



Atlas Welcome !

13th November 2014

Andrew Taylor

Director, National Laboratories



Science & Technology
Facilities Council

50 Years of Computing at RAL





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Facilities Council

Welcome to RAL !





Science & Technology
Facilities Council

Welcome to STFC!



HM Government &



Arts & Humanities
Research Council



Science & Technology
Facilities Council



Science & Technology Facilities Council

One of Europe's largest multidisciplinary research organisations

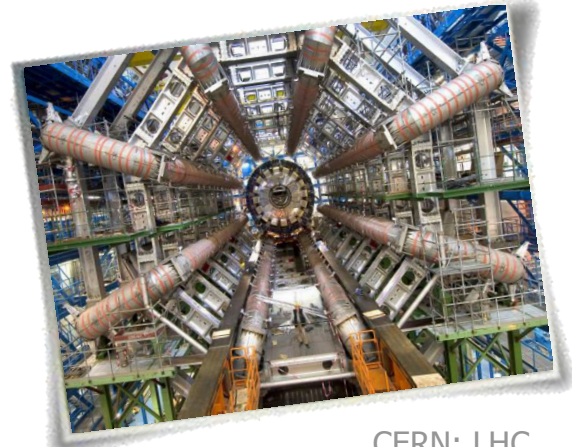
- **Support** University based research and skills in astronomy, particle and nuclear physics
- **Build** national Science and Innovation Campuses around our national laboratories to promote academic and industrial collaboration;
- **Provide** access to world leading large scale research facilities for UK researchers and industry.



RAL: ISIS & Diamond; DL ASTeC & CSE; ATC



James Clerk Maxwell Telescope
Hawaii



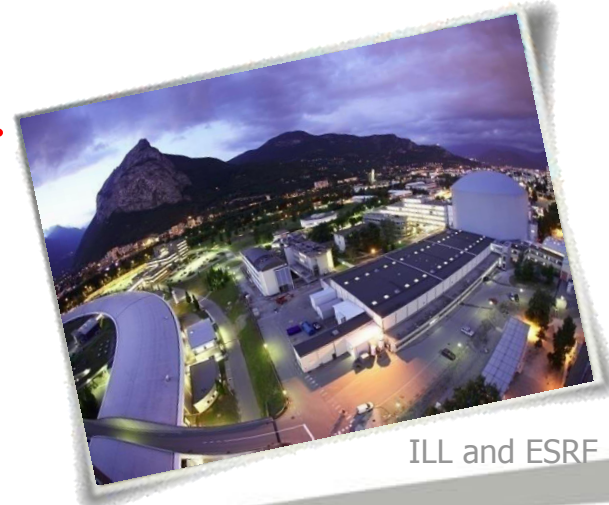
CERN: LHC



ESA: Top Sat



ESO: Alma Array



ILL and ESRF



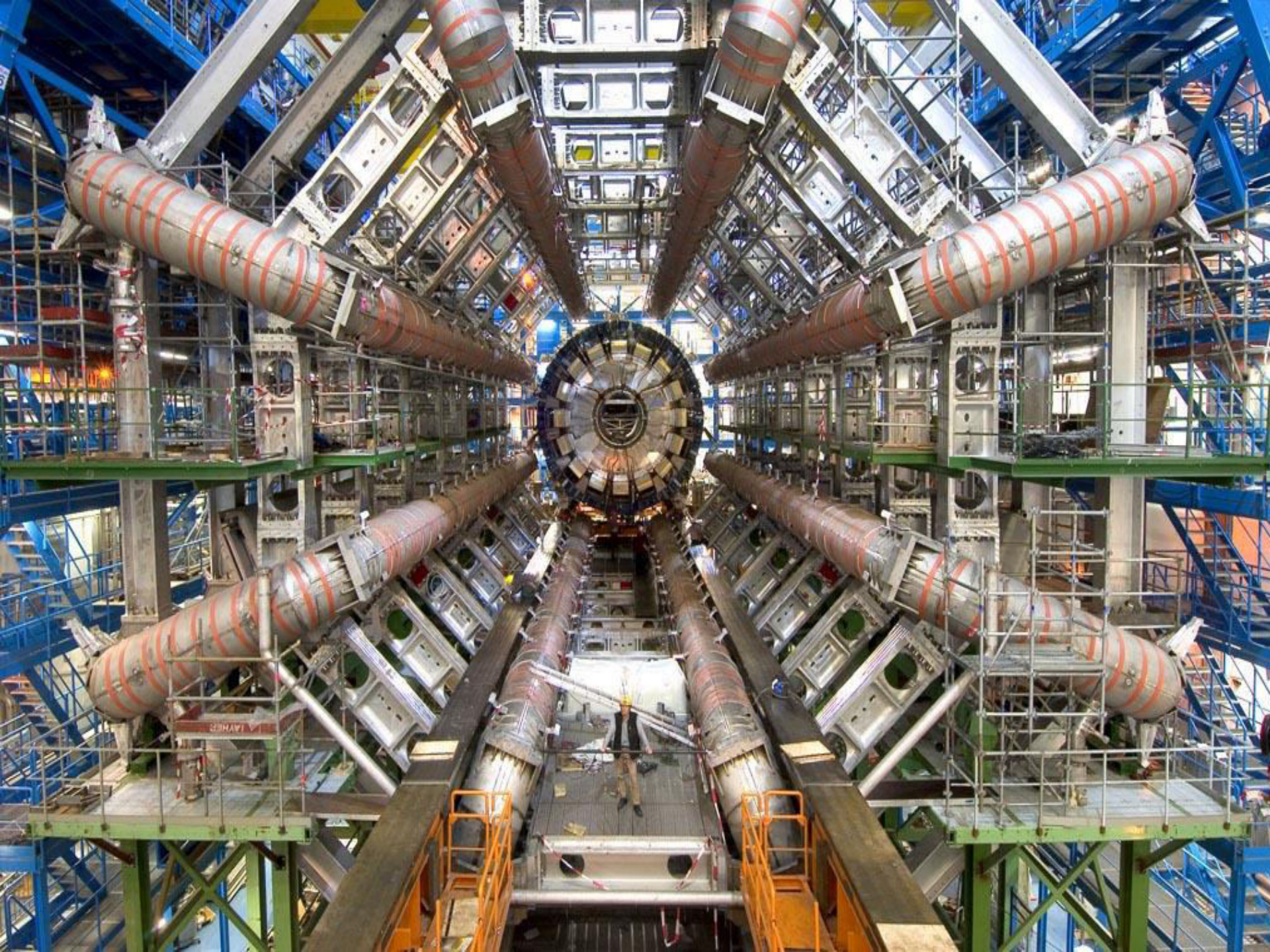
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Portal to CERN





ATLAS EXPERIMENT

<http://atlas.ch>

Run: 203602

Event: 82614360

Date: 2012-05-18

Time: 20:28:11 CEST

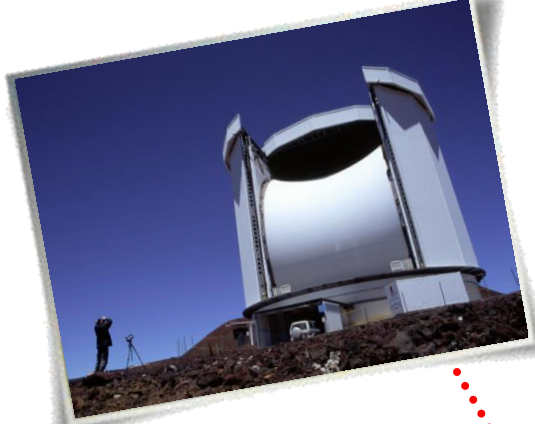


“The achingly glamorous world of big science”

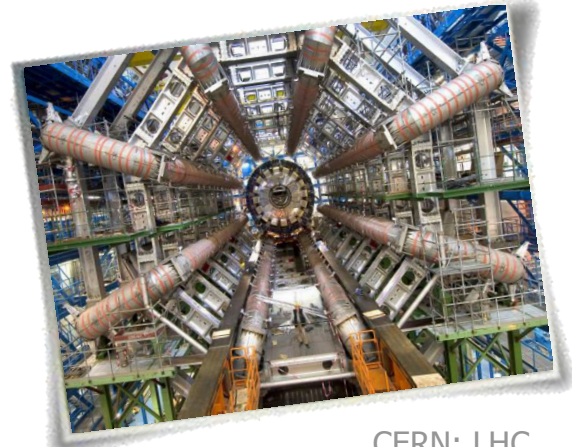


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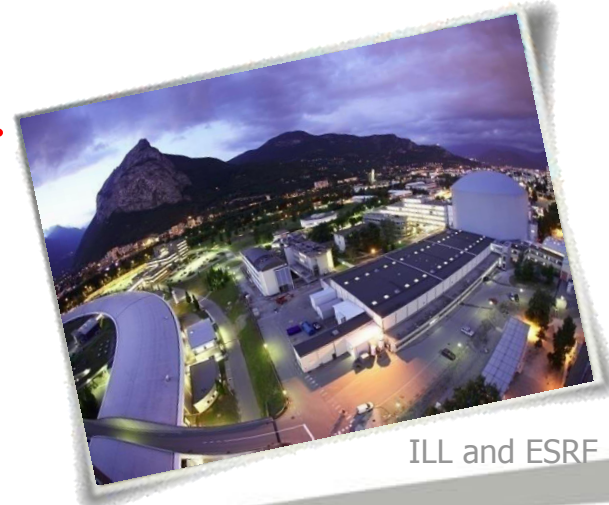
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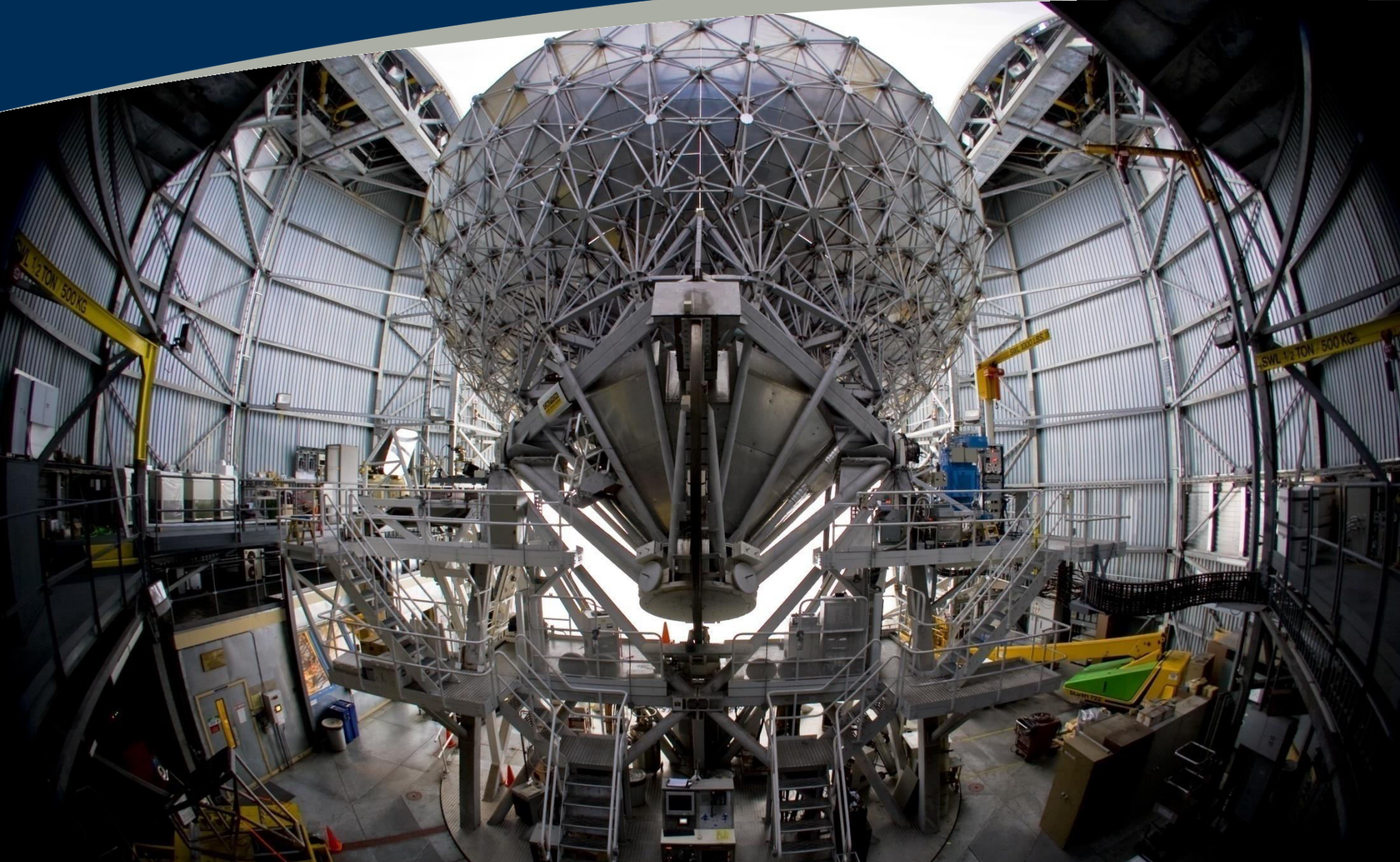
ESO: Alma Array



ILL and ESRF



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JCMT : SCUBA-2

RAL: ISIS & Diamond; DL
Hartree & ASTeC; UKATC



JCMT Telescope



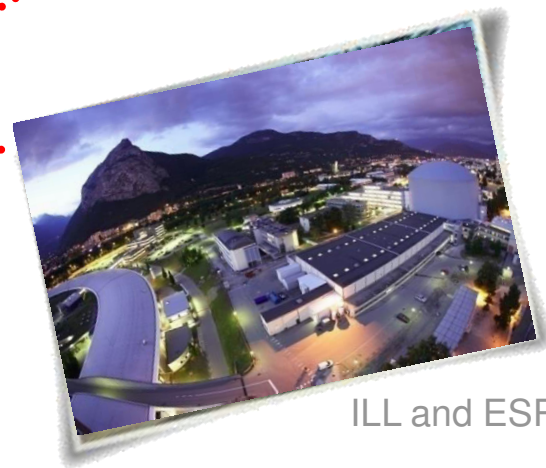
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ILL and ESRF

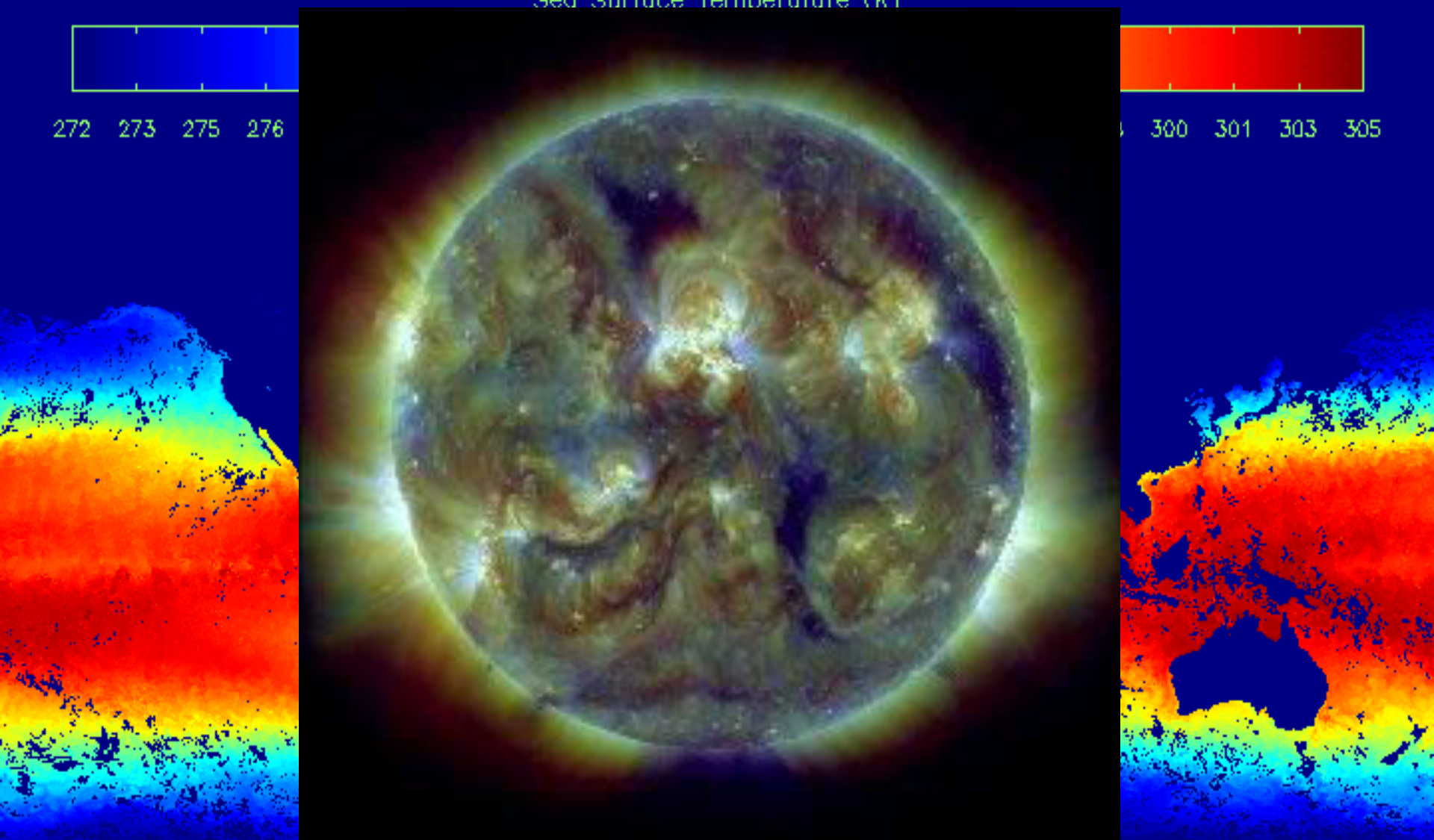
Sea Surface Temperature (K)



272 273 275 276



300 301 303 305

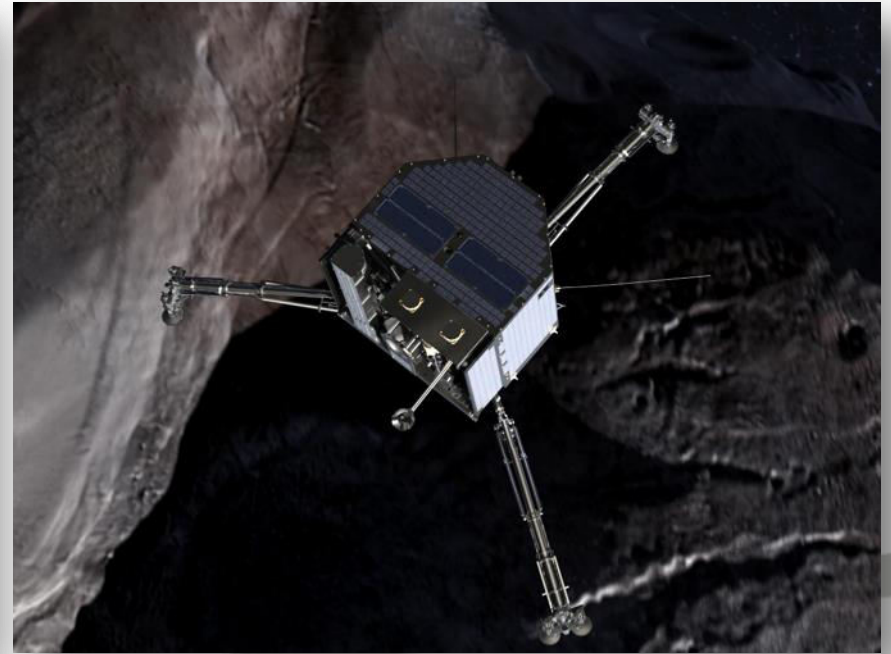


2000/03

Rosetta reaches Comet 67P/Churyumov-Gerasimenko

Launched in March 2004; arrived Aug 2014 after 10-year, 6 billion mile journey
RAL Space led development of the lander primary payload with OU and SSTL

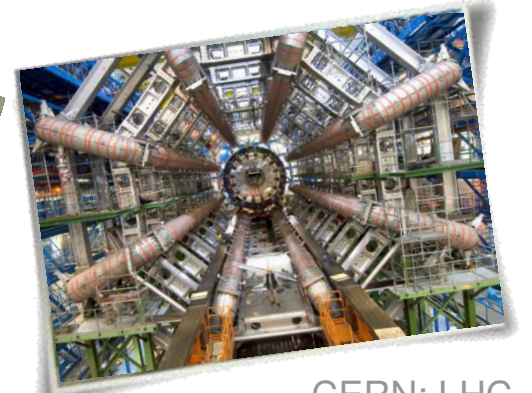
Landed ! 12th November



RAL: ISIS & Diamond; DL
Hartree & ASTeC; UKATC



JCMT Telescope



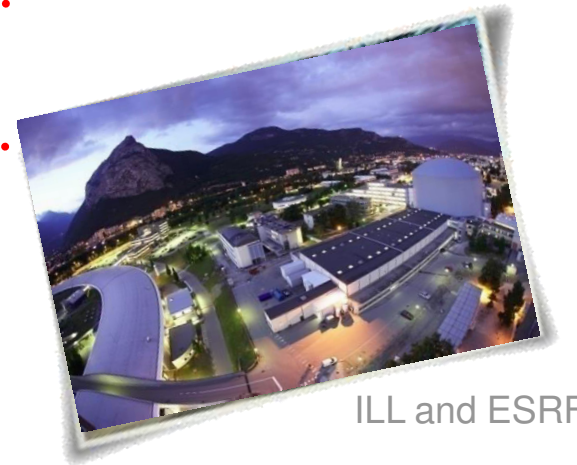
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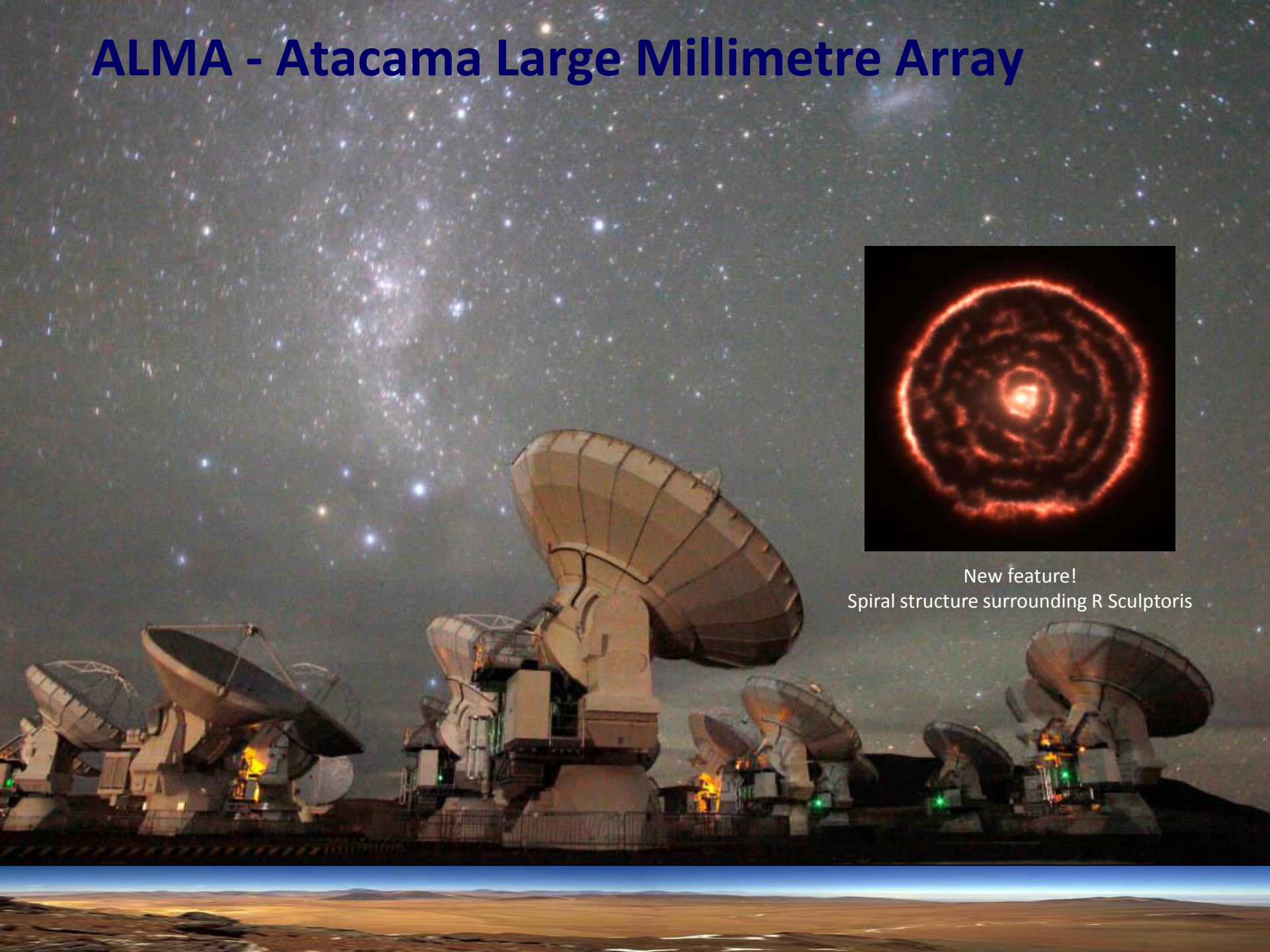
ILL and ESRF

ALMA observatory in the Atacama desert in Chile

70 completed plus 1 spare!



ALMA - Atacama Large Millimetre Array



New feature!
Spiral structure surrounding R Sculptoris

Major Science Facilities



Big Science

Particle Physics

- exploring the very small

Space Science

- exploring the very large



Small Science

*Understanding the world
around us at a molecular level*

Neutron & Light Sources

- ISIS, Diamond & Lasers



Diamond Light Source

- The largest scientific instrument built in the UK in 40 years.
- Phase II and Phase III beamlines under construction
- **Future UK-FEL: future data challenges**



Cobalt Light Systems Major Contract

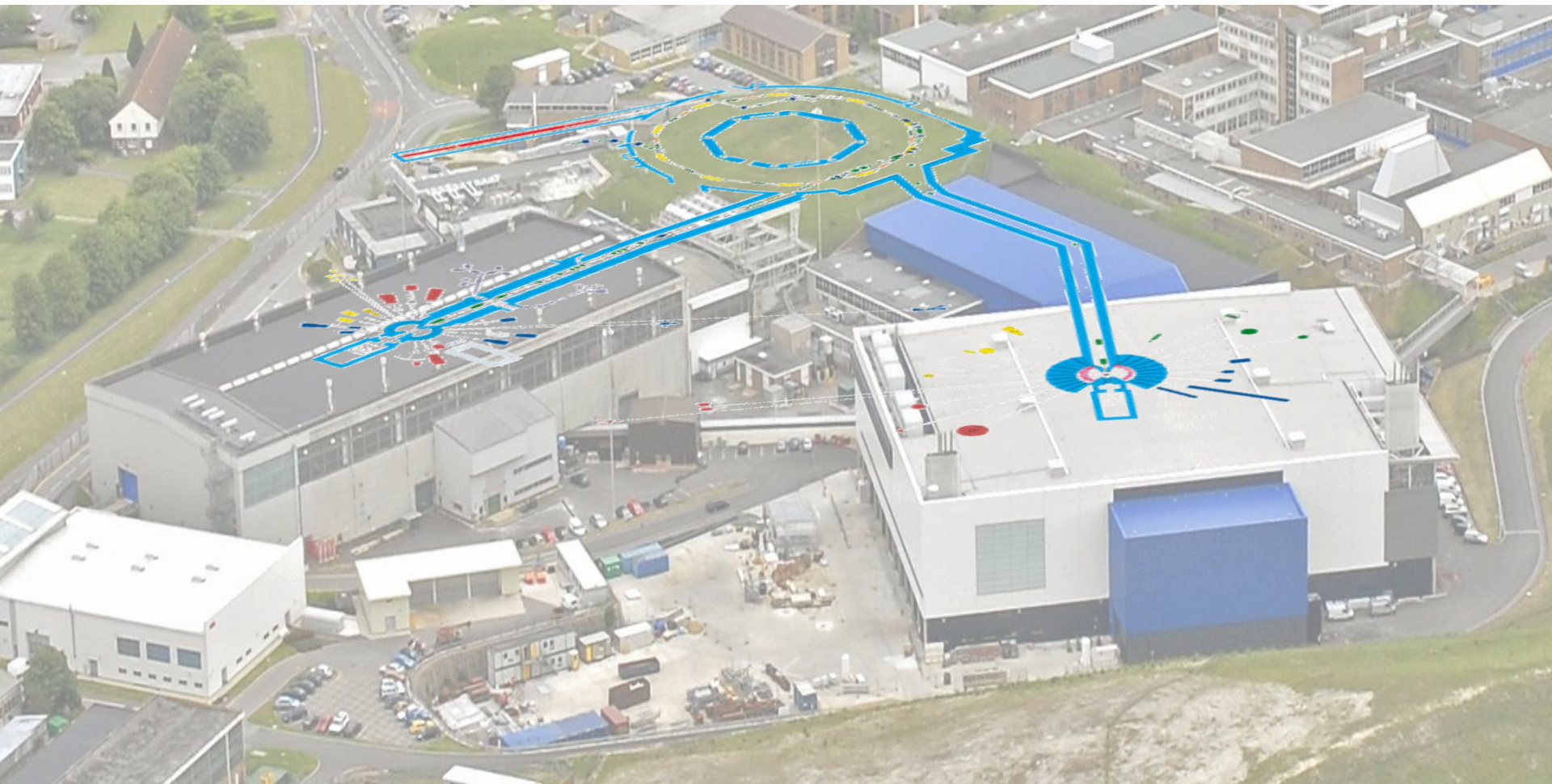


- CLF spinout Cobalt Light Systems has won a major order to supply Liquid Explosive Detection Equipment to the UK's major airports
- A large number of machines will be installed at security lanes in Heathrow, Glasgow, Aberdeen & Southampton
- It follows major orders from Gatwick and other major European airport hubs (Paris, Frankfurt, Madrid etc) and Australian airports
- This will enable the lifting of the >100ml liquid band on aircraft from 2014



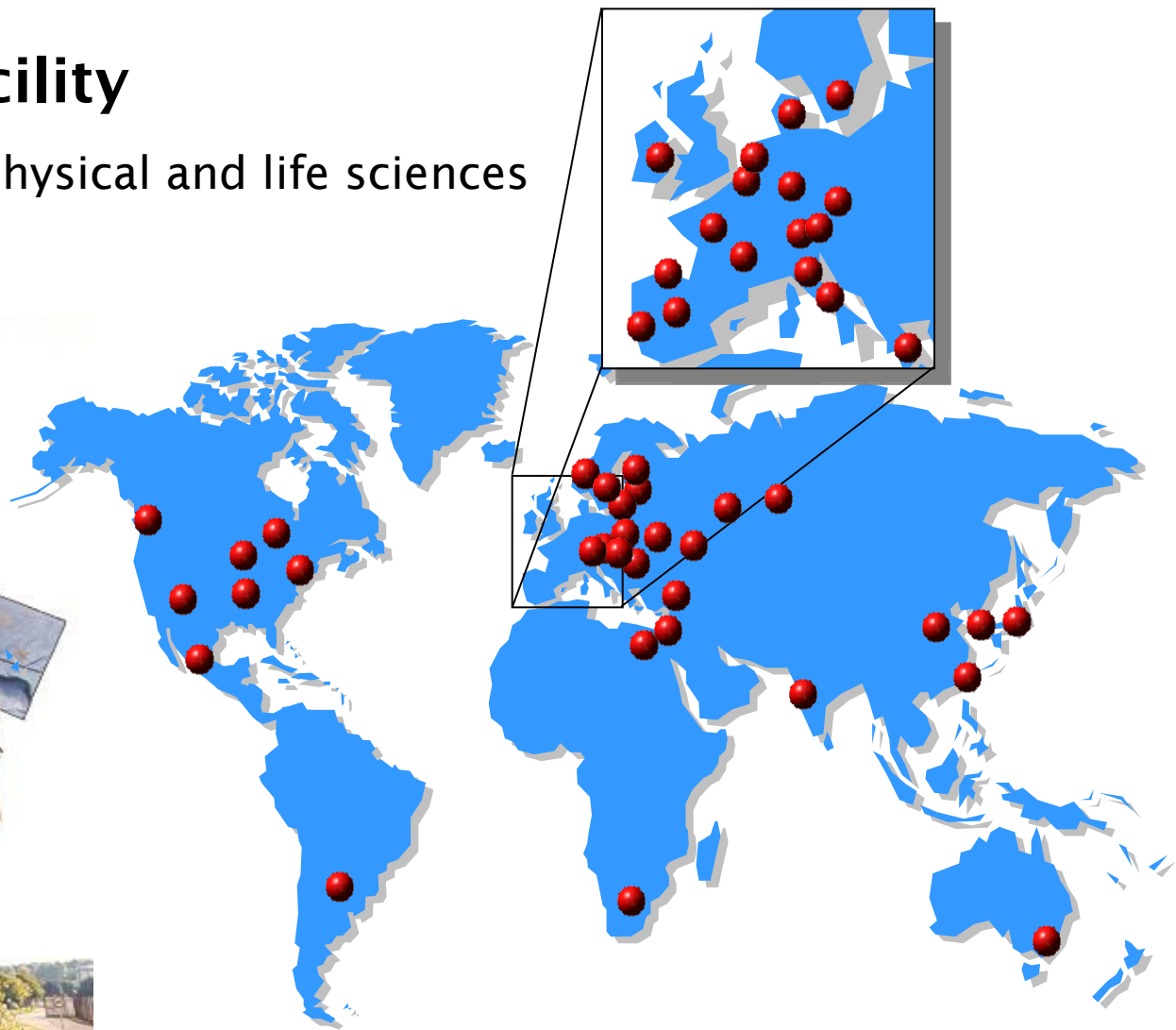
*is the
world's
leading
pulsed
neutron and
muon
research
centre*

ISIS Spallation Neutron Source



A world leading facility

for research in the physical and life sciences

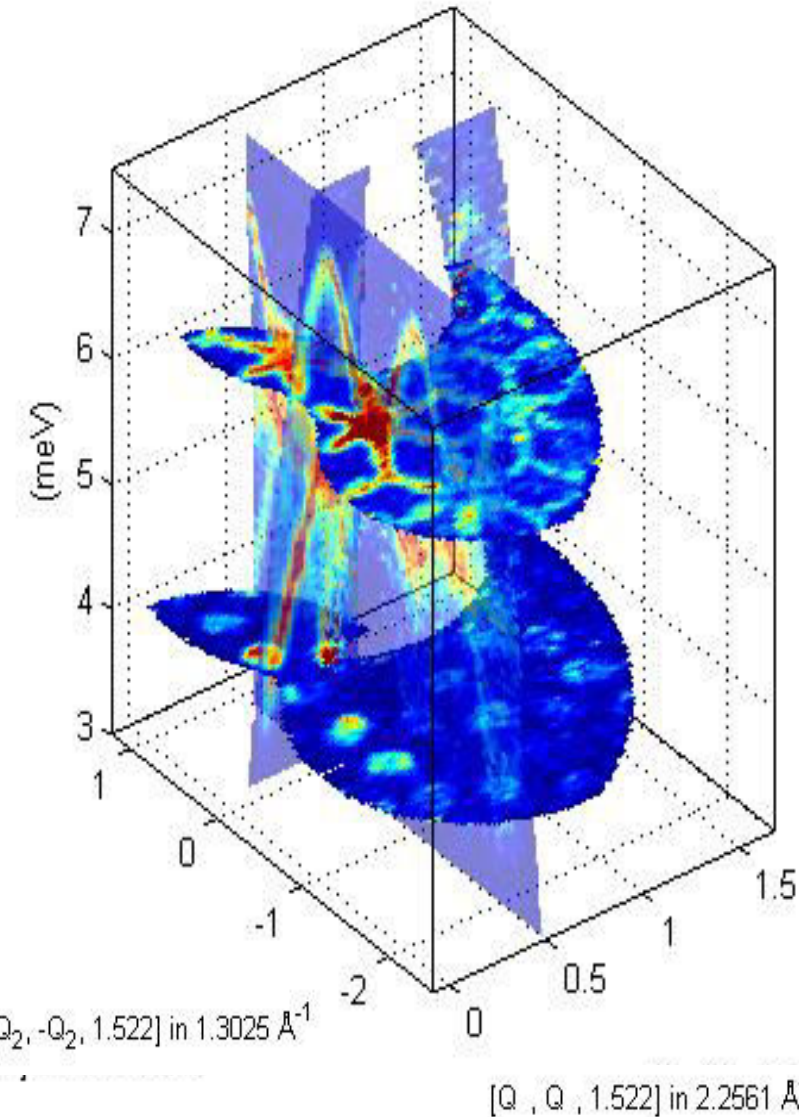


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ISIS

Transfer of Technology

Big Science → Small Science



- Accelerators
- Detectors & DAE
- Cryogenics & SE
- Computing & Networking
- Visualisation



Designing ISIS in 1979....





Computing in STFC

Hartree

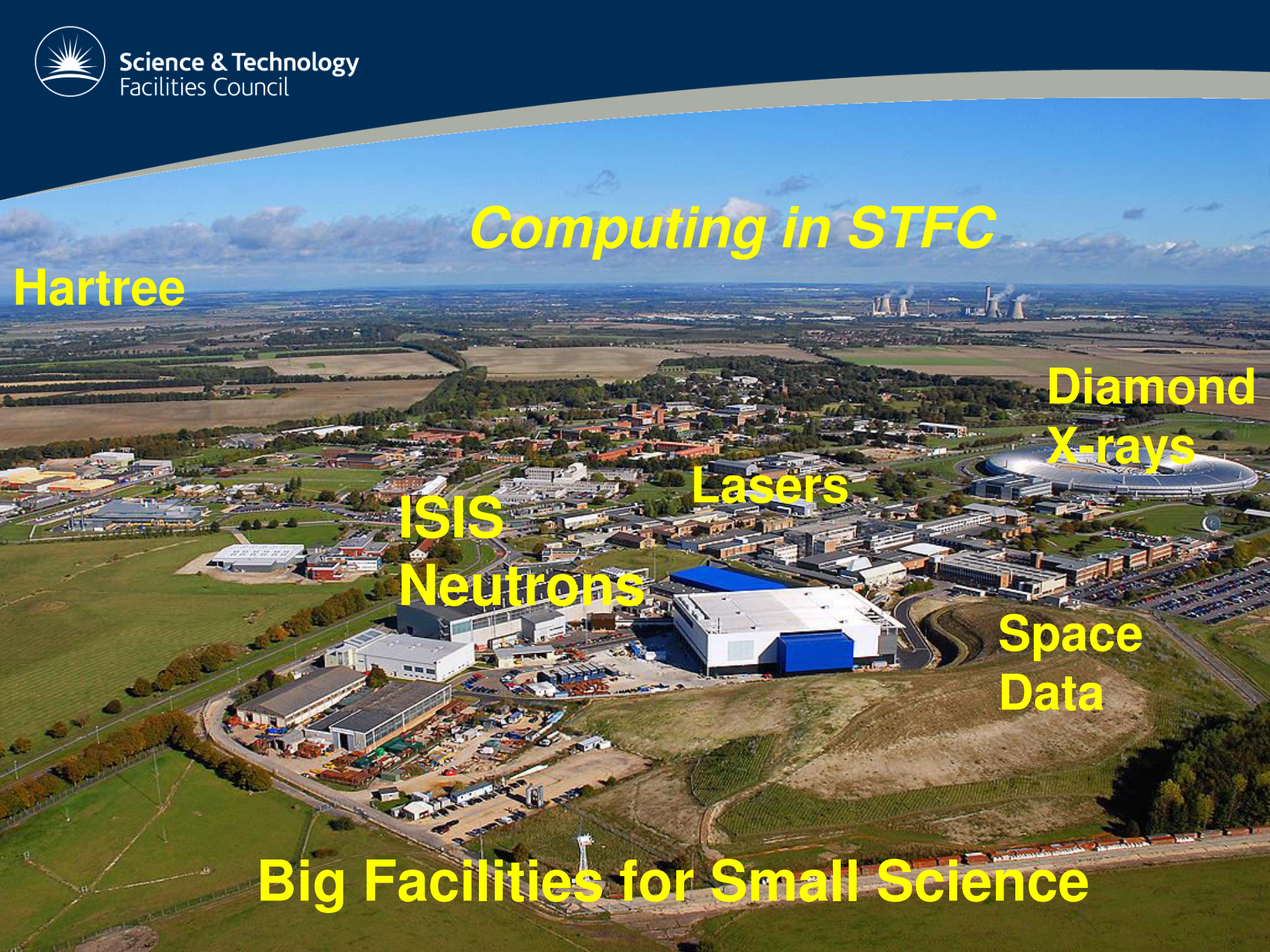
Diamond
X-rays

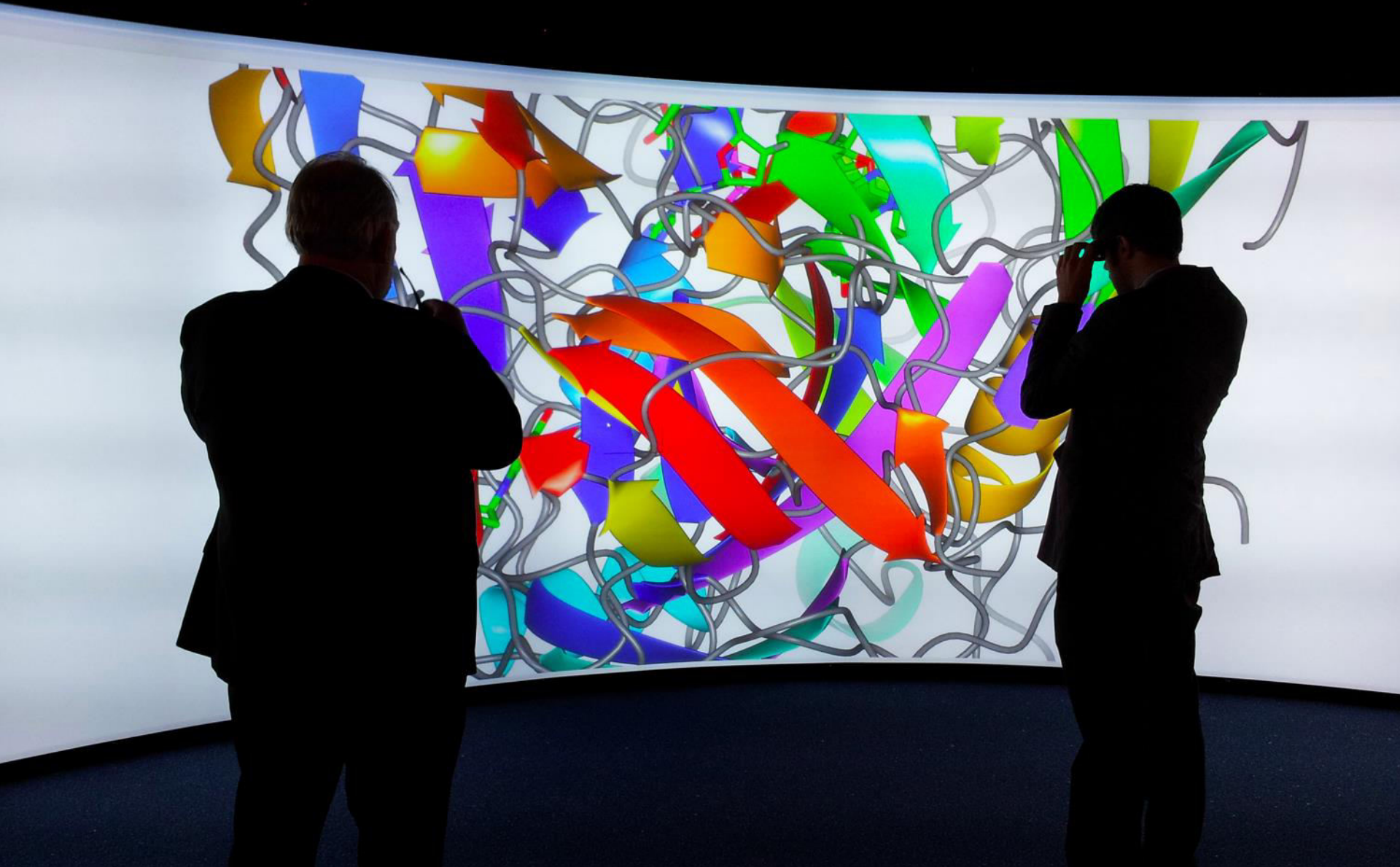
Lasers

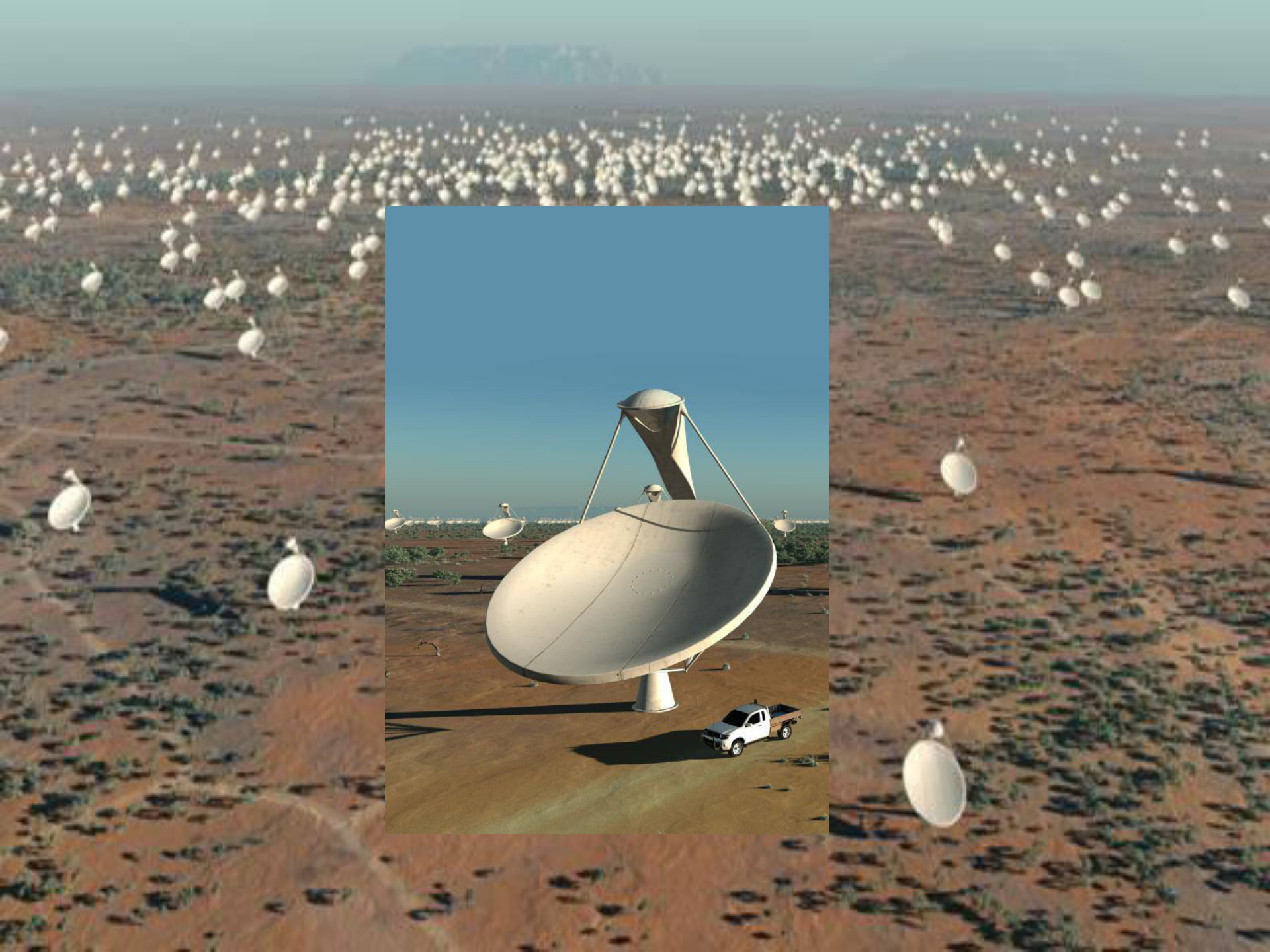
ISIS
Neutrons

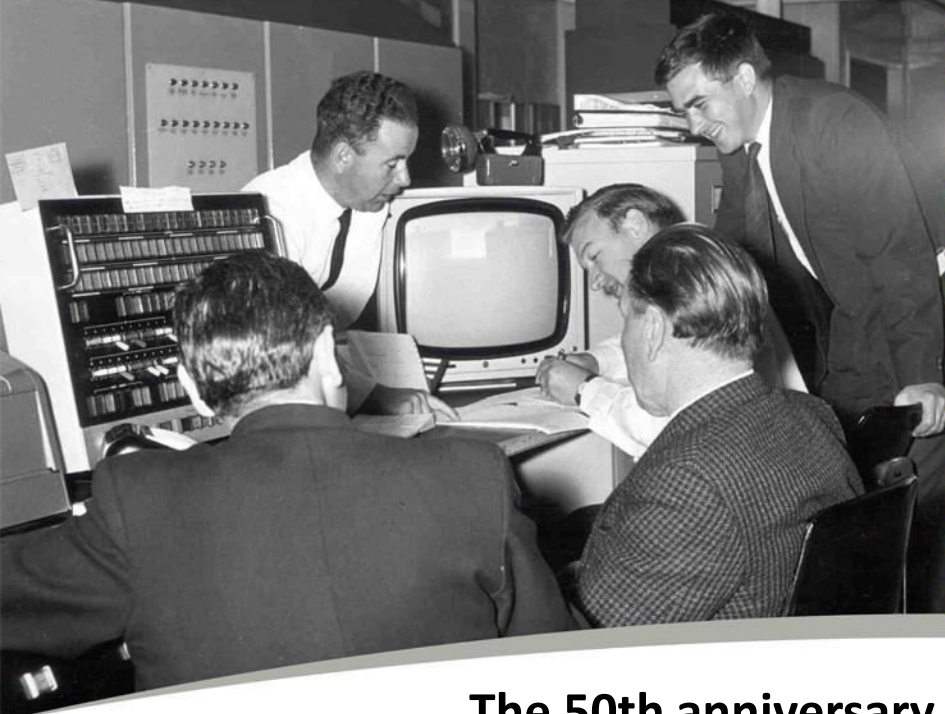
Space
Data

Big Facilities for Small Science









The 50th anniversary of the Atlas computer

Celebrating 50 years of computing at RAL

13:00 - 14:30: Past and Present (Lecture Theatre)

Introduction:

Juan Bicarregui - Head of Data Division, SCD

Welcome to RAL:

Andrew Taylor - Executive Director of STFC National Laboratories

Computing at Chilton 1959-2000:

Bob Hopgood - Atlas Computer Lab and RAL (1963-2000)

50 years of the mathematical software library HSL:

John Reid - Numerical Algorithms Group, SCD

The Scientific Computing Department Today:

David Corney - Acting Director, SCD

15:00 - 16:30: Future Directions (Lecture Theatre)

Future Directions for Computing in Particle Physics:

Dave Britton - Professor of Physics, U. Glasgow, GridPP

Future directions in Gravitational Physics:

Stephen Fairhurst – U. Cardiff, Chair of STFC Computing Advisory Panel

Future Directions in Digital Chemistry:

Jeremy Frey - Professor of Physical Chemistry, U. Southampton

The 4 forces of change for Intense-Computing:

Cliff Brereton - Director Hartree Centre

16:30 - 18:00: Reception and Exhibition (Exhibition Centre)