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current events

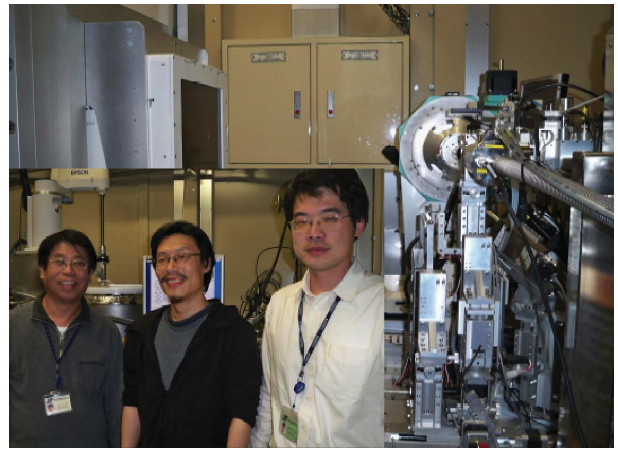
This section carries events of interest to the synchrotron radiation community. Works intended for this section should be sent direct to the Current-Events Editor (s.s.hasnain@liverpool.ac.uk).

Construction of the 3 GeV Taiwan Photon Source starts

The National Synchrotron Radiation Research Centre (NSRRC) located in Hsinchu Science Park in Taiwan has begun the construction of a low-emittance 3 GeV storage ring facility (Taiwan Photon Source, TPS). A ground-breaking ceremony took place on 7 February 2010. The ceremony was hosted jointly by Premier Den-yih Wu, Minister Lou-Chuang Lee of the National Science Council, prior President Yuan-tseh Lee of Academia Sinica, and several other senior officials. This was a momentous occasion among domestic scientific and technological communities, and several distinguished scholars and experts also participated in this event to witness the great historical moment. NSRRC has been operating Asia's first third-generation synchrotron radiation facility, a 1.5 GeV 120 m-circumference storage ring with 25.6 nm rad emittance (Taiwan Light Source, TLS) since October 1993. The new storage ring will have a circumference of 518 m and will have an emittance of 1.6 nm rad, making it one of the most brightest synchrotron radiation sources. It will use a 24-cell DBA lattice and will have 24 straight sections for insertion devices, six of them 12 m-long and 18 of them 7 m-long. Like TLS, it will have its own full energy booster synchrotron so that top-up operation can be implemented soon after the start of the users operation, ensuring stability of beam and optics for high-quality users operation. The booster ring, with a circumference of 496.8 m, will be a combined-function magnets lattice structure with 10 nm rad emittance and will be located in the inner tunnel of the TPS storage ring. The total floor area of the TPS facility will amount to 53000 m^2. The construction of the building is expected to be completed in July 2012 when the installation and commissioning of accelerators will begin, with the users operation to start in 2014 following a year of commissioning which is expected to start in 2013. The ongoing operation of TLS will ensure that user operation and growth in its user community is not hindered by the construction project.

Both of these facilities will be co-located with clear possibilities of upgrade for TLS when TPS is in full operation. We note that very few high-performance storage ring facilities exist or are planned around the globe with targeted optimization for the softer region of the synchrotron radiation spectrum. The majority of the third-generation synchrotron radiation sources have either been optimized for X-ray operation (ESRF, SPring-8, APS, SLS *etc.*) or have been modified to attract X-ray work. ALS in Berkeley and TLS at NSRRC are good examples of this, where superbends and wavelength shifters were introduced to cater for X-ray use. The majority of the new investment has again been for the lower emittance X-ray sources such as DIAMOND in the UK, PETRA-III in Germany, Shanghai Light Source in China, NSLS I–II in the USA and TPS itself. These new investments reflect the demand and never-ending hunger for probing smaller samples with highest resolution and greatest accuracies. Once the TPS is operational, NSSRC thus has an opportunity to take a lead in making provision of a highly optimized source for softer radiation using TLS.

An aerial view of the 1.5 GeV TLS (ring on the left) and 3 GeV TPS (larger ring) at NSRRC. The TPS building will go around the current office/lab building of NSRRC.



Experimental end-station of BL13B at Taiwan Light Source.

Currently, TLS is operating 28 beamlines covering all areas of synchrotron science, including protein crystallography (PX). The PX, X-ray scattering and XAFS beamlines are located on superconducting multipole wigglers and wavelength shifters. Despite the low energy of the storage ring, the facility has been productive even for X-ray experiments. For example, the crystallography beamline BL13B, which is located on a superconducting 28-pole wiggler and is equipped with an ADSC Quantum-315 CCD detector, has made 100 PDB depositions in the last three years. It is clear from a short visit that the Taiwan synchrotron community has come of age and is clearly ready to take a lead in the synchrotron world, as is evident by the start of construction for the highly competitive 3 GeV source TPS.

Miliband urges greater role for science in diplomacy and highlights SESAME

The British Government's Foreign Secretary, David Miliband, called for a greater connection between the worlds of science and politics. He was speaking on 12 January 2010 at the UK's Royal Society where top scientists from across the world were gathered for the Inter-Academy Panel as part of the 350th anniversary celebrations of the Royal Society.

He said ''The Royal Society's history is closely interwoven with that of the British Government. Since its foundation, the Royal Society has advised successive Governments by demonstrating the value of experimental science and providing the best current scientific thought to leaders and policy makers everywhere. Indeed, it is not only in science where the Royal Society has offered leadership; they appointed their first Foreign Secretary, to manage relations with science academies around the world, some 60 years before the creation of the post I hold. There is little doubt that the UK is a country that takes science seriously. With just 1% of the world's population we author 8% of the world's scientific papers. From the discovery of the double helix to the invention of the world wide web, British science has been at the forefront of breakthroughs that affect the lives of everyone. We also take diplomacy seriously. With 261 diplomatic missions in more than 160 countries, our foreign service gives us insight and influence the world over. From our permanent seat at the United Nations Security Council, to our role in the Commonwealth or our membership of the EU, we are at the heart of a unique web of international networks and organizations. International relations is experiencing its own 'quantum' shift. The old world of foreign policy, relations between states, sometimes strained, sometimes cooperative, remains, in Europe, I am pleased to say it has become bound up in the largest experiment in shared sovereignty that has ever been tried, in the European Union. But in the new world of foreign policy, ungoverned spaces, the diplomatic equivalent of black holes, and non-state actors, the quarks of diplomacy are the biggest challenge and in some ways the biggest change makers.''

David Miliband.

He continued ''And in this new world, more than any other that has gone before, I believe that science has a vital role to play in international relations and diplomacy, and, equally, that diplomacy can assist scientific progress. Science can help us answer some of the foreign policy challenges we face. First, scientific progress can achieve breakthroughs that diplomacy cannot match. The development of commercially viable carbon capture and storage mechanisms or advances in the technology for low-carbon vehicles can have a major impact on our ability to forge the green revolution we need to avoid climate change. Genetic improvement of crop plants could rescue many millions from the endless cycle of poverty, hunger and violence that infects so much of our world. And in areas such as cyber-security, bio-defence or early warning systems for natural disasters, it is science that holds the key to our future security. Second, science can help forge consensus where there is political division. As Thomas Paine once said, 'an army of principles can penetrate where an army of soldiers cannot'. During the Cold War, technologies to verify arms control agreements were a rare focus for joint working between the USA and USSR. In Europe, CERN helped rebuild links between nations, establishing the first post-war contacts between German and Israeli scientists and keeping open relations between Western and Eastern Europe.'' He said ''Science can and should be used to break down barriers of the 21st century, particularly those between the Western and Muslim-majority countries. Projects like the new synchrotron light source (SESAME) in Jordan are leading the way, bringing together scientists from Bahrain, Cyprus, Egypt, Israel, Iran, Jordan, the Palestinian Authority, Turkey and Pakistan to build a bright light source for cutting-edge experiments in materials science and biology.''

The SESAME building.

He added ''Just as science can support diplomacy, so too must diplomacy support science. The most ambitious game-changing scientific innovations increasingly require collaboration across disciplinary and territorial borders. Politics and science need to come closer together, not for politics to smother science, but instead to be informed by its potential. The scientific world is becoming interdisciplinary. But the biggest interdisciplinary leap we need is across the boundaries of politics and science. We need you. On resource conflicts, global inequality, nuclear security and counter terrorism, science is our ally. I hope this anniversary opens eyes not just to how far science has come, but what we can do together in the future.''

Japanese synchrotron labs come unscathed in the final budget

The Government of the Democratic Party of Japan have approved a record 92.3 trillion yen (1 trillion USD) budget for fiscal 2010, meeting a self-imposed target to resolve the issue before the end of the year. ''I would like to call it 'the budget to protect people's lives' '', said Prime Minister Yukio Hatoyama at a news conference in Tokyo, adding that while all promises outlined in its manifesto were not met, his party had done its best. The budget had good news for the Japanese scientific community, who had spent the last few weeks lobbying against the major cuts in public science funding as proposed by a task force set up by the new Government [*J. Synchrotron Rad.* (2010), **17**, 127–128].

The Democratic Party took power last August when it announced that it would rewrite the rules for preparing budgets, starting with the budget for fiscal 2010 proposed by the long-term-ruling Liberal Democratic Party, causing complete chaos in what has been a very stable system of long-term planning and funding of the projects. In November 2009, the Government's task force recommended freezing spending on the supercomputer pending a review, slashing funding for SPring-8 by one- to two-thirds and reducing funding for KEK as well as for the Photon Factory.

The budget announced by the Cabinet on 25 December 2009 revealed only minor changes in science and technology priorities. SPring-8 came out almost unscathed with a near 2% reduction in its budget with some USD 95 million (JPY 8.49 billion, JPY 170 million down from the previous year) for its operation in 2010–2011. The USD 1.3 billion project which the revitalization unit had recommended to shelf received USD 230 million instead of the previous administration's planning figure of USD 290 million. Those closely involved were relieved with the outcome and were making efforts that this short-term reduction does not cause a serious delay in this iconic project.

Atsuto Suzuki, the Director General of KEK, who along with the RIKEN President, Ryoji Noyori, and a number of Nobel Laureates has openly been making efforts to ensure that cuts proposed are not implemented by the Cabinet, posted a New Year's message to KEK staff, users and its wider community. He reminded everyone that despite the positive outcome of this campaign, it is important that we remain vigilant for the future and be more effective in communicating with the general public as to why we do this type of basic research. He said "I was afraid that our holding press conferences and campaigns against the budget cut might have looked a bit too much like 'we are hitting back, since we were hit badly'. Rather, should we not better explain why we are not the ones to be hit this way? We still need to improve our ways in explaining what KEK is for, what KEK is at present, what KEK has done and how KEK has contributed to society. This is really a critical key for the future of KEK. Improving public relations, better organizing the database on our activities and making it open to the public, transferring the technologies we have developed to society are obvious things to do. 'Black Fall' or 'Black Hole' of 2010 gave us a difficulty, but it was also an opportunity that reminded me of one thing that we should always remember. Talk to the general public of our work in a humble and understandable language. They will learn what sort of scientific issues we have been, are, and will be working on. And we should also learn how our research is connected, sometimes in a direct fashion, sometimes in a more abstract fashion, to the lives of the general public. We have to remember that they are the primary beneficiaries of the efforts we make, and they are the ones who would ultimately support such efforts."