

ISIS and ISIS@MACH

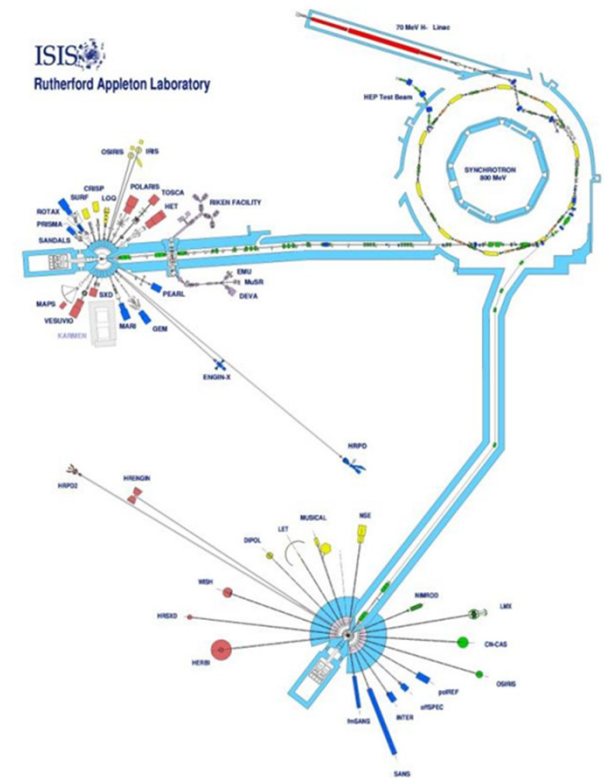


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ISIS is a world leading centre for research using neutron scattering and muon spectroscopy

- Operational since 1984
- Second target station from 2008
- Long running international partnerships
- Continuous collaboration with Italy for over 30 years
- The University of Rome Tor Vergata has been central to this partnership
- ISIS@MACH is the next evolution





NIMROD Accelerator and Harwell Linac



DIDO and PLUTO reactors,
Harwell Laboratory, UK
1957-90



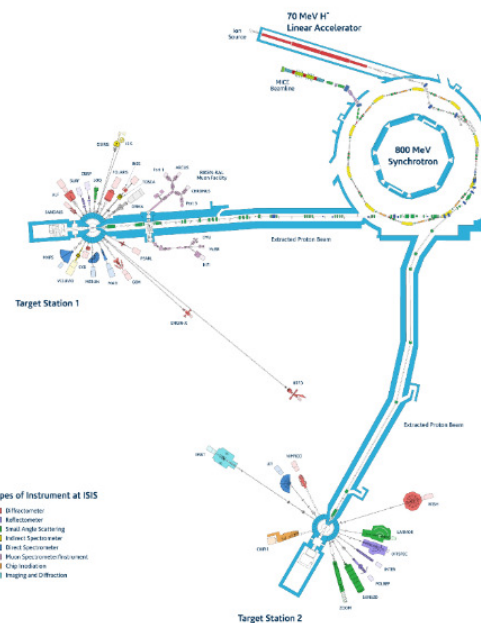
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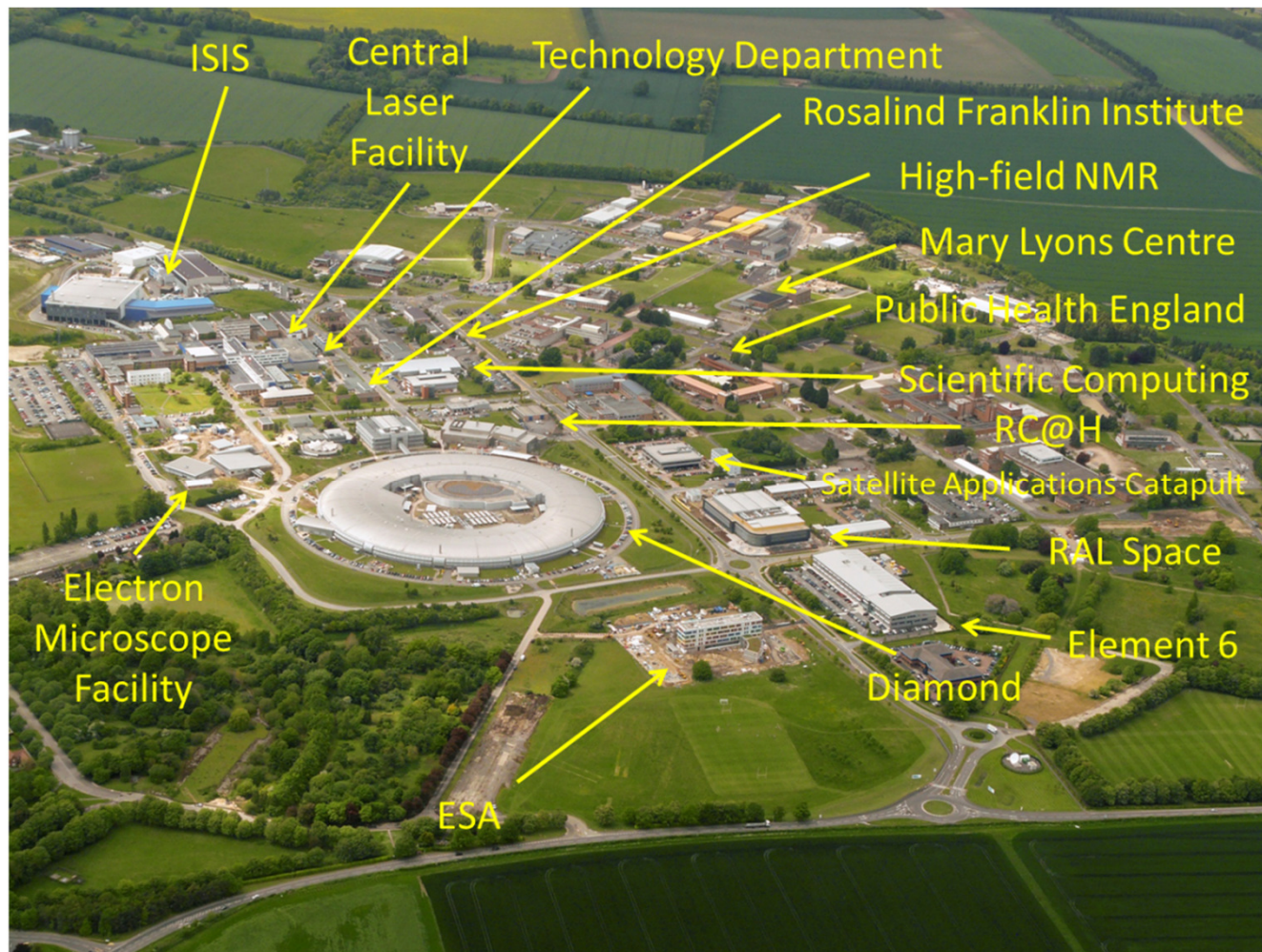
ISIS 2019

- 2 target stations
- 35 operational instruments
- 1620 proposals
- 1069 experiments
- 4005 instrument days
- 1680 unique users
- 3361 user visits
- 609 publications



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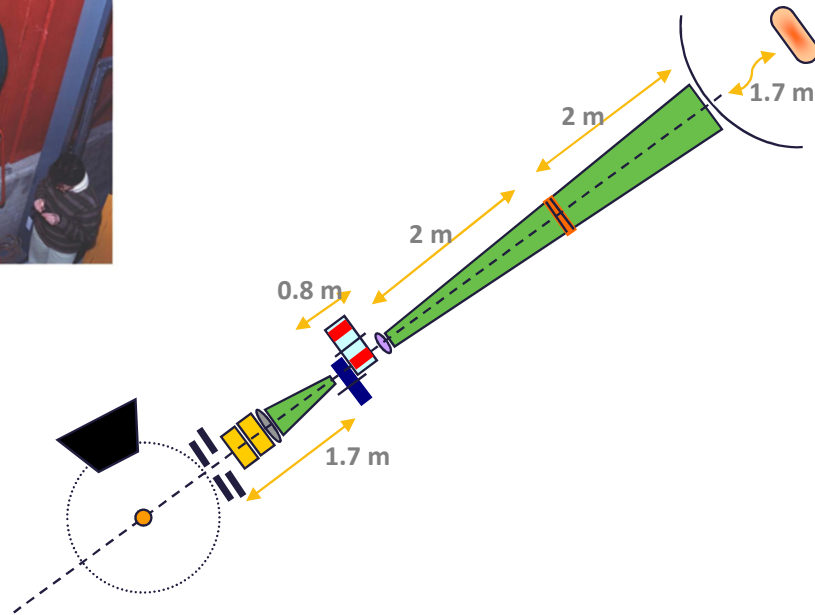
ISIS



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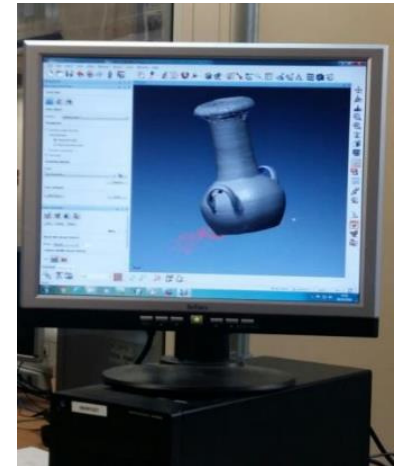
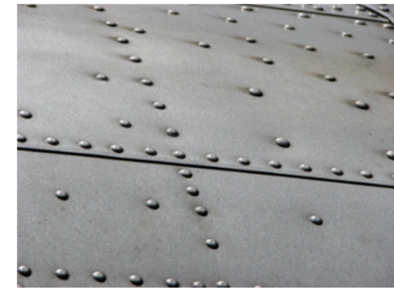
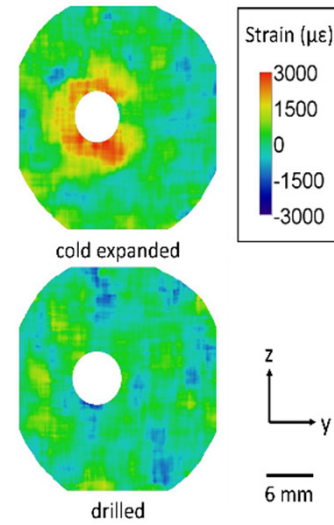
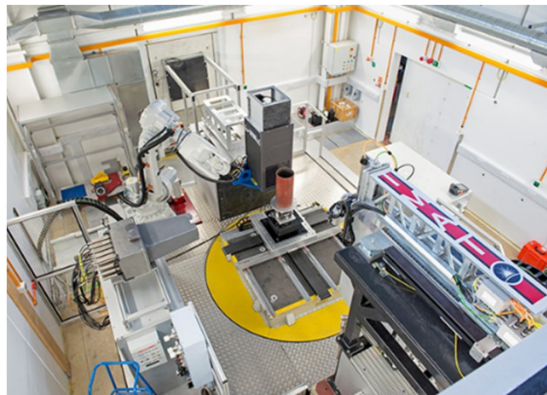
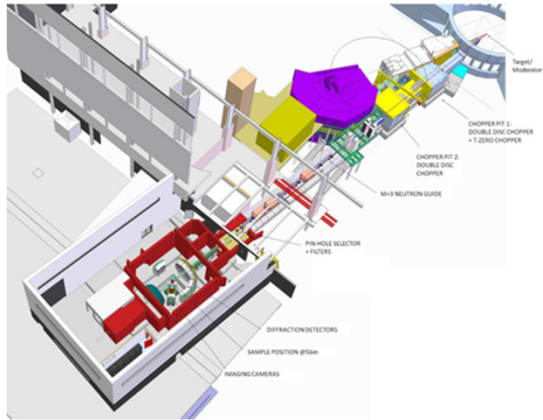
Continuous Italian involvement in science and instrumentation



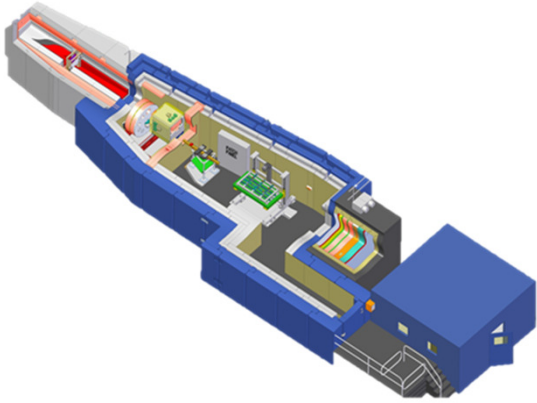
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Neutron imaging with IMAT



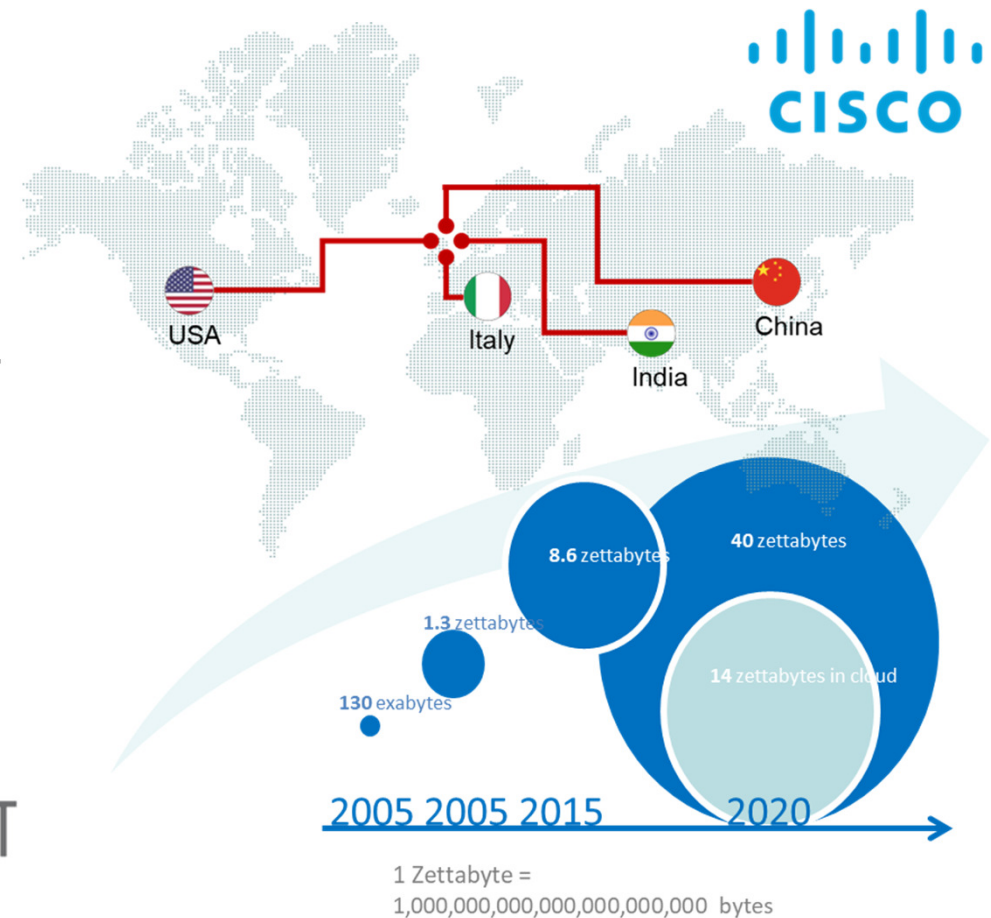
Semiconductor irradiation with ChiPlr



SOLD

CISCO uses ChiPlr right across its global business...

- Cosmic rays are a significant problem for internet routers
- Huge growth expected - global traffic to reach 40 Zb in 2020...





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Complementary facilities at ISIS



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Research Complex @ Harwell



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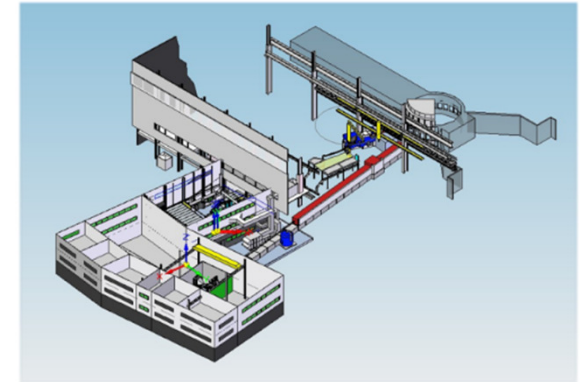
International Stress Engineering Centre



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NUCLEAR AMRC



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Access mechanisms

- Open access (proposals)
- Rapid access (proposals)
- Xpress (mail-in)
- Industrial Collaborative Research and Development
- Industrial (proprietary)



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ISIS

Direct Access

The 15th April 2020 proposal round has been cancelled due to the coronavirus (COVID-19) outbreak. Please check [the ISIS website](#) for updates.

Rapid Access and ISIS@MACH Access

For *ISIS Rapid Access* or for Neutron Gate proposals to be allocated for Research Infrastructure *ISIS@MACH*. This is open for use.

Xpress Access

Dutch Access

This round is currently Closed.

Indian Access

This Round is currently closed.

RIKEN Access

This Round is currently Closed.



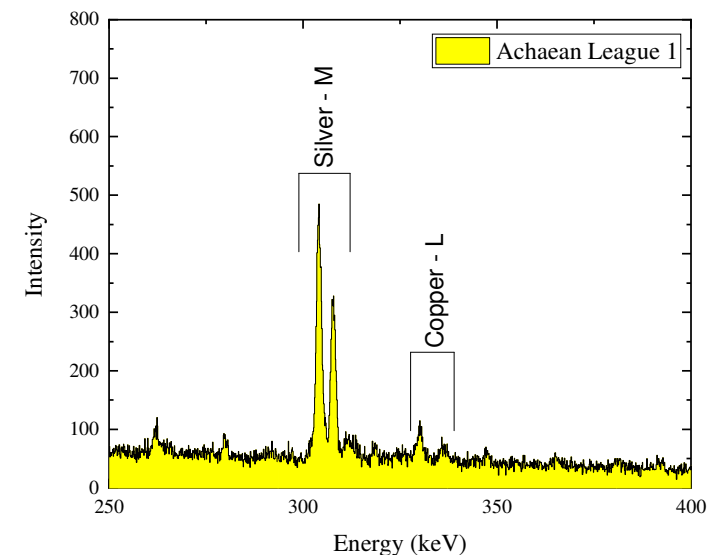
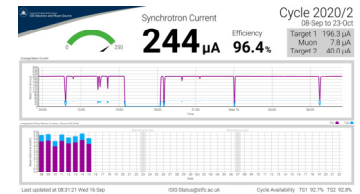
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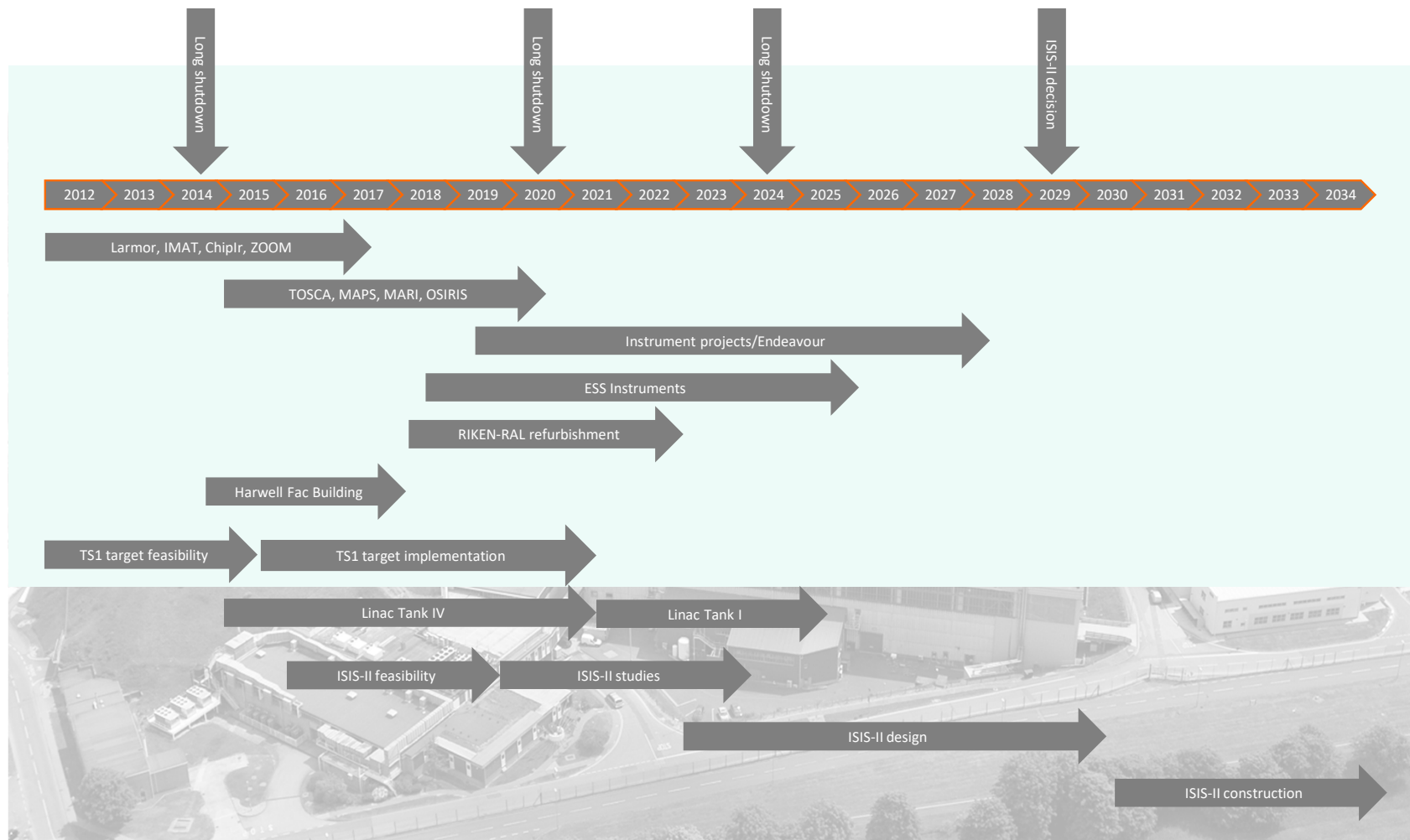
ISIS is back!

What did the Romans do for us? Surface enrichment

- ERC Grant: RACOM to investigate Roman silver coinage
- Silver coinage formed the backbone of state finance in Classical antiquity.
- Existing analysis techniques are inadequate to answer key questions (destructive).
- Muons at ISIS on RIKEN-RAL can determine the sub-surface elemental composition.
- First data from Roman Achaean 'silver' coin – taken during first week of ISIS post-Covid operations
- This coin has a significant copper contribution ~15% - surface pure silver
- Some coins have as high as 80 % copper



Hillier (ISIS), Butcher (Warwick), Ponting (Liverpool)



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The continuation of a beautiful friendship ...



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