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.hasnain@dl.ac.uk).

New beamline opens at the SRS

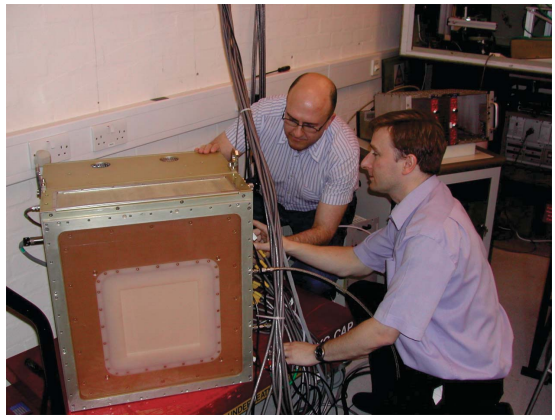
The North West Structural Genomics Centre's beamline at Daresbury Laboratory's Synchrotron Radiation Source (SRS) was opened by Cherie Booth on 28 January 2005. Opening the beamline, she said, 'I am delighted to open this world-leading research tool. Advanced facilities of this kind are vital if the UK is to take a lead in using the information contained in our genes to develop new medicines and improve the quality of life for millions around the world'.

This world-competitive high-throughput MAD beamline has been built on a high-field (2.45 T) permanent-magnet multipole wiggler with external gap of 20 mm. In order to achieve a very tight time scale, the multipole wiggler was built, assembled and commissioned in-house. The length of the device was maximized by removing some pumping from the straight section and using the NEG coating for the insertion-device vessel. This is the first NEG-coated device on the SRS and was achieved *via* a collaboration with CERN laboratories in Geneva. The beamline optics has utilized the sagittal-focusing monochromator developed for XAFS by the laboratory and has been optimized for protein crystals of dimensions 100 µm. The optimum wavelength for MAD experiments is provided by the fluorescence data obtained from a monolithic low-profile Ge detector, which also provides the capability of collecting XAFS data on the same crystals as well as monitoring the redox state of a 'metallic' functional group during crystallographic data collection. The beamline is equipped with the MAR DTB system, and a fully integrated automatic sample changer is incorporated allowing screening of 19 crystals at a time.

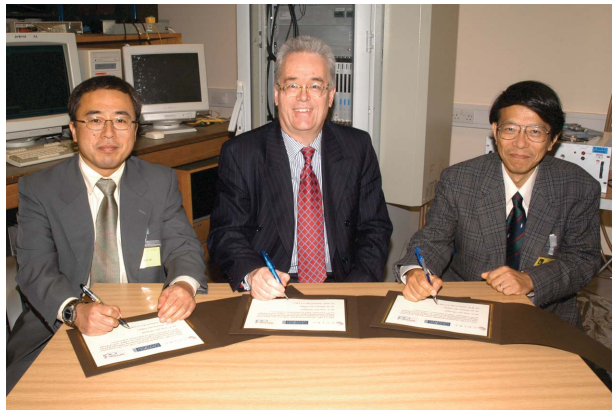
Cherie Blair with John Helliwell and Samar Hasnain. In the background, Mike Chesters, the current CCLRC Director of Synchrotron Radiation, can be seen.

SPring-8 receives RAPID-2

The two-dimensional RAPID2 system for SPring-8 has been completed and formerly accepted by SPring-8/JASRI. On 2 February 2005 at a formal ceremony at Daresbury Laboratory, Dr Naoto Yagi of JASRI (SPring-8) and Dr Michio Shimizu of Oxford Instruments Japan formally accepted the delivery of the system. This project, which has already taken six years, was made possible by the efforts of many people in the three parties, especially Dr Hiromichi Kamitsubo, former Director General of SPring-8, and Dr Hywel Price, former Director of the Daresbury Laboratory. The detector has been one of the more tangible outcomes of the CCLRC–JASRI cooperation. The detector system will soon be installed on a small-angle diffraction beamline at SPring-8. On this occasion, Dr Yagi said that 'RAPID2 is superior to any other area detector in its high time-resolution and quantitativeness. It will be mainly used in time-resolved studies on soft materials at SPring-8'.



The RAPID2 system.



Dr Naoto Yagi of JASRI (right) and Dr Michio Shimizu of Oxford Instruments Japan (left) with Dr Mike Johnson, CCLRC Director of Instrumentation Department.

Founding Chair of APS Proposal Evaluation Board suddenly passes away

Dr Howard Birnbaum passed away unexpectedly in the early hours of Monday 24 January 2005. Since the earliest days of the APS, Dr Birnbaum played a major role in shaping the direction of the facility thanks to his thoughtful recommendations and strategic vision. Dr Birnbaum was a founding member and Chair of the APS Proposal Evaluation Board (later the Program Evaluation Board) and its successor, the Scientific Advisory Committee, serving from 1989 to

Dr Howard Birnbaum.

the present. He was Director and, later, Director Emeritus of the Materials Research Laboratory at the University of Illinois at Urbana-Champaign. In 1988 he was elected to the National Academy of Engineering for his exceptional work on the effect of hydrogen and hydrogen embrittlement on the properties of metal. In 2002 Dr Birnbaum received the Materials Research Society's highest honour, the Von Hippel Award. The APS and the materials research and synchrotron communities will miss his wit and wisdom.

Australian synchrotron progresses

The building work of the Australian synchrotron is speeding up. The photograph on the right shows the latest view of the experimental hall. As part of the rapid build of science programmes with local interest, the Australian facility is encouraging a number of science focus meetings including the 8th International Conference on the Biogeochemistry of Trace Elements. This international meeting will explore the role of trace elements in environmental systems and how synchrotron techniques can solve issues related to fate, transport, reactivity, bioavailability, toxicity and mobility of trace elements in the natural environment.

The Australian synchrotron experimental hall.

Brookhaven progresses with NSLS-II

Brookhaven progress with the design of the 3 GeV NSLS-II machine with over 20 insertion devices catering for an energy range of 2–20 keV. The ring is being designed to operate in top-off mode which will maintain the ring current at 500 mA and provide a constant heat load to the beamline optics. Short-period (10–15 mm) small-gap (5 mm) superconducting undulators are planned. Several storage-ring lattice concepts are actively being explored to determine the configuration that best matches the needs of the NSLS user community and also maximizes the machine performance for high brightness. At present the nominal lattice consists of 24 triple bend achromat (TBA) cells with a circumference in the range 550–600 m and a horizontal emittance of $\sim$1.5 nm at 3 GeV.

In addition to the TBA lattice, both double and quadruple bend are also being explored. As with all ultrahigh-brightness electron rings, the greatest challenge is to compensate the large chromatic aberrations of the lattice with non-linear sextupole elements, while at the same time maximizing the stable phase space area of the electron beam, the so-called 'dynamic aperture challenge'.