

## current events

This section carries events of interest to the synchrotron radiation community. Works intended for this section should be sent direct to the Current-Events Editor (icege@ornl.gov).

### Upgrade fever strikes synchrotron community

As reported in *Nature*, a new approach to increased beam brilliance has captured the imagination of synchrotron scientists around the world. The story has its beginning at the MAX IV synchrotron currently under construction in Sweden. At MAX IV, a new seven-bend achromat lattice design is key to unprecedented projected beam performance. This approach, once considered revolutionary but risky, is now gaining widespread acceptance with modifications that increase its flexibility, especially during beam injection; researchers at the ESRF found that, with a modification to the design, beams could be injected using existing injection hardware. This development has opened the possibility to upgrade third-generation rings to achieve unprecedented brilliance at a relatively modest cost. As a result, the strategy has now been adopted by scientists at the European Synchrotron Radiation Facility in France, the Advanced Photon Source in the USA, and SPring-8 in Japan. Scientists at these facilities are now seeking funding and detailed designs to take advantage of the new approach. Even more ambitious designs are also being discussed that repurpose large abandoned storage-ring tunnels to push beam emittance to even smaller values and to increase beam brilliance and coherence. The new science possible with the emerging new family of sources will push the limits of synchrotron science and has set off a race to this new future.



Magnets for MAX IV.

### NSRRC Annual Users Meeting marks 20th anniversary of operations

The 4–5 September 2013 National Synchrotron Radiation Research Center (NSRRC) Users Meeting marked 20 years of operations. The meeting attracted over 400 attendees who heard talks covering the current status and future developments of the NSRRC's light source, beamlines and science. Keynote speaker of the year was Academician Andrew H.-J. Wang from Academia Sinica, who delivered an inspirational speech on life-science-related research. In addition, Professor Li-Chyong Chen and Professor Ru-Shi Liu from National

Taiwan University and Professor Sue-Lein Wang from National Tsing Hua University gave brief highlights of their recent research. The meeting marks the 20th anniversary of operation of the Taiwan Light Source and a series of activities were held in conjunction with the Annual Users Meeting to celebrate the anniversary.



Attendees at the 20th anniversary of operations of the NSRRC.

### Australian Synchrotron passes 1000 paper milestone

A paper by Monach University researchers William Gee and Stuart Batten, exploring the development of new molecular tools needed to study and develop materials, became the 1000th paper entered into the Australian Synchrotron database. Professor Michael James, Head of Science, celebrated the milestone, 'It is a singular achievement to have passed this milestone in a facility with nine beamlines (experimental stations) and in only six years. What is even more amazing is that the growth in outputs is such that we are on track to reach 2000 papers in only another three years. This level of productivity is testament to the dedication of our staff and their support of excellence in the research community.' Details of the 1000th paper are as follows: *Cuprous Halide Complexes of a Variable Length Ligand: Helices, Cluster Chains and Nets Containing Large Solvated Channels*, Gee, W. J. & Batten, S. R. (2013), *Cryst. Growth Des.* **13**, 2335–2343.

### Soft inelastic X-ray scattering satellite building groundbreaking

Groundbreaking ceremonies marked initiation of the construction of the Soft Inelastic X-ray Scattering (SIX) beamline satellite building for the NSLS-II. The SIX beamline will combine 1 part in 10000 energy-resolving power with 120° range of the detector spectrometer for exceptional resonant inelastic X-ray scattering (RIXS). Steve Dierker, Director of NSLS-II, commented, 'It is an exciting beamline, and we are looking forward to science that will come from it.' To achieve the high energy-resolving power the beamline is 105 m-long, which puts the experimental station well outside the main NSLS-II building.

### NSLS-II Early Science Workshop explores new opportunities

In a related story, more than 260 people attended a workshop focused on early experiments that will be possible at the NSLS-II. The 12–13 August 2013 workshop featured animated discussions on which experiments might have the greatest scientific impact and take advantage of NSLS-II's new capabilities. After welcoming remarks from Brookhaven Laboratory Director Doon Gibbs, and an introduction from Laboratory Director for Photon Sciences, Steve Dierker, a series of science talks delved into the 'grand challenge' problems in science that the new NSLS-II will help address. Speakers included Paul Zschack, Deputy Director of the Photon Division within the Photon Sciences Directorate, who outlined the capabilities of the initial suite of NSLS-II beamlines.

Six breakout sessions on day two were used for discussions and deliberations over the early science opportunities from six of the seven initial 'project' beamlines: Hard X-ray Nanoprobe (HXN), Submicron Resolution X-Ray (SRX) spectroscopy, Coherent Hard X-ray (CHX) scattering, Coherent Soft X-ray scattering beamlines 1 and 2 (CXS-1 and CXS-2), and X-ray Powder Diffraction (XPD). A separate session for the Inelastic X-ray Scattering (IXS) beamline was scheduled to take place in October.

The breakout sessions were a starting point for the formation of research teams that would best achieve the research goals at NSLS-II.



Ignace Jarrige explains SIX beamline science to Associate Laboratory Director for Photon Sciences and NSLS-II Project Director Steve Dierker.

### Giri wins SSRL Melvin P. Klein Scientific Development Award

Gaurav Giri, has won the 2013 Melvin P. Klein Award for his work on solution shearing of organic semiconducting molecules. The Klein Award recognizes outstanding research accomplishments by students and postdocs at the Stanford Synchrotron Radiation Laboratory (SSRL), and promotes dissemination of research results. Giri is a Stanford graduate student working with Zhenan Bao, in the Department of Chemical Engineering. His work on *in situ* imaging of

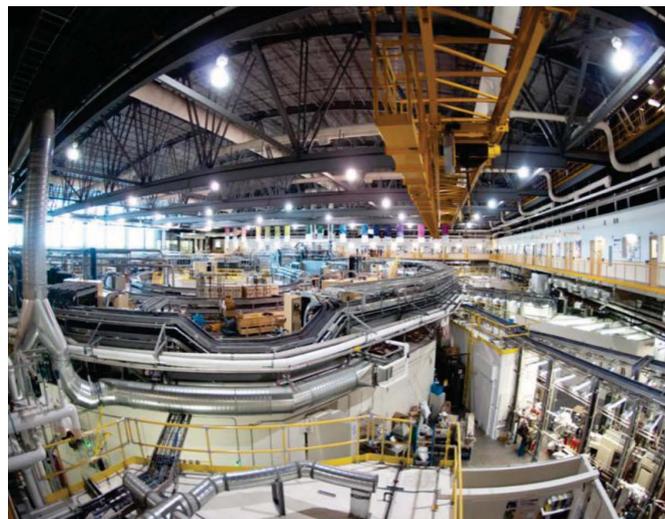


Gaurav 'Gino' Giri.

X-ray diffraction patterns from solution sheared thin films has been featured on the March 2013 cover of *Physica Status Solidi Rapid Research Letters* and his work documenting lattice strain in TIPS-pentacene was published in *Nature*. His studies of the strained crystal structures of various organic semiconductors have exploited synchrotron resources and collaborations across the world.

### Canadian Synchrotron Summer School (CS<sup>3</sup>) to focus on techniques in life science imaging

The theme of the 2014 Canadian Synchrotron Summer School will be imaging techniques applicable to life sciences research. The school is intended for life scientists seeking to add synchrotron imaging techniques to their research skills. The school will include practical sessions involving Canadian Light Source (CLS) beamlines with light spanning from the infrared to hard X-rays. In addition to science talks by experts, there will be practical data analysis sessions, tutorials on the CLS peer review process, informal discussions with CLS scientists and opportunities for socializing and networking.



Floor of the Canadian Light Source.