

NUCLEAR MATERIALS

Research Area Leads: Prof. Abbie Jones and Dr. Anna Widdowson

Business Development Manager: Andrew Bowfield HENRY ROYCE INSTITUTE



NUCLEAR MATERIALS

Royce Institute

The Henry Royce Institute **supports world-recognised excellence in UK materials** research and accelerates commercial exploitation of innovations

- Enabling national materials research
- Providing access to the latest facilities and capability
- Catalysing industrial collaboration and exploitation of materials research
- Ultimately fostering materials science skills development, innovation training and outreach

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Nuclear Materials Partners & Technology Platforms

The University Of Sheffield.	MANCHESTER 1824 The University of Manchester	UK Atomic Energy Authority	NATIONAL NUCLEAR LABORATORY
Advanced Characterisation to Understand Radiation Damage in Materials	Irradiation Environments (DCF) Fuels and Irradiated Materials Analysis (Hub)	Non-Actinide Irradiated Materials Handling, Characterisation, ³ H and Testing (MRF)	Irradiated Materials, Fuels and Actinides Handling and Characterisation
OYCE			

Nuclear Materials Research



ROYCE



Enabling users to access:

- Experts with industrial knowledge
- Higher levels of radioactive material (safely)
- Equipment and expertise for analysing radioactive material

	Universities	UKAEA	NNL
	<~100MBq	<4TBq (beta/gamma)	High Active (alpha/beta/gamma)
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Researcher funded access for Royce facilities

- Open to all researchers:
 - Higher education institutions
 - Research technology organisations
 - Industry, including SMEs
- Funding available to support subsidised access
 - Schemes advertised through website, newsletters and social media
- Equipment database on website: <u>www.royce.ac.uk</u>
- General enquiries: <u>info@royce.ac.uk</u>





Royce Institute / NNL Central Lab Case Study

- Compositional and structural evolution of PuO₂: underpinning future decisions
- Experiment and characterisation conducted at NNL Central Lab and Diamond Light Source



Glove boxes for handling Pu materials



TEM adapted for Pu materials



Nanoscale He bubbles in Pu (TEM)







Royce Institute / UKAEA Materials Research Facility Case Study

- Analysis of degradation of proton irradiated graphite target (Fermilab / Bristol University)
- Hot materials beyond university activity limits @ Materials Research Facility, UKAEA



Research room @ MRF housing FEI Helios Nanolab 600i Dualbeam

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FIB tomography of irradiated graphite

×

UK Atomi

Energy Authorit



Porosity segmentation generated by deep learning method (30x17x23µm)



Current funding calls

ROYCE INDUSTRIAL COLLABORATION PROGRAMME (ICP)

FUNDING CALL

Home / Industrial Collaboration Plongramme

Scope

Application

Final deadline to apply for funding: 26 September at 17:00

Project completion date: 31 March 2023

https://www.royce.ac.uk/collaborate/funding/





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