



UNIVERSITY OF
LIVERPOOL

EPSRC Nuclear Community

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ISCF Sector Deal

Announced **June 2018**

Some Key Points

Developing and deploying advanced nuclear technologies:

- Provide up to **£56 million** for R&D for advanced nuclear reactors
- Set out a new framework to support the development and deployment of small modular reactors (SMRs) and the innovative technologies that support them
- Providing **£86 million** for a National Fusion Technology Platform at Culham in Oxfordshire
- Work in partnership with the Welsh Government to develop a **£40 million** thermal hydraulics facility in the north of Wales as part of the Nuclear Innovation Programme developing and deploying advanced nuclear technologies
- Development of '**subject matter experts**'

Robotic Hubs

Robotics and Artificial Intelligence for Nuclear (RAIN)

Ref : EP/R026084/1

PI - Barry Lennox (UoM)

[\[https://rainhub.org.uk/\]](https://rainhub.org.uk/)

National Centre for Nuclear Robotics (NCNR)

Ref : EP/R02572X/1

PI - Rustam Stolkin (Bham)

[\[https://www.ncnr.org.uk\]](https://www.ncnr.org.uk)

National Nuclear Facility (NNUF)

Focus - facilities that allow radioactive work, eg sample preparation, use of radioactive sources etc

Second phase announced Autumn statement 2014

Announced with £60m

Existing facilities at

NNL, CCFE (UKAEA), Lancaster, Sheffield, Manchester/
DCF....

EPSRC's Focus in Nuclear Fission

- Have a multidisciplinary, highly collaborative portfolio of research and training in this area which addresses the challenges of building, operating and decommissioning faced by current/future nuclear build programmes
- Facilitate development of approaches for implementing safe, cost-effective clean-up, decommissioning and waste disposal of existing and future nuclear sites and facilities
- Ensure capability is maintained in internationally recognised areas of UK strength (e.g. decommissioning, waste management, fuel reprocessing)
- Investigate the balance and diversity of highly skilled people across career stages to ensure areas of low capacity are bolstered
- Facilitate impact acceleration and deployment of innovative solutions from the academic community through closer links with industry, other users, network groups and key stakeholders, e.g. the Nuclear Decommissioning Authority (NDA) and the National Nuclear Laboratory (NNL)
- Continue to engage internationally with key countries (e.g. Japan, USA and India) to supply and build research knowledge
- Manage delivery of research infrastructure requirements and likely investments through the National Nuclear User Facilities (NNUF) when additional funding is released

Areas of Interest to EPSRC - Nuclear

Decommissioning

Characterisation of contaminated materials

Remote operation / **sensing**

New Reactors

Materials - extended operational life (fuel)

Reactor dynamics - fission / temperature / decay / yield

Reactor design

Training / Development

CDTs in **Nuclear Fission** (2) & **Fusion** (1)

Other CDTs with links to Nuclear, e.g. Materials and **Risk/Uncertainty**

Fellowships (9) across a range of topics

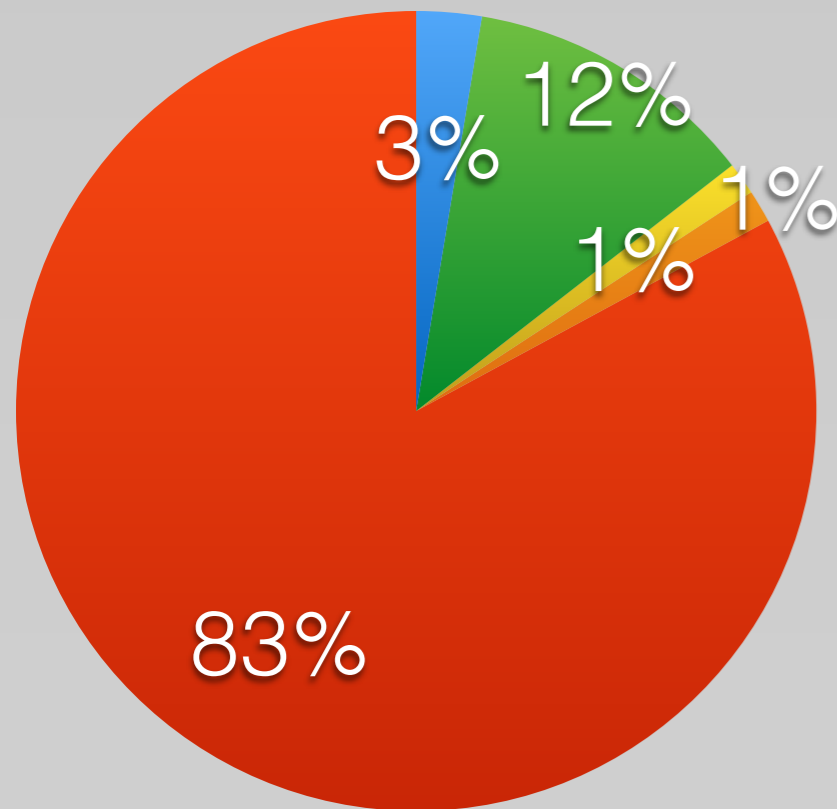
Blue Skies

New ideas - providing underpinning research leading to potential innovation

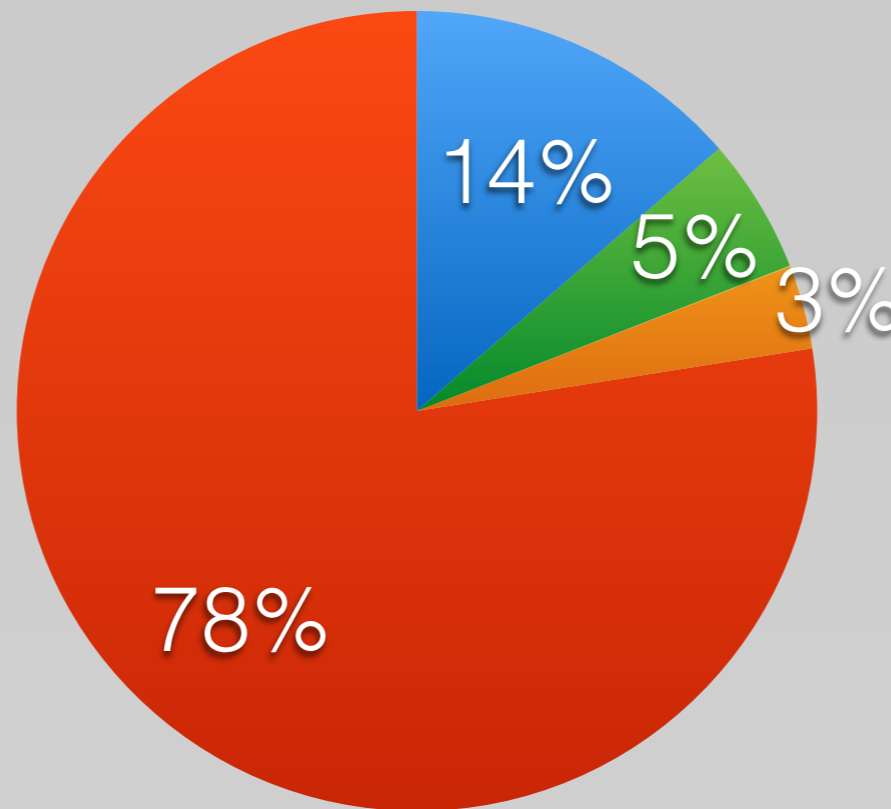
Fission Funding Breakdown

Total - 76 grants

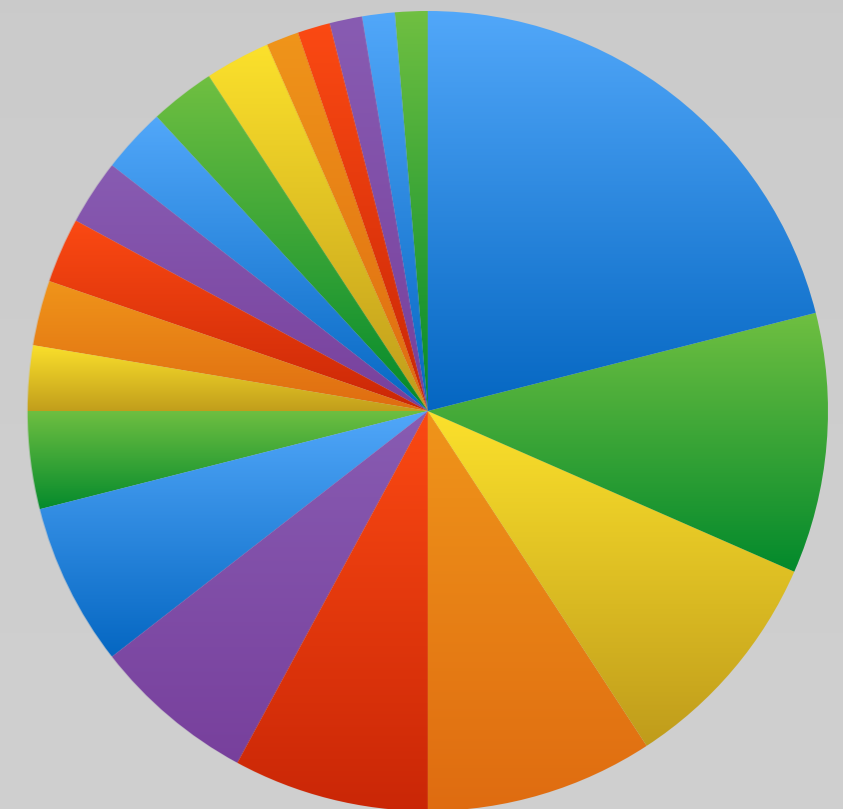
Value - £77m



Number



Value



Number by Uni

- Centre for Doctoral Training
- Overseas Travel Grants (OTGS)
- Standard Research
- EPSRC Fellowship
- Programme Grants

Options for Funding With EPSRC

Managed calls - multiple in a year across whole of EPSRC remit

Programme grant - large scale grants

Network+ grants - developing or engaging a community

Standard - submission anytime, not limited in scope, or level of funding
(check with EPSRC if worried about remit)

Strategic Equipment funding - next closing date May 2019

<https://epsrc.ukri.org/research/facilities/equipment/process/strategicequipmentprocess/>

EPSRC funds a range of topics

Key point - **51%** must be within EPSRC remit

Example topics include **reactor modelling and design, robotics, detector research, remote sensing, nuclear data, materials design**

Nuclear physics matches EPSRCs remit and could obtain funding

International Linkages (Managed)

Japan: 5 rounds of funding already, potential for more in 2019

Focused on decommissioning, robotics and sensors

S Korea: 2nd round of applications just closed

Focused on decommissioning and robotics

US: Round of funding in progress

Focused on subset of DOE-NEUP topics

India: 4 rounds of funding already

Wide range of topics, reactor materials, online monitoring of reactors

Call for funding with India due Q1/2 2019...

Also aiming to rejoin GenIV Forum as active member

Points of Contact

EPSRC

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Victoria Mico Egea - Nuclear Fission (S Korea/Japan), NIRAB

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Jasmine Cain - Nuclear (USA/India)

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Nuclear Academics Discussion Meeting

Annual meeting open to **ALL** UK nuclear related academics (and some industry)

Started in 2012 in Oxford, since held at Birmingham, Leeds, Sheffield, Bristol, Lancaster and Liverpool (2018)

Topics discussed in the past

- Updates from community on projects, opportunities

- Presentations from EPSRC, BEIS, Industry etc

- International opportunities - India, Japan, USA, Australia etc

- Panel discussions - media interactions, industrial opportunities, community view

Next meeting **Sept 10/11th** at **Bangor** with visits on 9th and 12th