

ANNOUNCEMENTS

August 13-19, 2011: PSI Summer School on Condensed Matter Research

Probing phase transitions using photons, muons and neutrons.

- **Registration deadline: end of June**
- **More details:** <http://indico.psi.ch/event/psi-summer-school-2011>
- **Contact:** zug2011@psi.ch



Two Workshops on HARD X-RAY INSTRUMENTATION AT THE SWISSFEL / University of Bern, Switzerland

The SwissFEL team of the Paul Scherrer Institute invites you to attend two workshops on hard X-ray instrumentation at the SwissFEL X-ray Free Electron Laser facility. The present workshops will assist in the planning of the ARAMIS beam lines and experimental stations.

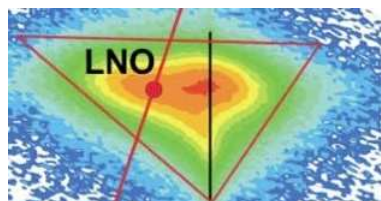
- **Workshop 1: September 12, 2011: Spectroscopic experiments**
- **Workshop 2: November 21, 2011: Scattering and diffraction experiments**

Registration and details are available at the SwissFEL web page <http://www.psi.ch/swissfel/> or by contacting silvia.bacher@psi.ch.

September 15-16: JUM@P'11: Second Joint Users' Meeting @ PSI

- **Registration deadline: August 15**

RESEARCH HIGHLIGHT OBTAINED AT SWISS MUON SOURCE/PSI



Dimensionality Control of Electronic Phase Transitions in Nickel-Oxide Superlattices

A.V. Boris et al, Science 332, 937 (2011) / DOI: 10.1126/science.1202647

The competition between collective quantum phases in materials with strongly correlated electrons depends sensitively on the dimensionality of the electron system, which is difficult to control by standard solid-state chemistry. We have fabricated superlattices of the paramagnetic metal lanthanum nickelate (LaNiO_3) and the wide-gap insulator lanthanum aluminate (LaAlO_3) with atomically precise layer sequences. We used optical ellipsometry and low-energy muon spin rotation to show that superlattices with LaNiO_3 as thin as two unit cells undergo a sequence of collective metal-insulator and anti-ferromagnetic transitions as a function of decreasing temperature, whereas samples with thicker LaNiO_3 layers remain metallic and paramagnetic at all temperatures.

Read more on: <http://www.psi.ch/num/scientific-highlights>