



Rutherford Appleton Laboratory



Aerial view of the Harwell Campus



RAL antenna at dusk

The Rutherford Appleton Laboratory (RAL) has a global reputation for excellence.

Operated by STFC and located on the Harwell Science and Innovation Campus in Oxfordshire, it provides a thriving and collaborative environment for research in:

- particle physics
- space science
- materials
- astronomy
- photon science
- computational and e-science
- biology
- biomedicine
- chemistry

Approximately 1,200 staff at RAL support the work of more than 10,000 scientists and engineers, chiefly from the university research community. RAL's pioneering research in areas such as energy, security, healthcare and the environment addresses important challenges facing society.

Novel ways are being developed to store hydrogen for energy by studying the microstructure of materials, for example, and cell

biology research is furthering our understanding of diseases like cancer.

Attracting young people into science, technology, engineering and mathematics (STEM) is vital for the future of the UK economy. RAL's diverse training schemes provide important skills – from engineering apprenticeships and summer student placements to graduate training schemes.

An exciting public engagement programme also offers activities and lectures for public and school audiences.

RAL, and the wider Harwell Science and Innovation Campus host some of the UK's major scientific facilities including:

- Central Laser Facility (CLF) –one of the world's leading laser facilities, its high power lasers can recreate the conditions inside stars while its small, compact lasers have medical, security and environmental applications
- ISIS pulsed neutron and muon source – a pioneering research centre in the physical and life sciences, ISIS has an impact in fields such as energy, biotechnology, materials development and information technology. ISIS is helping aerospace companies assure the quality of engineering

The Science and Technology Facilities Council

components, and medical researchers develop a glass that could replace bone transplants

- Space test facilities – RAL Space, STFC's Space Science and Technology Department, is involved in more than 180 international space missions including Herschel, the largest space telescope ever launched, which is examining the early stages of star birth and galaxy formation

- Diamond Light Source Ltd – the UK national synchrotron radiation facility, Diamond generates brilliant beams of light from infrared to X-rays with applications ranging from research into diseases such as Alzheimer's and finding new ways to clean up contaminated land

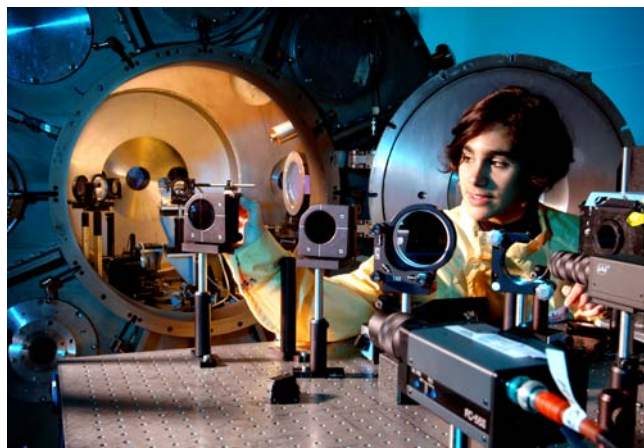
- The International Space Innovation Centre (ISIC), led by STFC, will focus on delivering many of the objectives of the UK Space Agency. The ISIC will provide an end-to-end satellite control and data exploitation and visualisation facility where businesses, universities, the government and space-related organisations can work together with wider UK science and engineering communities. It will become the centre of a major cluster of space activities in the UK.

RAL also hosts a range of services and smaller facilities. These include the Energy Research Unit, which focuses on new and renewable energy sources, and the British Atmospheric Data Centre (BADC). Funded by the National Environment Research Council, the BADC supplies data from the Met Office and the International Panel on Climate Change.

RAL co-ordinates the UK's particle physics programme and participates in high energy physics experiments around the world, including the Large Hadron Collider (LHC) at CERN, Switzerland.

The LHC will improve our understanding of the origins of the Universe by recreating conditions moments after the Big Bang. RAL's e-scientists are helping to process and store data generated by the LHC using RAL's cutting-edge computing facilities and technology.

The European Space Agency's new UK centre on the Harwell Campus will increase collaborative opportunities for RAL's space research and technology. A new multidisciplinary research complex will promote innovation by supporting scientists using ISIS, Diamond Light Source and the CLF.



A student working on optical alignment in Target Area West of Vulcan laser

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