostics*
  Explore uncertainty in measurement of in-cylinder soot using 2-color optical pyrometry imaging in a heavy-duty optical engine. Run the optical engine and intensified cameras and develop Matlab scripts for soot temperature and volume fraction imaging.

- *Measurement of Uncertainty in Biological systems – Focus on Biomass-to-Biofuels processes*
  Explore variability and uncertainty in the various steps for biomass-to-biofuels conversion. Participants will develop biochemical assays and measure the conversion of biomass to fermentable sugars. Participants will then consider how the variability of sugar production impacts biofuels economics.

- *Managing Uncertainty in Policy Decisions – Focus on Electric Vehicle Adoption Drivers*
  Participants will develop computer models for consumer adoption of alternative-fuel vehicles. Students will then use these models to explore key technology and policy drivers of vehicle adoption and sensitivity of their results to underlying uncertainties.

Interested in learning more or applying? Visit *http://www.sandia.gov/summer_institute*
Applications due March 15th. Housing, meals and transportation will be provided by Sandia for Institute participants.

Sandia National Laboratories

NNSA National Nuclear Security Administration