



FUSION CDT

EPSRC Centre for Doctoral Training
in the Science and Technology of
Fusion Energy

EPSRC Centre for Doctoral Training in the Science and Technology of Fusion Energy

Roddy Vann, York Plasma Institute,
on behalf of the CDT's Management Board

EPSRC

Engineering and Physical Sciences
Research Council



Science & Technology Facilities Council

Central Laser Facility



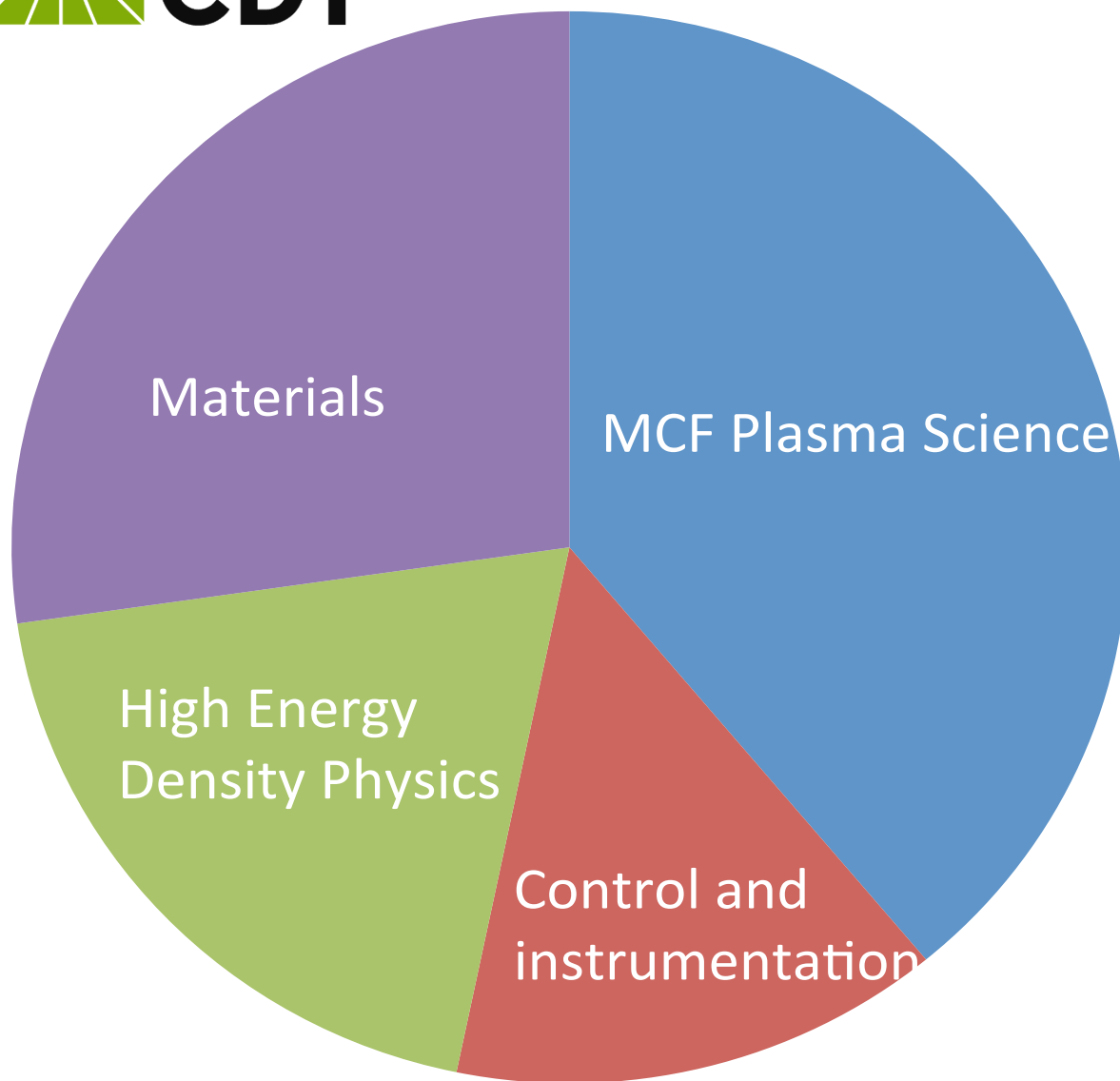
MANCHESTER
1824
The University of Manchester



UNIVERSITY of York

- A network of five UK universities;
 - Durham, Liverpool, Manchester, Oxford and York
- collaborating with international laboratories...
 - AWE, CCFE, F4E, ITER, NIF, NNL, RAL
- ...and industry;
 - AMEC Foster Wheeler, Frazer Nash, D-tAcq, Maxeler Technologies, General Atomics, etc
- to train the next generation of fusion scientists and engineers who will
 - Exploit ITER and international laser facilities
 - Design, optimise and build the first generation of fusion reactors
 - Contribute to related industries (e.g. fission and plasma technologies)

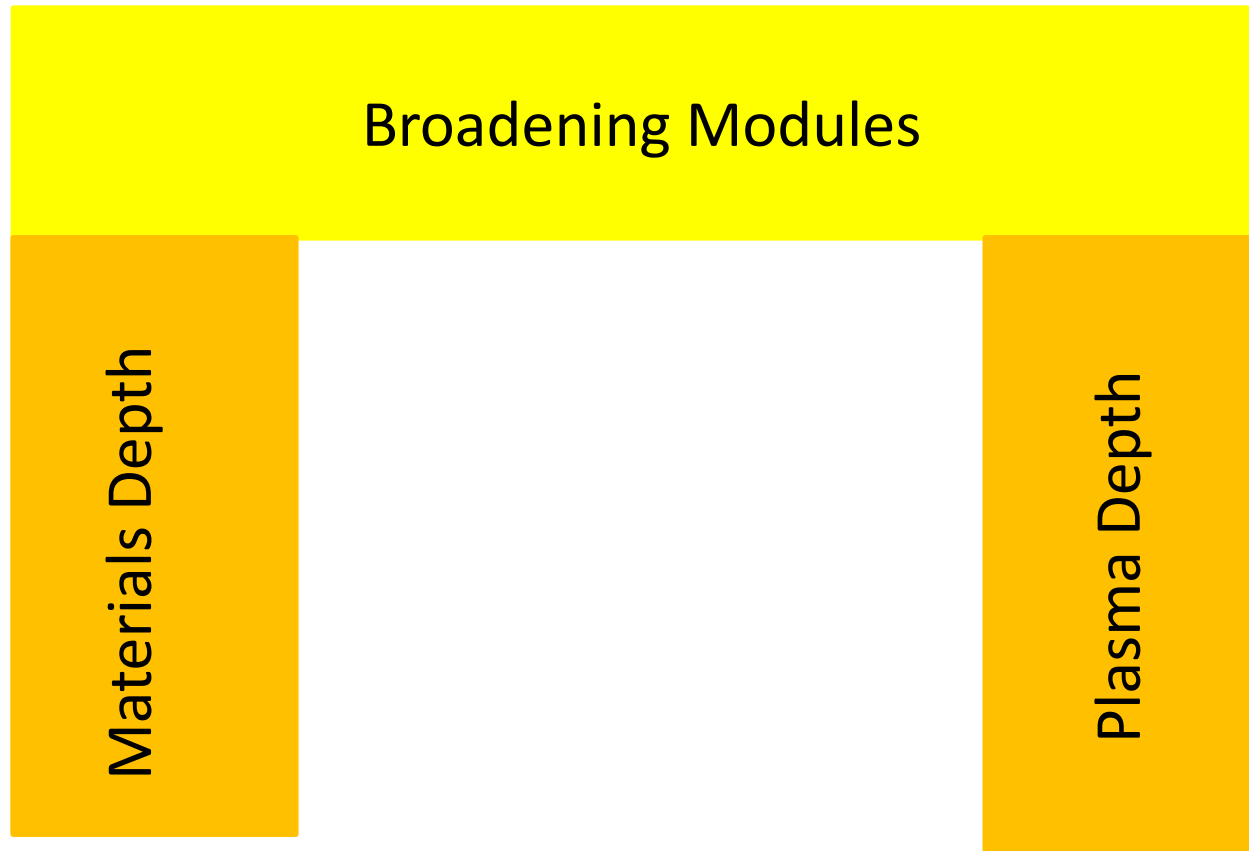
Research fields



Total intake approx.
70 students
across five intakes

Areas of training for the 2014-22 CDT

- A programme that integrates
 - [Materials science, plasma physics and related technologies](#)
- Across inertial and magnetic confinement fusion



- Broadening modules
 - Introduction to Plasma Physics (York)
 - Introduction to Materials (York; by Oxford staff)
 - Introduction to Computer Techniques (York)
 - Materials Applications in Fusion (Oxford)
 - Fusion Technology (York)
 - Frontiers of Fusion (York; annual)
 - Integrated Systems and Project Management (Durham)
 - Plasma Materials Interactions Laboratory (Liverpool)
- Materials strand
 - Radiation Damage (Oxford)
 - Characterisation/Analytical Tools (Oxford and Manchester)
 - Finite Element Method and Design Codes (Manchester)
- Plasma Strand
 - Fusion: inertial confinement (York)
 - Fusion: magnetic confinement (York)
 - Plasma Diagnostics (York)
 - Advanced Plasma Physics (York)



Joint Nuclear CDT event, May 2017: “small nuclear”

- In May 2017 we held a joint nuclear energy CDT event for the three nuclear energy doctoral training centres on “the challenges of small nuclear”
- Objective: to foster relationships between students, academics, industry, national labs and other external bodies around a common theme



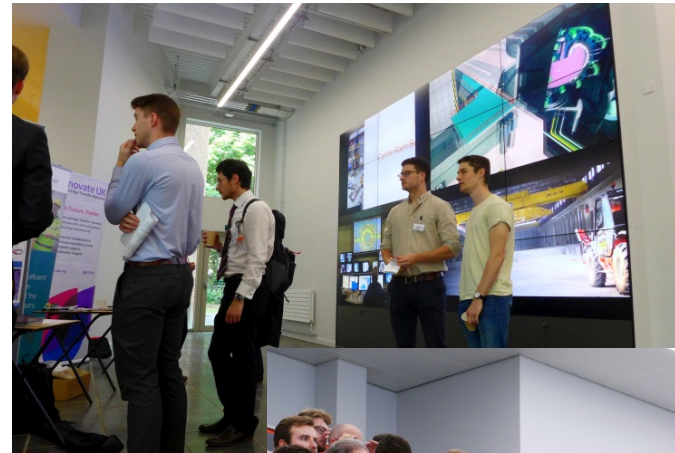
Attended by 135 delegates:
83 postgrads from
11 UK universities, and
representatives from 13
non-university partners



Joint Nuclear CDT event, May 2017: “small nuclear”

Programme

- Keynote speakers from National Nuclear Laboratory, Rolls-Royce, and Culham Centre for Fusion Energy
- Networking lunch
- Panel discussion with representatives from University of Manchester, National Nuclear Laboratory, Culham Centre for Fusion Energy, Rolls-Royce, Freshfields Brukhaus Deringer (law), Tokamak Energy, and Nuclear Innovation and Research Office
- Exhibition, posters, and networking session



First career destinations

Laser Plasmas

- Lucy Wilson – RAL PDRA
- Rachel Dance – Strathclyde PDRA
- Tom Fox – Chalmers PDRA
- Reem Alradaddi – King Saud Univ
- Ellie Tubman – Uni York PDRA

Magnetic Confinement Fusion

- Llion Evans – CCFE materials
- Lee Morgan – CCFE neutronics
- Scott Silburn – JET
- Nick Walkden – CCFE Fellowship plasma
- Matt Leyland – UoY post-doc on JET
- Owen Jones – PDRA l'Universite Aix-Marseille
- Bart Lomanowski – PDRA Aalto (Finland)
- Sarah Elmore – CCFE
- Aneeqa Khan – ITER Monaco Fellowship
- Arka Bokshi – CCFE Fellowship plasma
- Sophia Henneberg – IPP Greifswald plasma
- Jakob Brunner – IPP Greifswald
- Val Aslanyan – MIT plasma

Industry

- Tom Williams – AMEC Foster Wheeler
- Joe Bushell – AMEC Foster Wheeler
- Rachel McAdams – PWC
- Bill Huang – Tokamak Energy
- Michael Bowes – Intermolecular inc (CA, US)
- Mohammed Shahzad (Selex ES Ltd)
- Jamie Beal – Kilburn & Strode
- Amelia Lunniss – Secerna
- Luke Easy – Mathworks
- Rob Crowston – Ionic Information Ltd
- Francesco Ferroni – Siemens
- Dave Thomas – Poyry Energy Analyst
- Moritz Lessman – Atkins

Government and public

- Jack Snape – BIS
- Steve Scribbens - PGCE



Next CDT Call: some thoughts

- Industry engagement
- Joint activities with other CDTs
- Consider pros & cons of 1+3
vs 4 year PhD:
 - Cohort building beyond year 1
 - Equity across institutions

