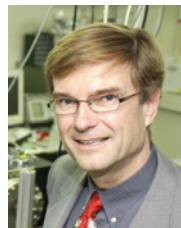


Editorial



Dear colleagues,

Advanced micro- and nanofabrication processes under clean room conditions have become indispensable for providing high quality large scale facilities to their users. Examples at the SLS are: High resolution Bragg-Fresnel zone plates as focusing elements for X-rays at several beamlines, X-ray pixel detectors such as the well known "Pilatus" or diamond membrane detectors for beam position and beam profile measurements. Also progress has been made with microfabricated diffraction gratings for neutron optics. Last but not least the SwissFEL will profit not only from nanofabricated diffractive optical elements made from diamond, as recent results obtained by us at SLAC have shown but it may be further improved by nanoscale field emitter arrays which have the potential to deliver electron beams with unprecedented brilliance. The Laboratory for Micro- and Nanotechnology of PSI (LMN) is working intensively on all these topics to the benefit of many users of the PSI facilities today and even more so in the future. We do intensive research and development in advanced micro- and nanofabrication technologies in several European and nationally funded projects involving many PhD students and post-docs. The most recent addition to LMN's capabilities is a special beamline at the SLS, the "XIL-II beamline". There, soft X-ray interferences are used to fabricate periodic line and dot patterns in photoresists with ultra high resolution in the range of 10 nm feature size. For more information on LMN see: <http://lmn.web.psi.ch>

Jens Gobrecht on behalf of PSI

Röntgenpreis for X-Ray research goes to Christian David



On 26th November 2010, Christian David, scientist at the Laboratory for Micro and Nanotechnology, received the Röntgenpreis for research in radiation science. David pioneered a method to enhance the quality of X-ray images. He received the award jointly with Franz Pfeiffer from Technische Universität München who worked closely together with him. <http://www.psi.ch/sls/scientific-highlights>

Research highlight



Moving Monopoles Caught on Camera

Researchers make visible the movement of monopoles in an assembly of nanomagnets

Elena Mengotti, Laura J. Heyderman, Arantxa Fraile Rodriguez, Frithjof Nolting, Remo V. Hügli, and Hans-Benjamin Braun, *Nature Physics Advance Online Publication 2010*; DOI: [10.1038/NPHYS1794](https://doi.org/10.1038/NPHYS1794)

For decades researchers have searched for magnetic monopoles – isolated magnetic charges that can move freely like electric charges. Now a team of researchers from the Paul Scherrer Institute and University College Dublin have been able to produce monopoles in the form of quasiparticles in an assembly of nanoscale magnets and have directly observed how they move. <http://www.psi.ch/media/moving-monopoles-caught-on-camera>