PAUL SCHERRER INSTITUT

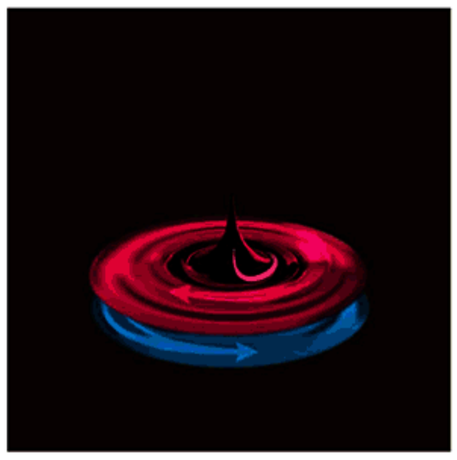
PSI facilities newsletter

https://www.psi.ch/science/facility-newsletter

Swiss Light Source Research Highlights

A Mini-Antenna for the Data Processing of Tomorrow

Sebastian Wintz, Vasil Tiberkevich, Markus Weigand, Jörg Raabe, Jürgen Lindner, Artur Erbe, Andrei Slavin, Jürgen Fassbender, Nature Nanotechnology, 18.07.2016;
http://dx.doi.org/10.1038/nnano.2016.117



The use of spin-wave signals in future information processing devices can substantially reduce power consumption over present charge current based technologies. As part of an international research venture, scientists at PSI now introduced a concept to generate spin waves with nanoscale wavelengths exploiting the driven dynamics of magnetic vortex cores in magnetic heterostructures.
Read more: https://www.psi.ch/lsc/scientific-highlights-and-news

---

New Instruments & Methods

First Free Electrons, first beam at 144 MeV and first acceleration with SwissFEL C-band modules. From the end of August to mid of September 2016 a couple of important milestones were reached for SwissFEL. On the 24th of August 2016 the first free electrons were produced and accelerated to 7.9 MeV. On the 8th of September the first electrons were transported and accelerated in the SwissFEL injector beamline. At an estimated final beam energy of 144 MeV the shift crew managed to propagate the beam up to the injector beamdump at a distance of 120 m from the electron source. On the next day the 9th of September electrons were accelerated with a SwissFEL C-band module (the first one of a series of 26 modules) for the first time. This is a great success and means that the first milestones for the SwissFEL beam commissioning were reached! Read more: https://www.psi.ch/swissfel/

Single shot grating interferometry demonstrated using direct conversion detection

M. Kagias, S. Cartier, Z. Wang, A. Bergamaschi, R. Dinapoli, A. Mozzanica, B. Schmitt, M. Stampanoni; M. Kagias, S. Cartier, Z. Wang, M. Stampanoni, Appl. Phys. Lett. 108, 234102 (2016); http://dx.doi.org/10.1063/1.4948584

An X-ray grating interferometry setup which does not require an analyzer grating, by directly detecting the fringes generated by the phase grating with a high resolution detector has been developed. The 25µm pitch GOTTHARD microstrip detector utilizes a direct conversion sensor in which the charge generated from a single absorbed photon is collected by more than one channel. Therefore, it is possible to interpolate to achieve a position resolution finer than the strip pitch. Read more: https://publishing.aip.org/publishing/journal-highlights/laboratory-breakthrough-may-lead-improved-x-ray-interferometers?TRACK=aipp-homeNews

Paul Scherrer Institut, 5232 Villigen PSI, Switzerland, useroffice@psi.ch, http://www.psi.ch