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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).

Murray Gibson leaves APS for academic career

In our last issue we reported that Murray Gibson, Director of the Advanced Photon Source (APS) for nine years, had received formal approval from the DOE for the conceptual design of the APS upgrade. Having secured this milestone, Murray Gibson has decided to leave the settings of the national laboratory for the challenges of the academic sector by taking up the newly created position of Dean of Sciences at Northeastern University in Boston from 1 October 2010. Argonne National Laboratory Director, Eric Isaacs, said 'With mixed feelings I announce that Murray Gibson will be leaving Argonne, effective 1 October 2010, to accept a newly created position as Dean of Sciences at Northeastern University in Boston.' He added "Part of me is delighted that Murray will have this great opportunity to shape and grow the university's already excellent science programs, but I also know how much Argonne will miss him and his leadership." Murray Gibson had become the APS Director in 2001 having spent a couple of years as Director of Material Science Division at Argonne. We also take this opportunity to acknowledge Murray's contribution to the synchrotron radiation world and wish him success in his new career.

A search committee has been set up under the chairmanship of Brian Stephenson, a senior physicist from Argonne Material Science Division.

Construction of the tunnel for the European XFEL starts

Following the traditional tunnel and borer christening celebration attended by more than 500 guests at the building site in Schenefeld (Pinneberg district, Schleswig-Holstein), the first of the two tunnel-boring machines TULA (TUnnel for LAser), 6.17 m in diameter, 71 m long, weighing 550 tonnes and costing EUR 18 million, started boring on 7 July 2010 in the direction of DESY-Bahrenfeld (Hamburg), where it will arrive in summer 2011.

The new X-ray laser research facility is 3.4 km long and is located in the German federal states of Hamburg and Schleswig-Holstein. Its tunnel system comprises a 2.1 km-long section for the electron accelerator and a 'fan' of five tunnel sections in which the X-ray flashes used for research will be generated. These tunnels end in an underground experiment hall. In total, 5777 m of tunnel will be constructed in the next two years using two boring machines, the larger of which now starts excavating the tunnel sections underneath the city of Hamburg. The tunnels of the European XFEL are located so deep that they run into ground water. They are excavated directly underground using large tunnel-boring machines. This well proven method is used throughout the world for the construction of road and railway tunnels. The tunnels of the European X-ray laser have different diameters. Whereas the inner diameter of the accelerator tunnel is 5.30 m, most of the sections of the tunnel fan have an inner diameter of 4.60 m. They will therefore be constructed in sections by two tunnel-boring machines of different size. The tunnel celebration marked the start of the boring with the larger machine. The smaller one will begin boring at the end of this year.

TULA in its launch shaft on its christening celebration.

The European XFEL will be located mainly in underground tunnels, which can be accessed on three different sites. The 3.4 km-long facility will run from DESY in Hamburg to the town of Schenefeld (Schleswig-Holstein). The Schenefeld site will host the research campus on which international teams of scientists will carry out experiments with the X-ray flashes. The construction costs of the facility, which include the commissioning, amount to EUR 1082 million (price levels of 2005). As the host country, Germany (the federal government, Hamburg and Schleswig-Holstein) covers 54% of these costs, *i.e.* almost EUR 600 million. The two federal states of Hamburg and Schleswig-Holstein contribute a total of EUR 90 million to Germany's share of the costs for the X-ray laser facility. Russia bears 23%, *i.e.* almost EUR 250 million, and the other international partners between 1 and 3.5%. At present, 12 countries are participating in the project (Denmark, France, Germany, Greece, Hungary, Italy, Poland, Russia, Slovakia, Spain, Sweden and Switzerland). China is also planning to join in.

To construct and operate the European XFEL, international partners agreed on the foundation of an independent research organization, a non-profit limited liability company under German law named the European XFEL GmbH. The company will have a workforce of about 300 people. Commissioning of E-XFEL is expected to begin in 2014. After its completion, DESY will take over the operation of the accelerator on behalf of the European XFEL GmbH.

Dedication of the Linac Coherent Light Source

On 16 August the dedication ceremony of the Linac Coherent Light Source took place. This has come as the first of the scientific results have been appearing in the prominent scientific journals. In a report published in the July issue of *Nature* [(2010), *Nature (London)*, **466**, 56–61], a team led by Linda Young from Argonne described how they were able to tune LCLS pulses to selectively strip electrons, one by one, from atoms of neon gas. By varying the photon energies of the pulses they could do this from the outside in or, a more difficult task, from the inside out, creating so-called 'hollow atoms'. Young, who led the first experiments in October last year with collaborators from

SLAC and five other institutions, said 'No one has ever had access to X-rays of this intensity, so the way in which ultra-intense X-rays interact with matter was completely unknown. It was important to establish these basic interaction mechanisms.'

'Until very recently, few believed that a free-electron X-ray laser was even possible in principle, let alone capable of being used with this precision,' said William Brinkman, Director of DOE's Office of Science, 'That is what makes these results so exciting.'

In another report [*Phys. Rev. Lett.* (2010), **104**, 253002], a team led by physicist Nora Berrah of Western Michigan University, the third group to conduct experiments at the LCLS, described the first experiments on molecules. Her group also created hollow atoms, in this case within molecules of nitrogen gas, and found surprising differences in the way short and long laser pulses of exactly the same energies stripped and damaged the nitrogen molecules. 'We just introduced molecules into the chamber and looked at what was coming out there, and we found surprising new science,' said Matthias Hoener, a postdoctoral researcher in Berrah's group at Western Michigan University and visiting scientist at Lawrence Berkeley National Laboratory who was first author of the paper. 'Now we know that by reducing the pulse length the interaction with the molecule becomes less violent.'