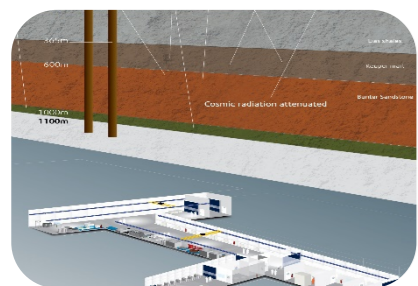
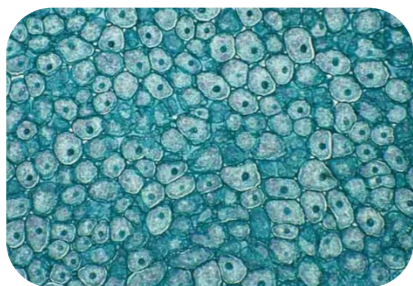


## UK RESEARCH AND INNOVATION

- National funding agency for science and research in the UK.
- Consolidation of the 7 Research Councils, Innovate UK and Research England into one overarching brand.
- Currently directly funding 58,000 researchers, including over 20,000 students.
- Combined budget of over £7 billion.



STFC Boulby Underground Laboratory



MRC £20 million coronavirus "rapid response"



University of Bath AI CDT



The University of Bath Institute for Advanced Automotive Propulsion Systems (IAAPS)



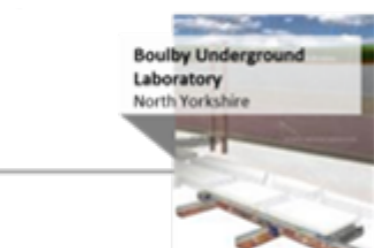
UK Research and Innovation



NERC polar research ship, RRS Sir David Attenborough

## SCIENCE AND TECHNOLOGY FACILITIES COUNCIL

- 6 UK sites, over 2000 employees.
- STFC-supported teams in EHT project.
- 2018-19 expenditure:
  - £518m – Infrastructure
  - £99m – Ideas
  - £30m Business Environment
  - £28m - People
  - £13m - International



## RUTHERFORD APPLETON LABORATORY

- 1 of 200+ organisations situated on the 700 acre Harwell Campus, with major facilities including:
  - ISIS Neutron & Muon Source
  - Central Laser Facility
  - Diamond Light
  - RAL Space



## ISIS NEUTRON & MUON: MANTID

- ISIS spallation neutron source, operational for 36 years.
- Recently doubled in size through £145 million government funding.
- Publishes ~500 research papers every year and ~12,000 in its lifetime.
- Two target stations house 33 different neutron and muon instruments.
- In popular culture, S1E14 of British science fiction television series 'The Sparticle Mystery' was filmed on site.
- The Mantid project provides a high-performance computing and visualisation framework.
- Created to manipulate and analyse neutron scattering & muon spectroscopy data, but could be applied to many other techniques.

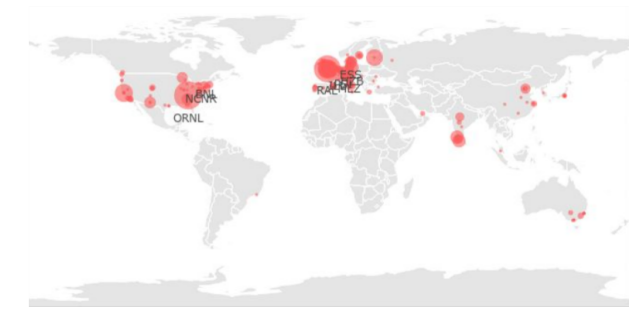
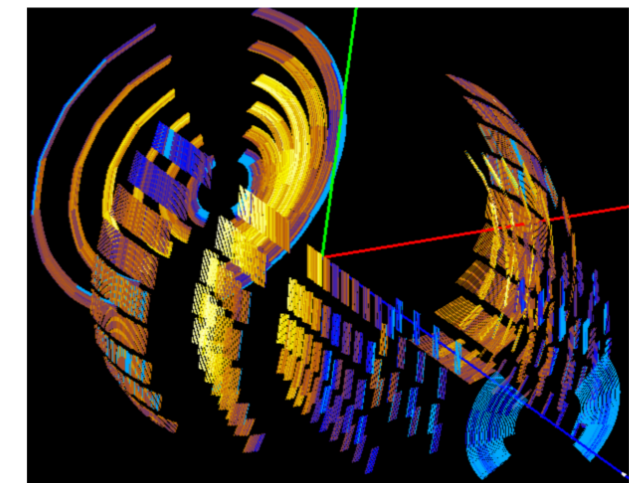


**ChipIR** Testing the effects of cosmic radiation on electronics

ChipIR looks at how microchips respond to cosmic neutron radiation. Cosmic neutron radiation can change the normal operation of electronic systems, affecting the reliability of aircraft and other critical systems, with problems ranging from altering a device's memory to damaging the electronics.

1. High energy neutron strikes microchip
2. If the microchip contains a silicon substrate, it can liberate a number of charged particles known as secondary charged particles and alpha particles (helium nuclei).
3. These particles can alter the electronic charge within the region they pass through, causing operational problems.

The new neutron beam line at ISIS dramatically speeds up electronics testing with a measurement of just one hour being equivalent to exposing microchips to high-energy neutrons over hundreds of years of flying time in an aircraft. This will lead to safer, more reliable electronic systems in the future.



## MY PROJECTS

- Numerous code improvements including workspace grouping, algorithm refactoring, removal of boost library shared pointer, unit testing and PR reviews.
- Multiple bug fixes, i.e. disallow multiple instances of interfaces, file extension batch crash, Muon Analysis GUI pick tab.
- Live data update interval and options dialog, extended instrument geometry investigation.



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