

UC Sponsored Lujan Workshop
Applications of Neutron Scattering to Materials and Earth Sciences

UC Berkeley, December 11 (Saturday), 2010

This workshop is intended for graduate students, postdocs and researchers in earth sciences, physics, chemistry, materials science and engineering, with an interest in applying neutron scattering to studies of synthetic and natural materials. Lectures will be in the morning and cover introductions to neutron scattering techniques as well as their applications to the above fields. The lectures will be complemented by data analysis tutorials in the afternoon for data collected at four Lujan instruments - HIPPO, SMARTS, NPDF and FDS. Informal discussions with beamline scientists for potential collaborations are also available. There is no registration fee. Travel subsidies up to \$300 per person will be provided for students, faculty and researchers from UC Campuses. Thanks to support from COMPRES, additional support (\$300/person) will be provided to non-UC participants. Enrollment is limited to 50 on a first-come first-served basis. This workshop is the fourth UC sponsored neutron Lujan workshop, following the workshops at UC Davis (1999), Santa Fe (2001), and UC Berkeley (2006). To register, please fill out the attached form and send it to hxu@lanl.gov and sven@lanl.gov.

Session I: HIPPO/SMARTS (powder diffraction, non-ambient measurements, deformation studies)

Morning: Lectures

- 8:45-9:00 LANSCE: Present and Future (A. Lacerda)
- 9:00-9:30 Introduction of HIPPO (S. Vogel)
- 9:30-10:00 High-pressure neutron diffraction (H. Xu)
- 10:00-10:30 Texture/deformation (H.-R. Wenk)
- 10:30-11:00 Introduction of SMARTS (D. Brown)
- 11:00-11:30 In-situ deformation of shape memory alloys (R. Vaidyanathan)
- 11:30-12:00 Microstructural evolution during friction stir welding of magnesium (H. Choo)

12:00-1:00 lunch

Afternoon (1-5 pm): Tutorials

- Two groups:
- 1) HIPPO – Texture/Rietveld analysis
 - 2) SMARTS – Stress/strain analysis

Session II: NPDF/FDS (local structure/total scattering, nanocrystalline materials, neutron spectroscopy)

Morning: Lectures

- 8:45-9:15 Introduction of NPDF (K. Page)
- 9:15-9:45 Geopolymers: DFT and PDF (C. White)
- 9:45-10:15 Nanostructured functional oxides: RMC and PDF (R. Seshadri)
- 10:15-10:30 LANSCE: Present and Future (A. Lacerda)
- 10:30-11:15 Introduction to Vibrational Spectroscopy (J. Eckert)
- 11:15-12:00 INS applications (J. Larese)

12:00-1:00 lunch

Afternoon (1-5 pm): Tutorials

- Two groups:
- 1) NPDF – PDF analysis
 - 2) FDS – INS spectra analysis

5:00-6:30 pm: Reception

Organizers: H. Xu (LANL), S.C. Vogel (LANL), and H.-R. Wenk (UC Berkeley)

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McCone Hall, UC Berkeley, December 11 (Saturday), 2010

Registration Form

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|---|----------------|-----------|
| First Name | Middle Initial | Last Name |
| Title (graduate student/postdoc/staff/faculty) | | |
| Institution | | |
| Department | | |
| Address | | |
| City | State | Zip Code |
| Email | | |
| Phone | Fax | |
| Indicate whether financial support is requested (for UC participants and non-UC students) | | |
| Indicate the session you would like to attend (HIPPO/SMARTS or NPDF/FDS) | | |
| A brief description of how neutron scattering can be used in your research | | |

Hotels within the walking distance: Durant, French Hotel, Shattuck, Downtown Berkeley, Super 8, Roadway Inn, and Travelodge.

Transportation: There are three airports (San Francisco, San Jose and Oakland) nearby, but Oakland is the closest one to Berkeley. Connect with BART, and the university is 5 minutes walk from the downtown Berkeley BART station.

Note that space is limited. Participants will be accepted on a first-come first-served basis.

Please send the completed form to hxu@lanl.gov and sven@lanl.gov. Registrants will receive additional workshop information in November.