

Massive vacuum vessel arrives for world-leading neutron source

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A massive vacuum vessel for the new scientific instrument Merlin is being delivered to the ISIS Neutron Source at the CCLRC Rutherford Appleton Laboratory in Oxfordshire on Thursday 12 January.

The vacuum vessel is the main component within the £4.3M project which will be the best of its kind in the world. The Merlin instrument is the size of a house and uses sub-atomic particles called neutrons to study how the solids and liquids in the world around us work at a microscopic level.

“We can use neutrons to tell us where atoms are and how they move. Merlin tells us how they move, and will do it more quickly and will give more information than any other instrument of its kind in the world,” says Steve Bennington, ISIS scientist and team leader for the project.

Merlin will be used by scientists from the UK and around the world, for dozens of experiments each year, looking at a wide range of different topics, including:

- Small magnetic molecules that are being investigated for use in quantum computers. These are the next generation of computers that will take over when silicon technology in common use today has been developed to its limit.
- New materials for use in fuel cells and batteries and to store hydrogen as non-polluting energy sources to replace fossil fuels.

-- Pure physics, pushing back the frontiers of science.

“The arrival of the vacuum vessel is a major landmark in a five year project that has taken the efforts of some 40 scientists and engineers,” says project engineer James Treadgold. “It incorporates cutting edge engineering design to give a significant leap forward in the design of neutron science instruments.”

ISIS, the world’s leading pulsed neutron source, is located at CCLRC Rutherford Appleton Laboratory in Oxfordshire. ISIS supports an international community of around 1600 scientists, who use neutrons for research in physics, chemistry, biology, materials science, geology and engineering. A £140 million expansion of ISIS through the building of a Second Target Station is scheduled for completion in 2008. ISIS celebrated 20 years of world-leading science on December 16th 2004.

Link: www.isis.rl.ac.uk/

Source: CCLRC

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