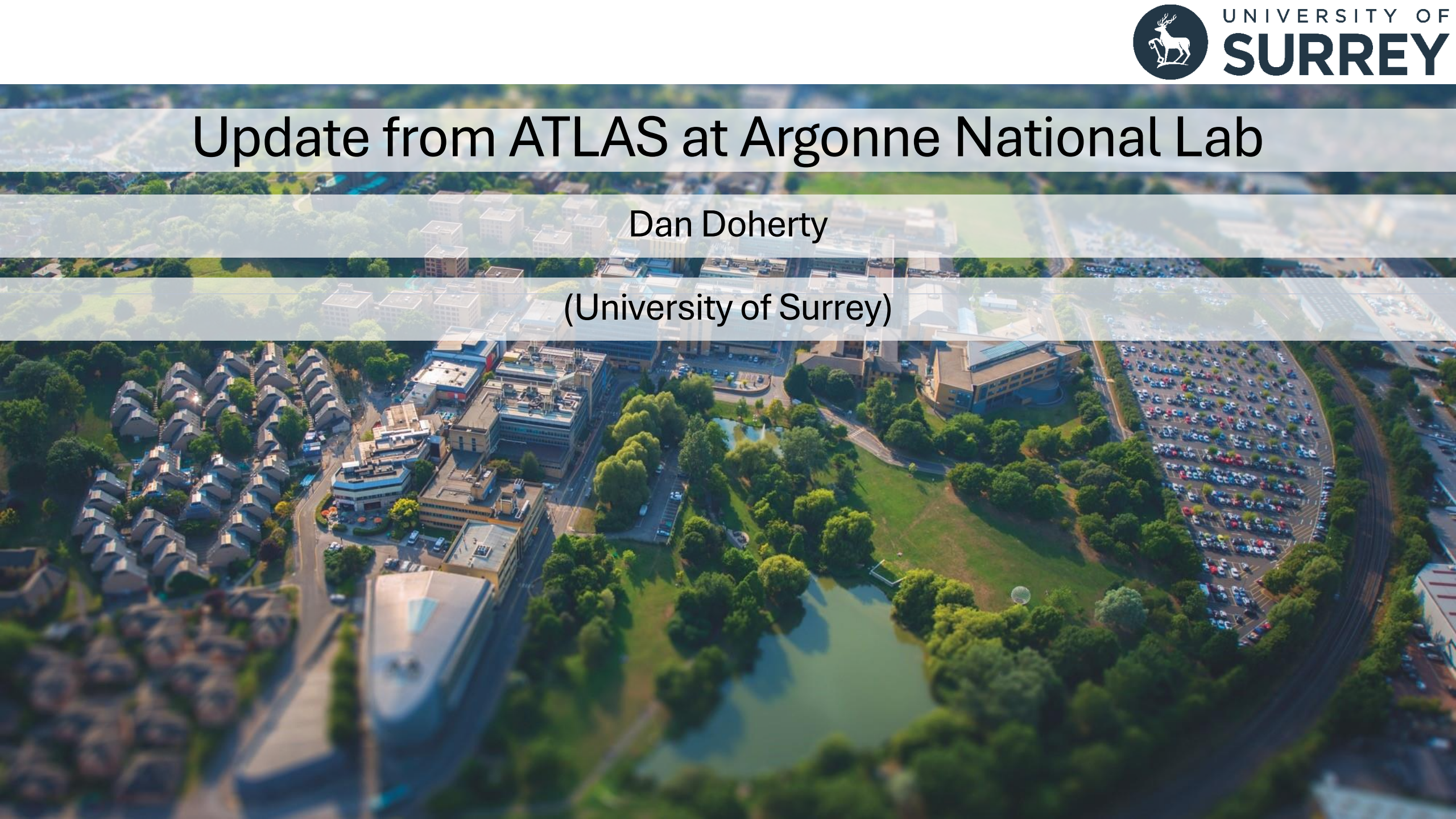


Update from ATLAS at Argonne National Lab

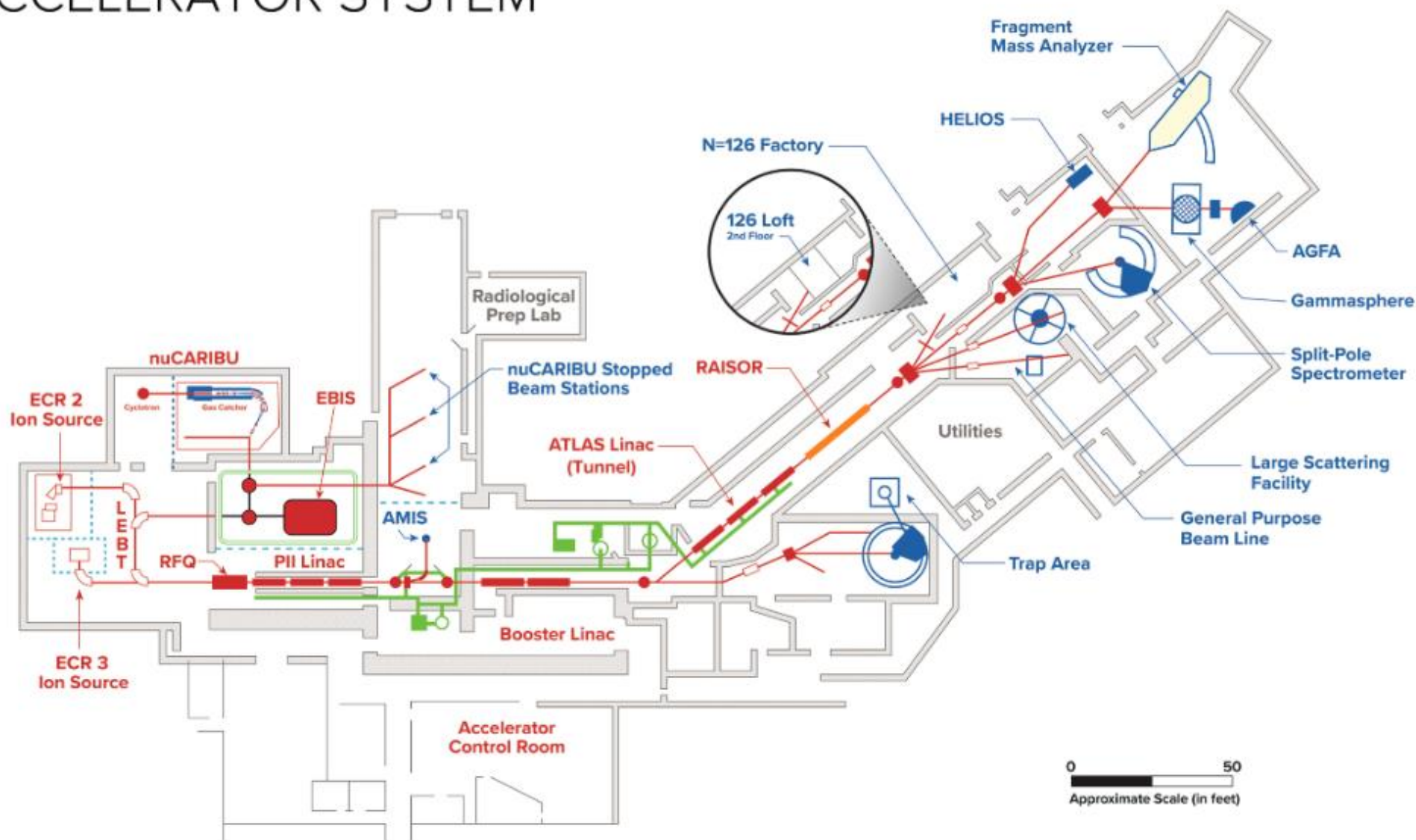
Dan Doherty

(University of Surrey)



ATLAS

ARGONNE TANDEM LINAC ACCELERATOR SYSTEM



Some Recent UK Successes



GRETINA + FMA Campaign

C. Cousins *et al.*, Phys. Rev. Lett **136**, 252701 (2026)*

C. O'Shea *et al.*, PLB **854**, 138740 (2024)

L. Canete *et al.*, PRC **108**, 035807 (2023)

GRETINA + CHICO (Coulex)

J. Henderson *et al.*, Phys. Rev. Lett **134**, 062502 (2025)*

HELIOS

S. Bennett *et al.*, Phys. Rev. Lett **130**, 202501 (2023)

C. Angus *et al.*, PRC **112**, 025803 (2025)

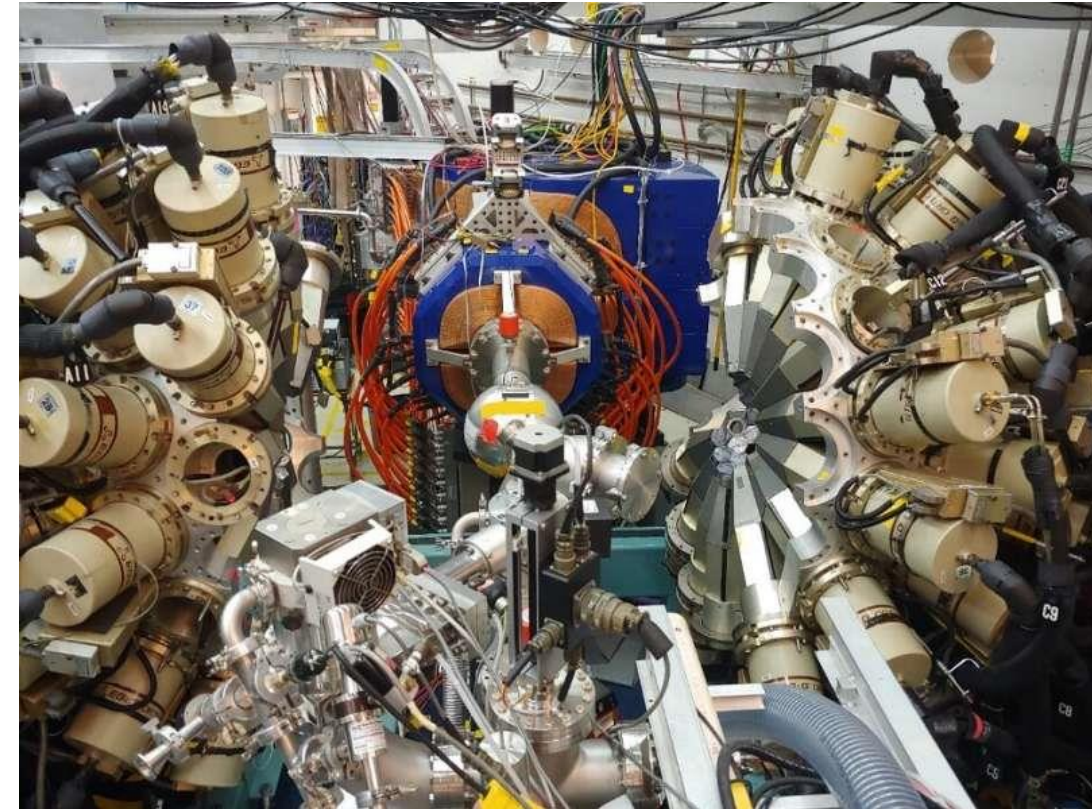
Gammasphere

E.S. Paul *et al.*, PRC **113**, 064322 (2026)

AGFA

A. Andreyev *et al.*, PRC **108**, 034303 (2023)

* Theoretical Interpretation on UK-led experiments from UK theorists



New Strategic Plan => New Lab Initiatives



2026 ATLAS strategic plan workshop

Jun 29 – 30, 2026

Argonne National Laboratory, Building 203, Physics Division

US/Central timezone



Overview

Registration

Description: This workshop is part of the preparation of the **2026 ATLAS Strategic Plan**, leading toward a presentation at the Low-Energy Community Meeting ([LECM-2026](#)). Representatives from science and instrumentation sub-groups will present their physics priority findings and ATLAS upgrade proposals.

Selected New Lab Initiatives



GRETA at ATLAS (in Area 4)

Building upon successful GRETINA campaign but requires extra experimental sensitivity

- Physics programme based around exotic proton-rich nuclei, nuclear astrophysics but also hyperdeformation

COULEX Factory

Dedicated gamma-ray array and particle detectors for long experiments with low-intensity radioactive beams and detailed experiments with stable beams

MOVE of HELIOS

Helios to be moved to a new area and will benefit from improved intensity of in-flight intensity of RAISOR in-flight radioactive beams.

Laser setups to be constructed in previous HELIOS location

Reaccelerated N=126 Factory Beams

Neutron-rich fragments to be reinjected back into ATLAS for Coulex and other reaction studies.

Unique physics programme worldwide.

Plans to use other targets in addition to ^{196}Pt to give access to other nuclei

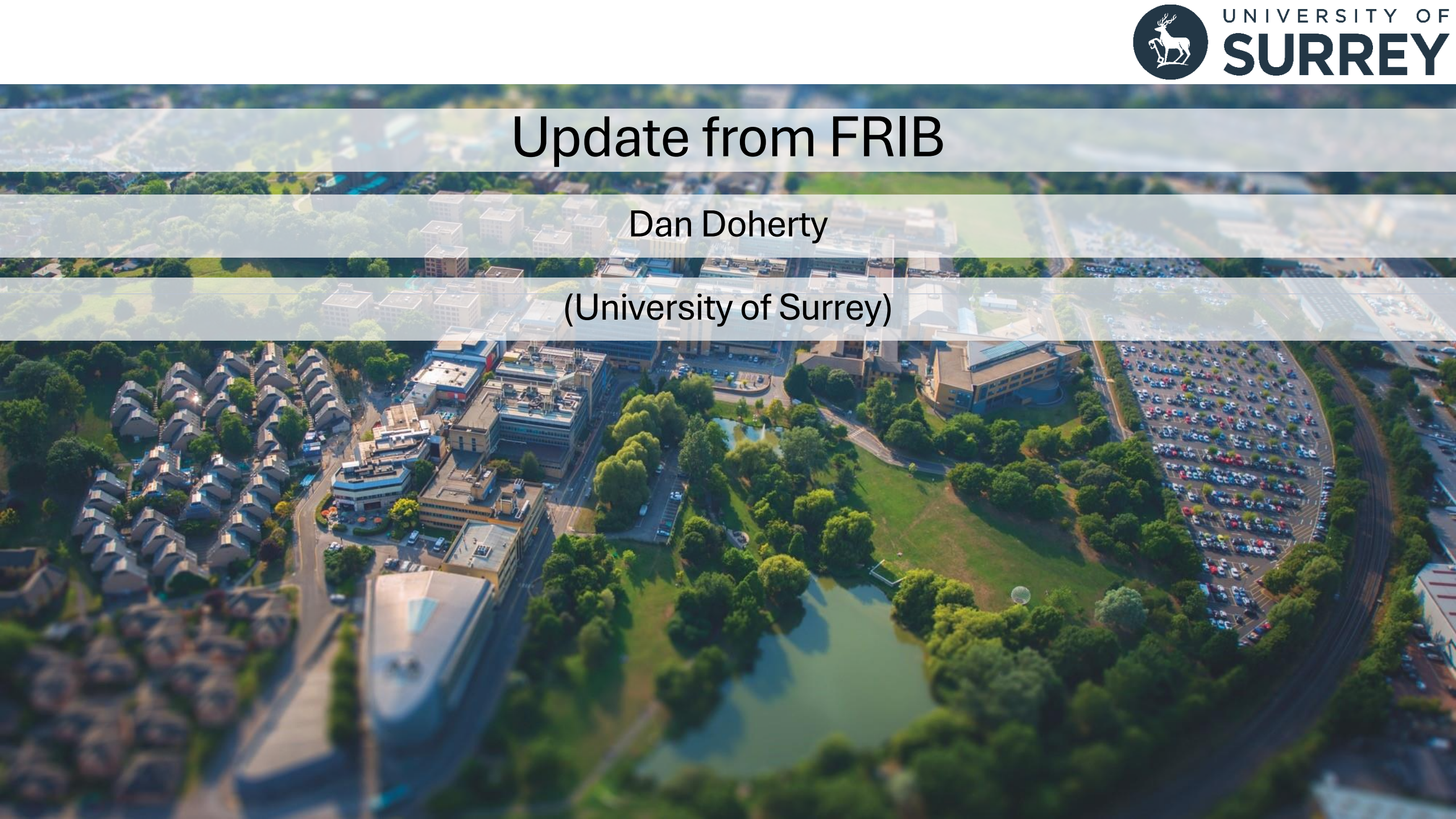
OTHER INITIATIVES

- Low-energy branch for AGFA and FMA (Gas cell, MRToF and decay and laser setups)
- Additional mass measurement capabilities
- Gammasphere move to Area 1 to take advantage of more intense NuCARIBU and N=126 beams
- Dedicated Argonne Decay Station (including capabilities for electron spectroscopy and fast timing)

Update from FRIB

Dan Doherty

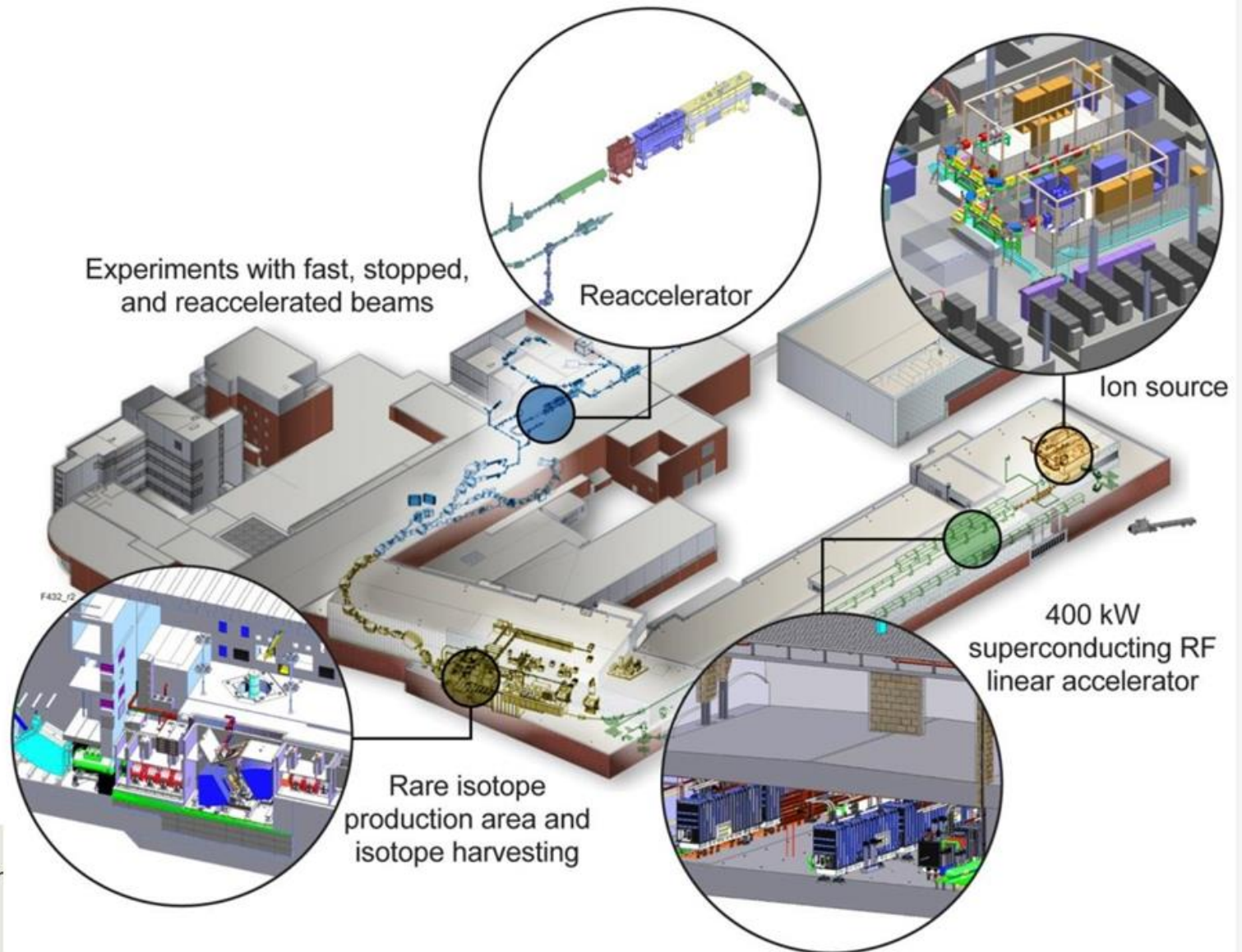
(University of Surrey)



FRIB – General News



- Facility for Rare Isotope Beams (FRIB) started user operations in May 2022 after being completed on time and on budget
- FRIB has been ramping up its capabilities every year
- With 22 kW of ^{82}Se beam and 10.4 kW of ^{238}U beam demonstrated, FRIB has surpassed RIBF/RIKEN as most powerful rare isotope beam facility in the world
- FRIB's user community has about 1800 members and beam time is oversubscribed 3:1



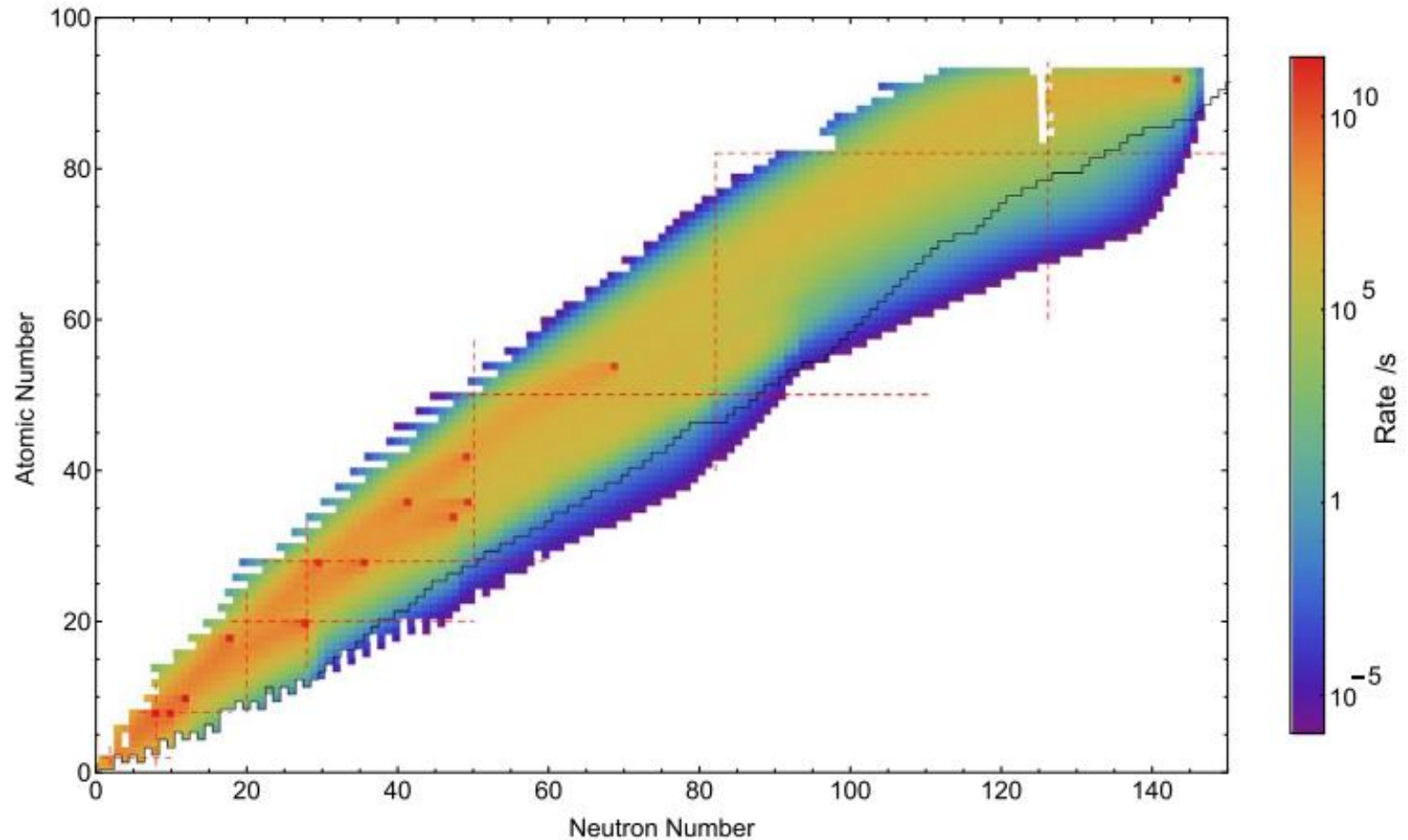
Facility for Rare Isotope Beams
U.S. Department of Energy Office of Science | Michigan
640 South Shaw Lane • East Lansing, MI 48824, USA
frib.msu.edu

FRIB – The Paths to 400 kW (?!)



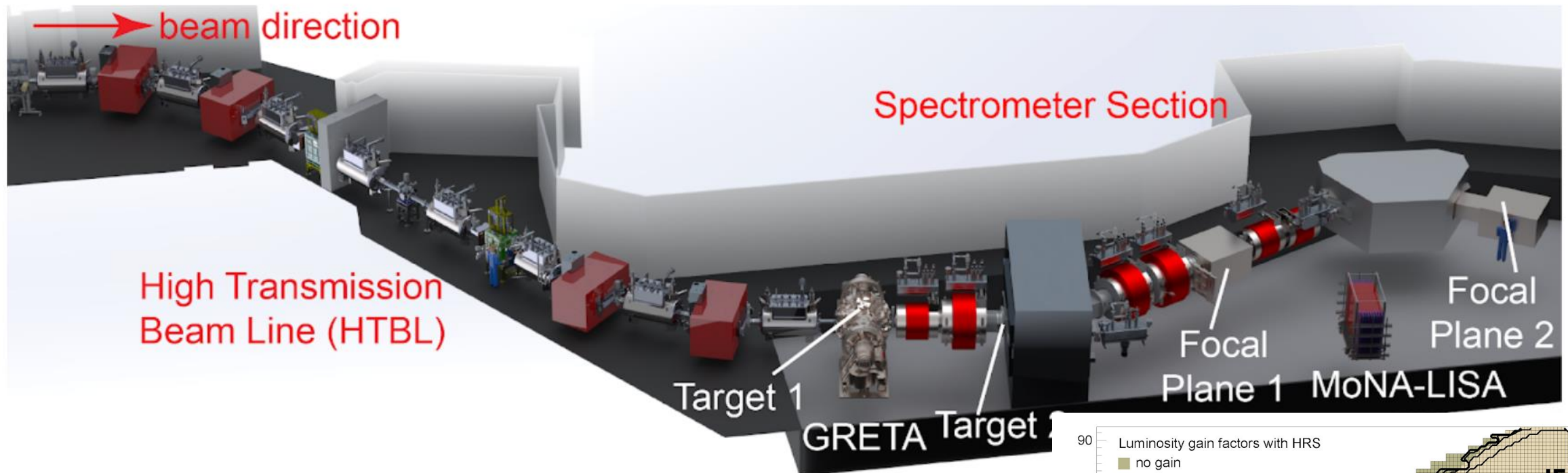
Power ramp up planned in stages
20 kW -> 50 kW -> 100 kW -> 200
kW -> 400 kW

Recent technical highlight with the
use of a high-intensity primary
beam of ^{144}Sm for decay
spectroscopy of nuclei near ^{100}Sn
with the FRIB Decay Station



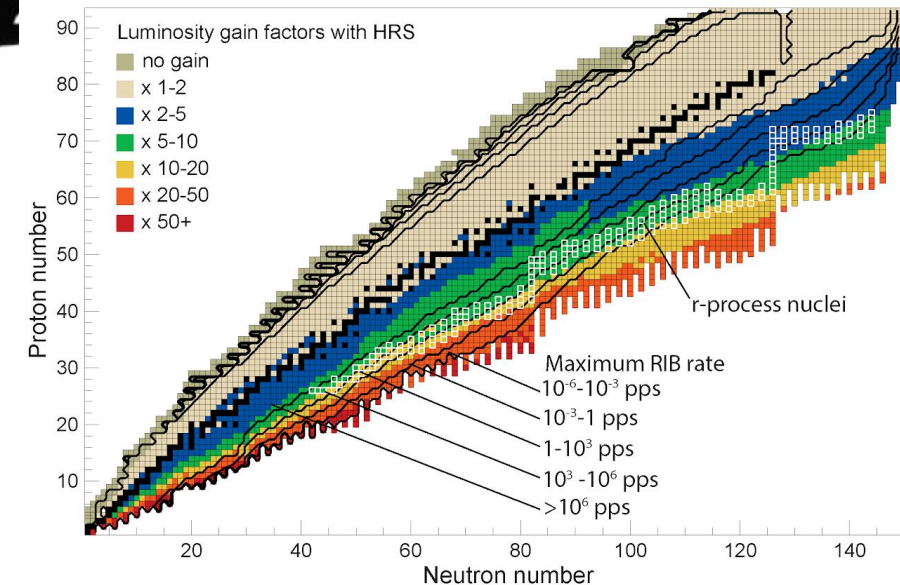
Theoretical FRIB yields at 400 kW

High-Rigidity Spectrometer (HRS) Approved

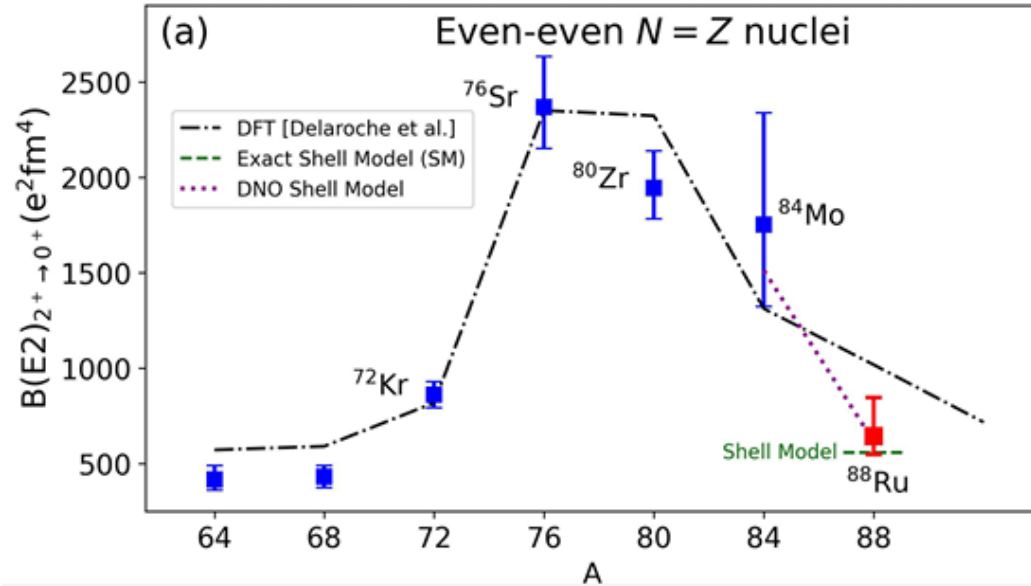


A new spectrometer with 8 Tm magnetic rigidity to better match the capabilities of FRIB

Approved in February 2025 and work has begun



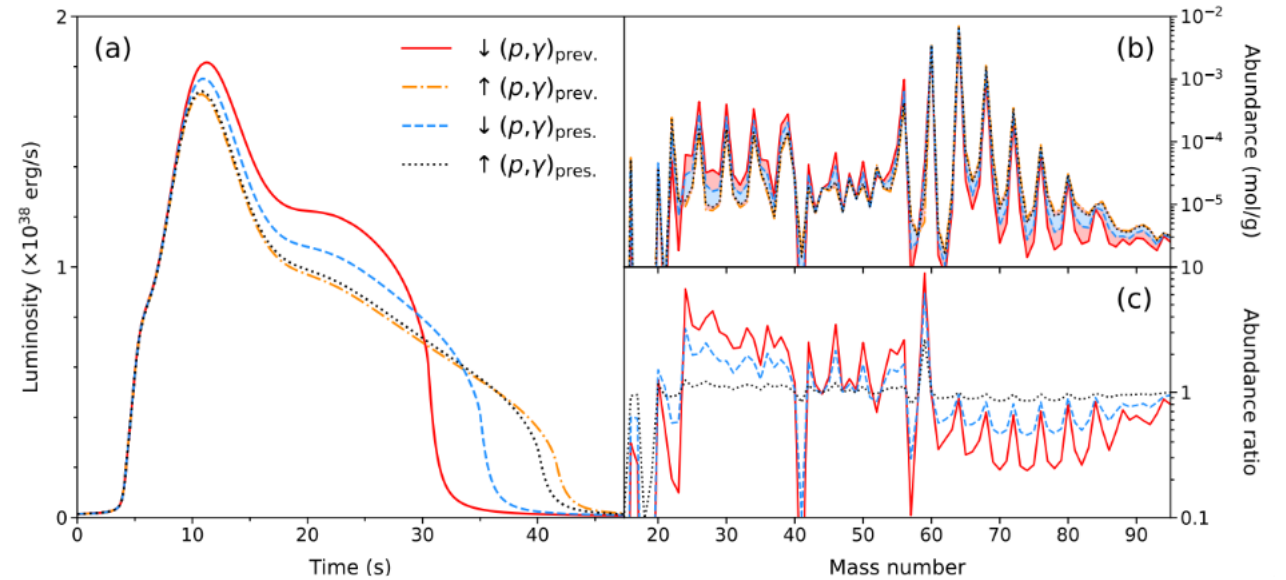
Some Recent UK Successes



M. A. Bentley *et al.*, Phys. Rev. Lett **136**, 152501 (2026)



Both experiments from GRETINA campaign with the S800 spectrometer



C. O'Shea *et al.*, Accepted in Phys. Rev. Lett (2026)

FAUST project (STFC)

Spokesperson: Gavin Lotay

SURREY

Gavin Lotay
Ragan Sidhu
Dan Doherty
Jack Henderson
Matt Williams
Wilton Catford

YORK

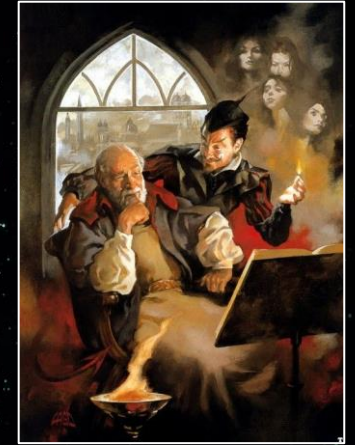
Dave Jenkins
Abdulaziz Alfehaid
Konstantin Mastakov
Julian Bordes

DARESBUURY

Marc Labiche
Carl Unsworth
Moschos Kogimtzis
Richard Smith



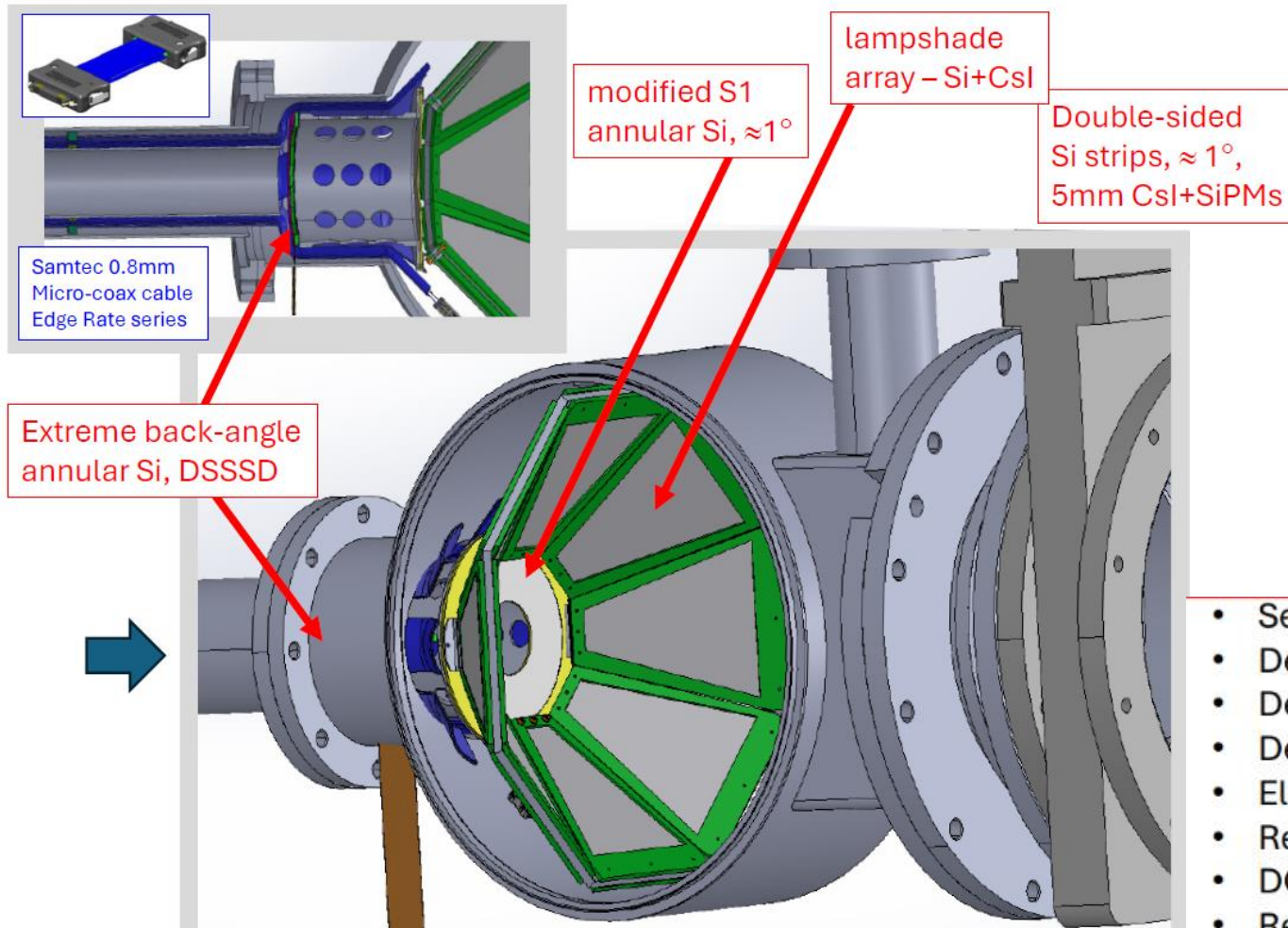
Science and
Technology
Facilities Council



**FRIB Accelerated-beams for
Understanding Science and
Technology**



FAUST Proceeding at Pace



Upcoming FAUST Deadlines

- Select first proposals to prepare
- Delivery at DL: July 2026
- Designs: detectors + mounts, July 2026
- Delivery to FRIB of beamline, detectors, chamber, December 2026
- Electronics and cabling at FRIB, December 2026
- Ready for testing UPSTREAM at FRIB – February-September 2027
- DOWNSTREAM array assembled and ready at FRIB – July 2027
- Ready for FIRST EXPERIMENT, **March 2028**

First (PAC-approved) GRETA Experiment – Coulex of ^{68}Ge



^{68}Ge ($t_{1/2} = 271$ days) beam delivered by ReA6 beam at 4.1 MeV/u
Coulomb excitation on ^{196}Pt target with the JANUS setup
Beam time 26th – 29th June 2026

Spokespersons: **Jacob Heery**, Jack Henderson, Dan Doherty

