PSI facilities newsletter

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Editorial

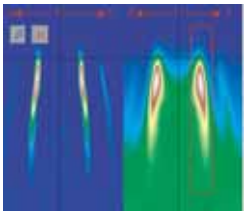
Dear reader,
This year the SLS celebrates its 10th year of operation. In 2001 we started with 4 beam lines, ten years later 18 beam lines are operational. 2010 was again a very productive year: The SLS served 1.496 individual users and counted 3.221 user visits (badge requests). These users carried out 1.085 experiments. Scientific output resulting from use of the SLS in 2010: Almost 450 refereed papers have been published, of which 106 appeared in journals with impact factor >7.1 (PRL). Counted per beam line, this is a remarkably high number of high-impact publications. Our users brought compelling science to the SLS: they have seen magnetic monopoles in the form of quasiparticles in an assembly of nanoscale magnets, developed a ptychographic method for computed nano-tomography, and contributed to our understanding of high-Tc superconductivity. Christian David, member of our staff, received together with Franz Pfeiffer (TU-Munich) the Röntgen Prize of the University of Giessen for developing interferometric phase contrast methods, which greatly enhance the quality of X-ray images. You can read more about these highlights on our website http://www.psi.ch/sls/scientific-highlights.
We also like to call your attention to the PSI Summer School 2011, which will be held from 13 to 22 August 2011 in Zug, Switzerland. This year's topic will be *Probing Phase Transitions using Photons, Muons and Neutrons.* Registration: http://indico.psi.ch/event/psi-summer-school-2011.

Announcement: JUM@P'11: Second Joint Users' Meeting @ PSI

The next users' meeting from the **JUM@P** series will be held at PSI on **September 15-16, 2011**. The meeting will consist of a plenary session with keynote and invited lectures as well as information about PSI and its user facilities on the first day. The second day is reserved for topical parallel workshops, poster sessions, and a tour of the PSI user facilities. The award of the second PSI thesis medal will accomplish the program.

More details: http://indico.psi.ch/event/jump11.

Research highlight



Observation of a ubiquitous three-dimensional superconducting gap function in optimally doped $Ba_{0.6}K_{0.4}Fe_2As_2$

Y-M. Xu et al, Nature Physics 7, 198 (2011)

The iron-pnictide superconductors have a layered structure formed by stacks of FeAs planes from which the superconductivity originates. Given the multiband and quasi three-dimensional[1] (3D) electronic structure of these high-temperature superconductors, knowledge of the quasi-3D superconducting (SC) gap is essential for understanding the superconducting mechanism. By using the k_z capability of angle-resolved photoemission, we completely determined the SC gap on all five Fermi surfaces (FSs) in three dimensions on $Ba_{0.6}K_{0.4}Fe_2As_2$ samples.
http://www.psi.ch/sls/scientific-highlights.