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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 (s.s.hasnain@liverpool.ac.uk).

Photon Factory resumes operation after the most powerful earthquake in its recorded history

The Photon Factory and other accelerators and their associated instruments at KEK were seriously effected when Japan's most powerful earthquake struck the north-east coast on 11 March. With the epicenter some 300 km away from KEK, devastation could not be imagined. As the Director-General Professor Atsuto Suzuki reported in his message on 9 May, 'Components of accelerators, detectors and peripherals became detached and fell to the ground or collided with each other. Infrastructures such as the substation to receive and distribute electric power from outside, water reservoir tanks and campus roads were also damaged', it was clear that despite focused efforts it would take an extended period to fully recover. The global synchrotron community including SPring-8 responded swiftly to accommodate users from the Photon Factory.

Fortunately, the Photon Factory (PF) storage ring, the Photon Factory Advanced Ring (PF-AR) and the beamlines suffered a relatively small amount of damage but the linac was significantly effected. We are pleased to report that the recovery plan has gone very smoothly and test operation of the beamlines started at the PF ring on 23 May with injection and first stored beam was achieved a week earlier. Test operation of the beamlines in PF-AR started on 6 June and progressed similarly with test operation continuing until the morning of 7 July. In the planned summer shutdown that will last until early September, realignment of the storage rings will be carried out and the remaining non-optimized equipment will be conditioned. User operation is expected to begin in the autumn. This is a tremendous achievement and we commend the staff of PF and KEK for achieving such rapid recovery and wish its community well.

Indian scientists to become frequent users of PETRA III and FLASH

German Chancellor Angela Merkel travelled to India on 31 May accompanied by four cabinet ministers, high-ranking officials, members of parliament and representatives of German business, education and training organizations. Part of the delegation were DESY directors Helmut Dosch and Christian Scherf. Education and research turned out to be one of the central elements of the Indo–German cooperation during the visit of the Chancellor. Out of the ten Memorandums of Understanding (MoUs) signed during the visit, nine were in the field of education and research. One of the MoUs signed was for a cooperation agreement between DESY and the Saha Institute of Nuclear Physics (SINP, Kolkata), represented by its director Milan Sanyal. The agreement manifests the intention of the German and Indian partners to extend future cooperation between both countries in the field of large-scale research infrastructures.

DESY's light sources PETRA III and FLASH offer unique research opportunities and a great potential for innovative experiments. Therefore, they are extremely attractive to the well developed and highly qualified science community of India. Actually, India is planning to build its own third-generation synchrotron radiation source for high-energy photons; thus, the country is very much interested in training young scientists at the DESY experimental facilities. "DESY explicitly welcomes the plans of India's science community to intensify their activities at large-scale light sources and to introduce young scientists to these promising research fields", said Helmut Dosch, chair of the DESY directorate. 'It is to be expected that this long-term cooperation will bring about considerable synergies and mutual advantages.'

Signing ceremony. From left: DESY Director Helmut Dosch, German Chancellor Angela Merkel, Indian Prime Minister Manmohan Singh and SINP Director Milan Sanyal.

The agreement was widely reported in the Indian press. It was reported that the agreement will allow researchers in India access to PETRA III, one of the world's best high-energy synchrotron light sources, and also help institute authorities in setting up a similar facility. Dr Milan K. Sanyal, Director of SINP, told journalists, 'India will spend EUR 14 million for the construction and operation of a beamline at PETRA III and in return will have access to all 15 beamlines at the facility for 195 days a year'. SINP is proposing the construction of a third-generation synchrotron facility in India itself. The proposal for the INR 6000 crore project has been sent to the planning commission. If approved, the facility will be set up in ten years time. Dr Sanyal said that the high-energy synchrotron, which will be only the fifth such facility in the world, will require 200 acres of land and a 20 MW round-the-clock electricity supply. The agreement has come two years after a visit by the scientific adviser of the Indian government C. N. R. Rao when he signalled the intention to carry out nano and materials research at PETRA III, including participation at a future PETRA III beamline.

Structural biologists gather to honour Charles Barkla

Structural biologist recently gathered at the University of Liverpool to honour one of the giants of X-ray physics, Charles Glover Barkla, when Dame Louise Johnson and Sir Tom Blundell opened a new structural biology laboratory, Barkla X-ray Laboratory of Biophysics. It was also a happy occasion to celebrate the achievements of Tom Blundell, who later in the week received an honorary doctorate from

Delegates and speakers from the symposium celebrating the occasion.

the university alongside Professor Rolf-Dieter Heuer, Director-General of CERN. The new facility uses a Rigaku FR-E+ superbright micro-focus rotating-anode generator, one of the brightest available laboratory X-ray sources with its two ports equipped for macromolecular crystallography and small-angle X-ray scattering end-stations.

Charles Glover Barkla was born in Widnes in 1877, only 12 miles from Liverpool University. He was a student (1898) and a demonstrator and then a lecturer (1905–1909) at the university. He received the 1917 Nobel Prize in Physics for his key contribution to defining the nature of X-rays that led to the first X-ray diffraction experiments. During the period when he was at Liverpool, much of the prize-winning research was accomplished. One of the highlights of his scientific output was the discovery that scattered X-rays are partially polarized (1904), a significant result providing strong evidence for the similarity of X-rays and light. In a series of papers from 1906 onwards he reported many studies of X-rays and their interactions with matter, crucially showing that elements have characteristic X-ray line spectra. Discovery of the *K*, *L* and *M* series of secondary X-rays led to the idea that the atoms were structured in electron shells.

In addition to the new laboratory, an exhibit was put together in a museum-style display showing several of the original X-ray sources used by Oliver Lodge (1895) for the first medical imaging experiment, Barkla himself and other crystallography giants such a Henry Lipson. Like Barkla, Henry Solomon Lipson (1910–1991) was also local to the university. He was born in Liverpool, obtained first class honours in 1930 and stayed on to do research at Liverpool into crystal structures using X-ray diffraction. He teamed up with Arnold Beevers and invented an aid to calculation, the Beevers–Lipson strips.

Tom Blundell and Louise Johnson immediately after opening the Barkla X-ray Laboratory of Biophysics.

European XFEL and STFC work together on an advanced detector

Designed to record bursts of images at an unprecedented speed of 4.5 million frames per second, an innovative X-ray camera being built with the expertise of the UK's Science and Technology Facilities Council (STFC) will help a major new research facility shed light on the structure of matter. The device will be delivered to the billion-euro European XFEL (X-ray free-electron laser) next year. The go-ahead for continuation of the GBP 3 million prototype collaboration contract for the camera's construction has been confirmed following a visit to STFC by a delegation from the European XFEL's detector advisory committee.

Current X-ray cameras are designed to capture images when matter is exposed to a constant beam of X-rays. However, the extreme brevity and intensity of the flashes produced by the European XFEL means that such cameras will not be suitable for use at the new facility. STFC's new device, which is being built in collaboration with the University of Glasgow, is specifically designed to work in conjunction with hyper-short extremely brilliant flashes of X-rays. It will be installed in one of the first experimental end-stations incorporated in the European XFEL. Dr Markus Kuster, group leader of European XFEL GmbH's detector development, said "The European XFEL will represent a major step forward in equipping Europe with a new generation of research infrastructure that can meet the requirements of the 21st century. STFC's unique skills are creating an imaging device which will help this remarkable facility realise its vast potential."

Keith Hodgson steps down as associate laboratory director of SLAC

SLAC's Director, Persis Drell, recently wrote "Last fall, our Associate Lab Director for Photon Science, Keith Hodgson, announced that he would be stepping down from that position to focus on his roles as SLAC's Chief Research Officer, Senior Associate Dean for the SLAC faculty and co-principal investigator of the lab's structural molecular biology program."

Keith Hodgson is well known to the synchrotron radiation community and someone who has been credited with leading the SSRL to SPEAR3 upgrade as well as helping photon science become a leading aspect of SLAC, which less than 40 years ago hosted synchrotron radiation as a parasitic activity. In an interview in 2008 to *SLAC Today* he said 'The roots of photon science at SLAC can be traced back to the founding of the Stanford Synchrotron Radiation Project in 1973, where a group of Stanford University faculty part-

Keith Hodgson.

nered with SLAC faculty and senior staff to conceive and create one of the first X-ray synchrotron user facilities in the world, parasitic on the SPEAR storage ring. Looking back, a key reason for success came from the intellectual leadership provided by faculty and scientific staff who developed new instrumentation, developed innovative new methodologies and analysis techniques, trained young scientists and rapidly engaged the outside academic and industrial user communities in what became a worldwide model for how to operate a synchrotron user facility. That beginning led to what we know of today as the Stanford Synchrotron Radiation Laboratory (SSRL) and from it came the Sub-Picosecond Pulse Source (SPPS) and the beginning of the Linac Coherent Light Source (LCLS). SSRL, with its integrated portfolio of photon science research, strongly helped catalyze the remarkable growth in synchrotron science worldwide that has now come to serve tens of thousands of users worldwide at dozens of synchrotron facilities.' The Photon Science Directorate at SLAC was organized to meet the scientific challenges of tomorrow.

Keith Hodgson has been involved with SLAC in various capacities since 1973. As one of the first users of the SRRP, he and his students carried out pioneering work in both the use of synchrotron X-rays to determine the crystal structures of proteins and the development of X-ray absorption spectroscopy to study biological and chemical systems. Since then he has published extensively on X-ray spectroscopic and crystallographic techniques, as well as using those and other techniques to further the study of a large range of biological, bioinorganic and inorganic systems. Keith Hodgson served as SSRL Director from 1998 until 2005. Hodgson, who also serves Stanford University as the David Mulvane Ehrsam and Edward Curtis Franklin Professor of Chemistry and as Professor of Photon Science at SLAC, was recently elected to the National Academy of Sciences. We congratulate him on receiving this distinction and wish him well in his new role.

On 1 August, a new Photon Science Associate Lab Director (PS ALD), Professor Cynthia Friend, recruited from Harvard's Department of Chemistry, started at SLAC. On the occasion of stepping down, Keith Hodgson told the *Journal of Synchrotron Radiation*, 'My role as PS ALD was to begin building up the SLAC science program in materials and chemical sciences in research areas related to SLAC and DOE mission needs and where relevant utilizing SSRL and LCLS. The new ALD, Cynthia Friend, will spend essentially full time further growing the program.'