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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.hasnain@dl.ac.uk).

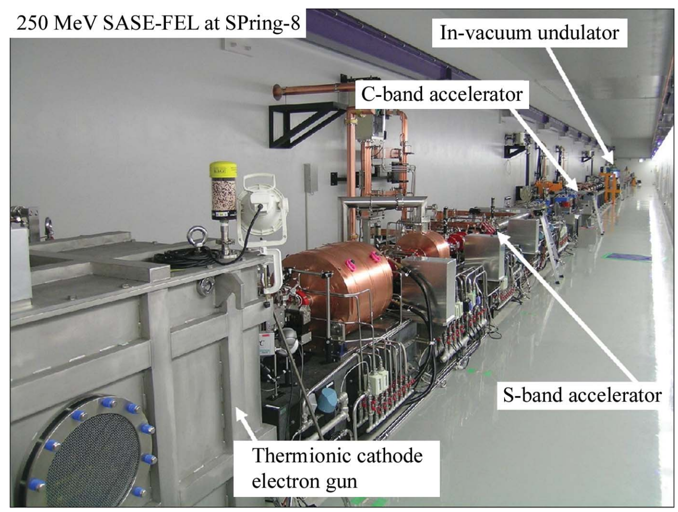
XFEL project in Japan achieves major milestone

On 20 June 2006 the RIKEN-JASRI Joint Project Team for the SPring-8 XFEL succeeded in generating laser pulses at 49 nm VUV light at the prototype 250 MeV SCSS (SPring-8 Compact SASE Source). This news could not have come at a better time as only recently the Japanese Ministry of Education, Science and Technology had announced the five-year funding plan starting from April 2006 for the construction of the 8 GeV XFEL at the SPring-8 site. The funding has been provided to RIKEN, now the main sponsor of JASRI which operates SPring-8. The 800 m-long 8 GeV XFEL will be constructed next to the 1 km SPring-8 beamline in the south of the Harima campus. The RIKEN XFEL is due for completion and will provide lasing at wavelengths as short as 0.06 nm.

The construction of a 60 m-long prototype accelerator started at the beginning of 2005 as a proof-of-the-principle experiment [see *J. Synchrotron Rad.* (2005). **12**, 543–544]. In order to achieve lasing with a high peak power in the short VUV wavelength region within such a short accelerating distance, an accelerator with a high acceleration efficiency is required. For this reason the C-band (*i.e.* working at 5712 MHz) accelerator proposed by T. Shintake in 1992 was chosen, working at a frequency of twice that of the microwave traditionally used for acceleration, and having a high energy acceleration efficiency (30 MeV m^{-1}).

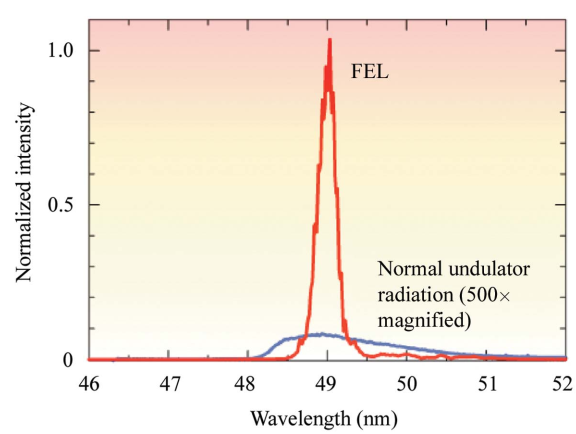
The construction of a prototype SCSS machine was completed in March 2006. It is composed of several challenging critical devices including a newly developed single-crystal CeB_6 thermionic cathode injector, C-band accelerators, and short-period in-vacuum undulators.

One of the most challenging aspects was the use of the thermionic cathode, which is based on single crystals of CeB_6, to generate an ultra-low-emittance beam. The emittance of the electron beam generated by the thermionic cathode electron gun reached a world record of 1.1π mm mrad. One starts from a relatively lower beam current of 1 A from a 500 kV DC electron gun. The bunch length is then compressed more than a few 100 times to generate a few hundred ampere beam without losing the emittance in the injector. Through careful use of RF cavities and magnetic lenses, velocity bunching is performed in the injector system of the prototype accelerator, achieving a beam emittance of 2.9π mm mrad normalized with a 0.25 nC bunch charge and 1 ps length at 50 MeV. After four C-band accelerators the beam energy reached an energy of 250 MeV. The lasing capability of the prototype accelerator was demonstrated when the electron beam was injected into the in-vacuum undulator. A narrow intense spectrum peaking at 49 nm was observed, which was totally different from the natural undulator radiation (spontaneous mode, measured FEL spectrum). The peak intensity showed an exponential increase against the bunch current, clear evidence of light amplification. The lasing wavelength of 49 nm is the second shortest in the world, following the 13 nm observed at DESY's 300 m-long VUV-FEL facility in April 2006. For more details, visit the SCSS web site, http://www-xfel.spring8.or.jp/ [see *J. Synchrotron Rad.* (2006). **13**, 289–290].



A view down the SCSS tunnel.

The Joint-Project Team on the day that lasing at 49 nm was achieved.



The narrow intense spectrum peaking at 49 nm.

Australian synchrotron achieves first light

Construction on the Australian Synchrotron project reached a major milestone when it achieved 'first light' from a 3 GeV [see *J. Synchrotron Rad.* (2005). **12**, 254–255] stored beam. The project received a further boost when Minister Brumby announced that the funding commitments for the initial nine beamlines had reached $50M following announcements by a New South Wales-led consortium and a South Australian/La Trobe University consortium that they were becoming partners in the Australian Synchrotron project. He said, "Today's funding announcements completes the Australian Synchrotron partnership, exceeds the original $45M target and demonstrates the project is a truly national project. This project has forged the first ever national partnership to fund science infrastructure and, once operational, will play a major role in serving the needs of researchers across the nation." Mr Brumby said that first light was a key milestone in delivering the intense light Australian scientists need for leading-edge research. User operation of the Australian Synchrotron is expected to commence in 2007.

Members of the SESAME Council and UNESCO delegates at SOLEIL.

SESAME Council and UNESCO delegates visit SOLEIL

The SESAME Council and a number of permanent delegates of UNESCO visited SOLEIL on 11 July 2006. The visit was planned as part of the 8th SESAME Council Meeting held at the UNESCO headquarters in Paris. On this occasion the Director General of SESAME, H. E. Khaled Toukon, who is also the Minister of Higher Education and Science, presented a small token of appreciation to Dr Denis Raoux, Director General of SOLEIL, for hosting the visit. The delegation was able to hear at first hand about the progress made recently with commissioning of SOLEIL [see *J. Synchrotron Rad.* (2006). **13**, 347–348].

Dr Denis Raoux is flanked by Professor Herwig Schopper, the President of the SESAME Council, and H. E. Khaled Toukon.