

First neutrons created at the ISIS Second Target Station

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The UK's ISIS Second Target Station Project moved a major step closer to completion today when the first neutrons were created in the ISIS Second Target Station. After five years of planning and construction, the first neutrons were detected by the Inter instrument at 1308 BST. ISIS, the world-renowned neutron facility at the Rutherford Appleton Laboratory in Oxfordshire, is operated by the Science and Technology Facilities Council.

ISIS, a world leading centre for research in the physical and life sciences, uses neutrons to study materials at the atomic level with a suite of instruments, often described as 'super-microscopes'. By scattering neutrons off sample materials, scientists can visualise the positions and motions of atoms and make discoveries that have the potential to affect almost every aspect of our lives.

"The first neutrons met all of our technical performance predictions and creating them is a significant milestone in the life of the facility and in the completion of the project," said Dr Andrew Taylor, Director of ISIS. "The ISIS Second Target Station builds on the success and expertise we have developed over the past 20 years at ISIS and allows us to move further into the areas of soft matter, advanced materials and bioscience. We will be carrying out fundamental research that will shape the technological advances of tomorrow."

"This is an incredible technical achievement by our staff and demonstrates how everyone can pull together and enable STFC to deliver

massive science projects that underpin the long-term future of science and innovation in the UK," said Mr Peter Warry, Chairman of the Science and Technology Facilities Council.

"I'm very proud of every single person who has played a part in getting the ISIS Second Target Station project through to this very important milestone."

The £145 million Second Target Station Project began construction in 2003. It will double the capacity and substantially increase the capability of the facilities already available at ISIS, which serves an international community of over 2,000 scientists.

Neutrons play a vital role in the portfolio of analysis techniques for research on subjects as varied as clean energy and the environment, pharmaceuticals and health care, through to nanotechnology, materials engineering and IT.

"This is tremendous news for the science community, both in the UK and much further afield," said Professor Andrew Harrison, UK Director at the Institut Laue Langevin, Grenoble, France.

"The ISIS Second Target Station will open research into new types of materials that has not been previously possible at ISIS, and we look forward to a world of new science flowing from the new instrument suite."

Ian Anderson, Associate Director for Neutron Sciences at Oak Ridge National Laboratory, USA also added his congratulations.

"This is a remarkable achievement by the ISIS team and adds an exciting new dimension to the capabilities of the European neutron scattering toolkit," he said.

"ISIS is the world's leading spallation neutron facility and has performed world class outstanding science," said Professor Masatoshi Arai, Neutron Science Section Leader of the J-PARC accelerator project, Japan.

"Adding the second target station is the next great step for ISIS to enhance the ability and extend the reputation of neutron sciences world wide.

"Together with the great scientific environment at ISIS, the skilful design and the mature know-how in neutron technology applied on the second target station will open up unexplored areas for pulsed cold neutron experiments. ISIS can stay as the world-leader even as more powerful spallation neutron sources, such as J-PARC and the US Spallation Neutron Source come online."

Neutrons are produced at ISIS when bunches of protons travelling at 84% of the speed of light are transferred from the circular ISIS synchrotron accelerator and fired into a tungsten target inside the new target station. This creates billions of neutrons per second that can be used for experiments in seven new instruments.

Source: Science and Technology Facilities Council

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