

2015 Science of Signatures Advanced Studies Institute

Program dates: April 13 - May 1, 2015

A Fast-Paced, Professional Development Opportunity for Leadership-Oriented Ph.D. Students and Postdocs interested in careers at National Laboratories and Academia

The Los Alamos National Laboratory's Engineering Institute invites leadership-oriented Ph.D. and Postdoctoral researchers from all STEM disciplines (e.g. computer science, engineering, biology, physics, earth sciences, mathematics/statistics) to come to Los Alamos and participate in the Science of Signatures Advanced Studies Institute. Participants will work on multi-disciplinary teams generating solutions to challenging Science of Signatures problems posed by Los Alamos scientists and engineers. The participants will also develop professional development skills through a series of lectures from The Lab's technical leaders and external speakers

Los Alamos National Laboratory's evolving national security mission requires continued research focus on the forward deployment of advanced measurement technologies and the interpretation of the data obtained from these systems (Science of Signatures). The Lab has identified a set of multi-disciplinary, highly-challenging Science of Signatures-Forward Deployment research gaps. Under the guidance of Laboratory mentors, ASI teams will develop novel concepts for addressing these gaps, complete preliminary feasibility studies of their concepts and summarize their results in a proposal presented to Laboratory Program Managers. Their professional development will be enhanced with technical presentations as well as advice and guidance from experienced, professional researchers on program development, proposal writing, and securing funding. Additionally, personal interaction with nationally recognized researchers from around the country offers excellent networking, career, and collaboration opportunities.

The Lab's Engineering Institute has run the highly successful Los Alamos Dynamics Summer School undergraduate research experience for over a decade. LADSS alumni have gone on to win numerous NSF, NDSEG, and NASA graduate fellowships as well as the prestigious Los Alamos Lab's Director funded postdoctoral fellowships. Many also currently hold faculty positions or technical staff positions at national laboratories. The lessons learned from the LADSS have been used to tailor this professional development experience to help aspiring young researchers advance and excel in the next stage of their careers in academia or at a national laboratory.

For consideration to this program, please submit the following to asi-sos@lanl.gov by Jan 16, 2015:

- CV
- 1 letter of recommendation
- A brief synopsis of your professional goals and interest in participating as an Advanced Studies Scholar

Please direct questions to David Mascareñas at dmascarenas@lanl.gov

Program Overview: <http://www.youtube.com/watch?v=hq03MsPIMPI>

External candidates selected for the program will be reimbursed for travel, lodging, and per diem.

Advanced Studies Scholars must be U.S. citizens.

The 2015 Science of Signatures Advanced Studies Institute proposals will address national security research challenges including:

- Nuclear Nonproliferation
 - Wireless Sensor Nodes
- Bio-inspired Pattern Recognition
 - Persistent Surveillance
 - Bio-Sensing
- Dynamics of the Power Grid
- Human Machine-Interfaces
- Resilience of High-Performance Computers

2013 Projects

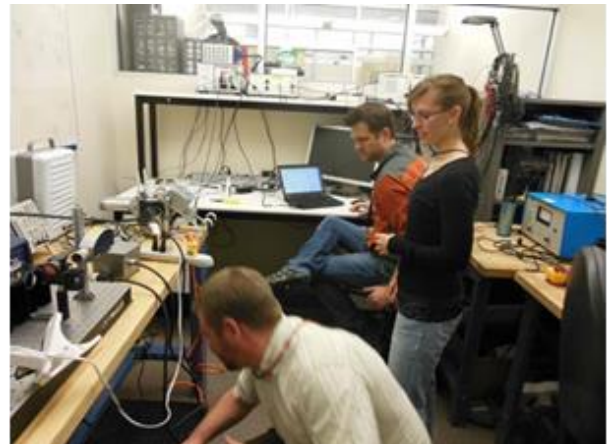
Remote Physical Sample Collection Using Unmanned Aviation Systems (UAS)



Novel methods for detecting small Unmanned Aviation Systems (UAS)



Characterizing the power grid



Novel signatures for characterizing chem/bio manufacturing facilities

