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Department of Chemistry
School of Natural Sciences
Faculty of Science and Engineering (FSE)
Postgraduate Open Day 2026

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Introduction to the Department

- Largest Chemistry Department in the UK
  - 92 Academic staff
  - > £112 million of open grants
  - ca. 706 Undergraduate students
  - ca. 520 Postgraduate students
  - ca. 125 Postdoctoral Research Associates

Research Excellence Framework (REF2021) - Chemistry is in the top three for research power and top seven for GPA, with 100 per cent of our environment classed as 4*.

3rd in UK for Chemistry in *Nature* index for publications (2025-26)

Ranked 23rd in the world and 4th in the UK (QS World University Ranking)





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Department of Chemistry













Introduction to the Department Facilities

Analytical equipment – rolling major upgrades



NMR



National EPR service



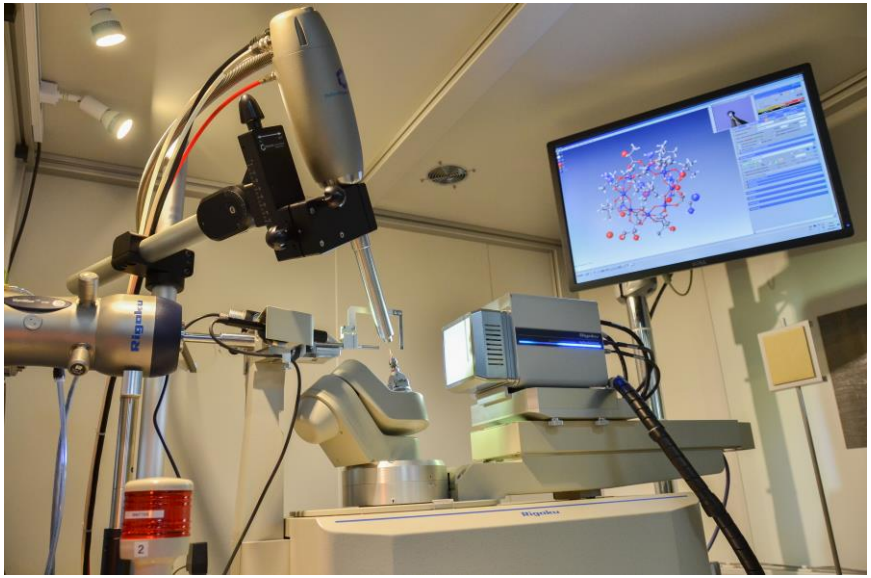
Michael Barber Centre for Mass Spectrometry





Robotic platforms for synthetic biology

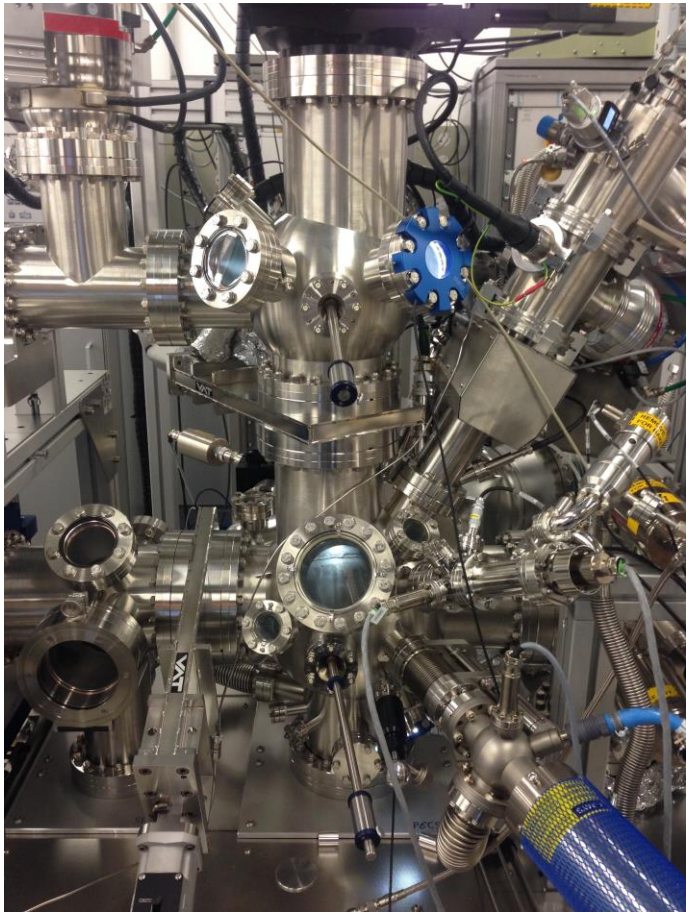
Introduction to the Department Facilities



Single crystal XRD



Powder XRD



Near-ambient pressure X-ray photoelectron spectroscopy

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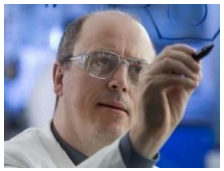
Some of our Research Leaders …



- *Royal Society University Research Professor* - David Leigh
- *Four Fellows of the Royal Society* - David Leigh, Gareth Morris, Nigel Scrutton, Nick Turner
- *ERC* Grant Holders* –David Leigh, Cinzia Casiraghi, Paul Popelier, Matt Gibson, Anthony Green, Patrick Cai, Guillaume de Bo, Conrad Goodwin
- *Other European and UK research Fellowships* – Igor Larrosa, David Procter, Mike Turner, Anthony Green, Sarah Lovelock, Conrad Goodwin, Jonathan Skelton, Jack Rowbotham, Patrick Cai





* ERC = European Research Council

Multidisciplinary Research

Our research also extends to the interfaces with biology, physics and materials science with prizes including …

- **Functional Framework Materials: Design and Characterisation Team** – 2024 Dalton Horizon Prize
- (Led by Martin Schröder and Sihai Yang)
- **The Molecular Ratcheteers** – 2023 Organic Chemistry Horizon Prize for breakthroughs in catalysed non-equilibrium systems

  (Led by David Leigh)
- **Enzyme Discovery** – 2023 Chemistry Biology Interface Horizon Prize: Rita and John Cornforth Award

  (Led by Jason Micklefield)
- **NoseToDiagnose** – 2021 Analytical Division Horizon Prize: Robert Boyle Prize for Analytical Science

  (Led by Perdi Barran)
- **RedAm Detectives** – 2021 Chemistry Biology Interface Division Horizon Prize: Rita and John Cornforth Award

  (Led by Nick Turner)
- **Molecular Magnetism Group** – 2021 Dalton Division Horizon Prize

  (Led by Richard Winpenny)
- **CrystalGrower Team** – 2021 Materials Chemistry Division Horizon Prize: Stephanie L Kwolek Award

  (Led by Mike Anderson)

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2021 – 2026 Royal Society of Chemistry Prizes

This is the most RSC prizes (24) for any institution. The range of subjects is huge:

- understanding reaction mechanisms in organic synthesis and catalysis
- biocompatible inks made of 2D materials
- discovering new enzymes for sustainable synthesis
- directing chemical systems with ratchet mechanisms
- development of heterocycles in radical and organosulfur chemistry
- metal-organic frameworks for gas separation and storage
- significant contributions to the development of polymer science
- advancing the chemistry of geometrically constrained heavy pnictogen pincer compounds
- fundamental contributions to f-block complexes
- safe storage and disposal of radioactive legacy nuclear waste
- computation of the magnetic and electronic properties of molecules

The research of our PhD students was vital for all of these prizes.



What will a PhD in Chemistry give you?

- Achievement – independence and an addition to knowledge;
- A high qualification – **for a career in research;**
- Satisfy research aspirations – to do challenging and original research;
- Research papers – evidence of research quality;
- A thesis – evidence of communication, commitment and endeavour;
- Transferable skills related to problem solving.

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Doctorate Prospects

UoM statistics	2019/20	2020/21	2021/22	2022/23	
Chemistry PhD students	272	278	286	306	
After PhD, % progression to positive outcomes (full time work/study) [vs UG]	92.9 [85.5]	80.0 [78.6]	94.4 [73.2]	90.0 [88.5]	Avg 9.65% [after PhD vs UG]
My current work…					
Is meaningful and important to me	83.3 [84.0]	100.0 [84.3]	87.5 [75.0]	88.9 [84.0]	
Fits with my future plans	83.3 [76.3]	100.0 [73.6]	87.5 [63.3]	94.4 [84.0]	
Uses what I learned	83.3 [67.1]	80.0 [53.4]	100.0 [47.9]	83.3 [54.0]	

Standard Occupational Classification (SOC) areas in which UoM Chemistry PhD graduates work:

- R&D Professionals
- Natural & Social Science Professionals
- Teaching professionals
- Business, research & administration
- Quality & Regulatory
- Media
- Finance
- Legal (probably patent law)
- Health & Social Services

Poor reasons to do a PhD?

- Status - to call yourself ‘Doctor’
- Fulfilling the ambitions of others or peer pressure
- Can’t get another job or decide on career – stop gap?
- A way to get or keep a visa
- Accelerated career progression / more money

PhD and Masters Courses

- MPhil – 1 year research project
- PhD – Doctor of Philosophy – no more than 4 years research
- Entrance requirements:
  - 2(ii) Honours Degree for Masters
  - 1st class or 2(i) equivalent (at Masters level) for PhD
- PG Loans for Masters & PhD courses

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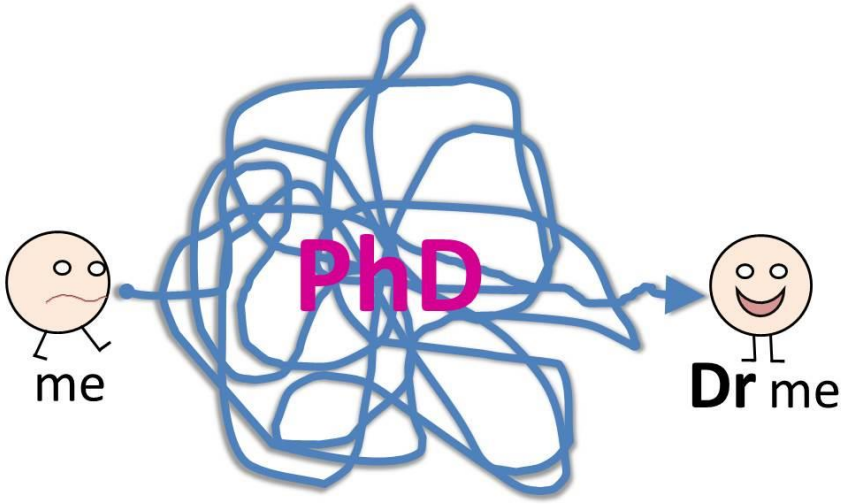
What is a PhD programme?



- Typically 3.5 or 4 years;
- 99% perspiration, 1% inspiration.
- Assessment of progression after 1st and 2nd years;
- Final assessment via thesis and viva.

How to Apply - determine interest

- **Chemistry**, inorganic chemistry, materials chemistry, organic chemistry, physical chemistry, theoretical and computational chemistry.
- Biological **chemistry**, Biocatalysis, biochemistry, biomolecular science, bioinformatics, biotechnology, gene expression, genetics, microbiology, molecular biology, neuroscience, pharmacology, toxicology, structural biology

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Department Research Themes

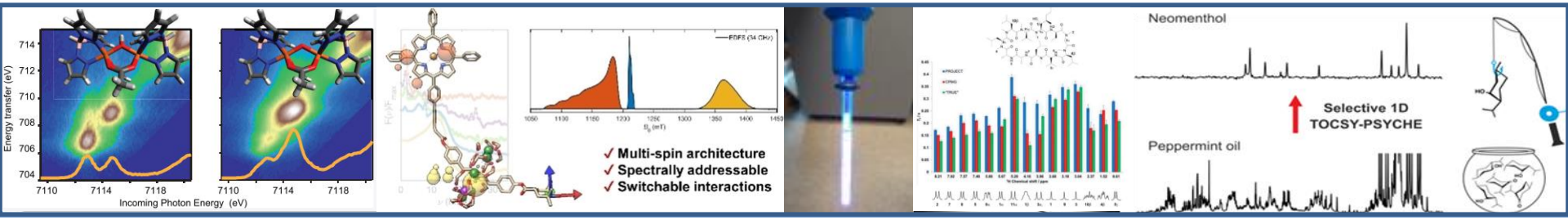
The School has breadth and depth across the chemical sciences.

We are divided into six research groupings:

- Analytical and Measurement Science (AMP)
- Computational and Theoretical Chemistry (CAT)
- Chemical Biology and Biological Chemistry (CBBC)
- Inorganic (INO)
- Materials (MAT)
- Organic (ORG)

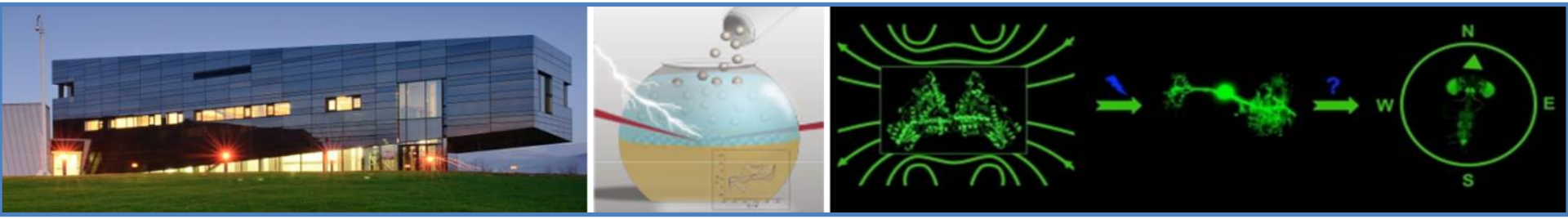
Many projects span these research groupings.

Analytical, Measurements and Physical Chemistry



Methods for the determination of chemical structure, dynamics, and reaction pathways are essential to chemistry. We develop new methodologies, and apply them to a wide range of chemical and biological problems, using Electron Paramagnetic Resonance (EPR), Nuclear Magnetic Resonance (NMR), mass spectrometry, and neutron scattering. We also have excellent facilities for radiation chemistry and electrochemistry.

Ralph Adams, Mike Baker, Perdita Barran, Alice Bowen, Fred Currell, Robert Dryfe, Alexander Golovanov, Katie Levey, Nicholas Lockyer, Gareth Morris, Mathias Nilsson, Andrew Pitt, Drupad Trivedi, Jon Waltho



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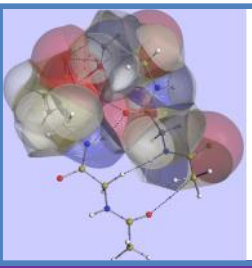
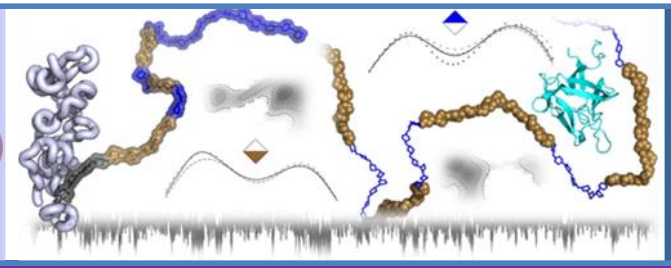
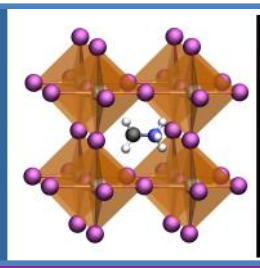
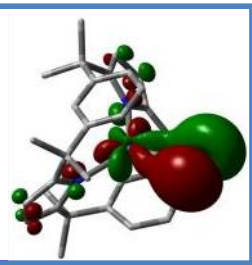
Computational and Theoretical Chemistry

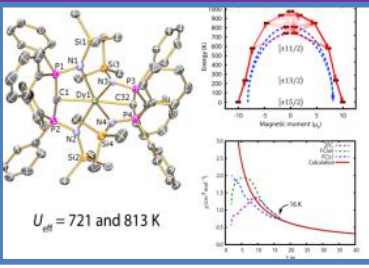



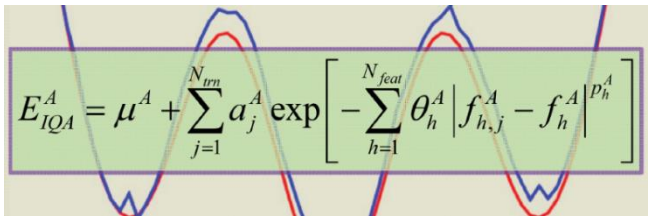


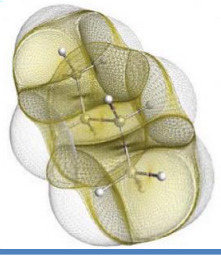
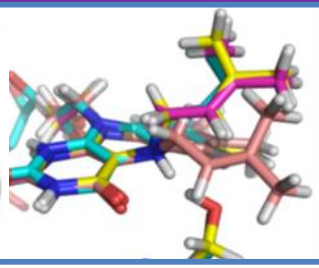
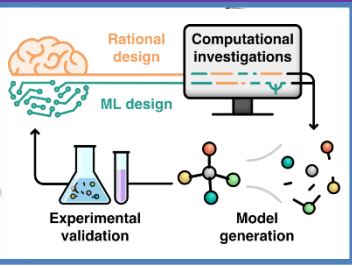


We cover a range of topics in theoretical chemistry and biology and work closely with a number of experimental groups. Areas include: QM methods in chemical topology and molecular inorganic chemistry; theory development for electronic and molecular structure; molecular magnetism and spectroscopy; structure and reactivity in chemical and biological processes; f-block chemistry; force-field design; solid-state materials and structural dynamics; simulation of complex fluids; computationally-led catalyst design.

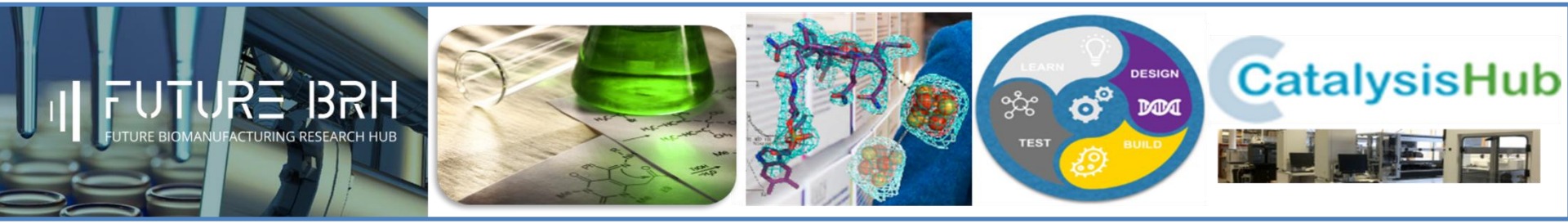
Paola Carbone, Sam Hay, Meagan Oakley, Paul Popelier, Jonathan Skelton, Cristina Trujillo, Igor Roncevic, Harry Morgan





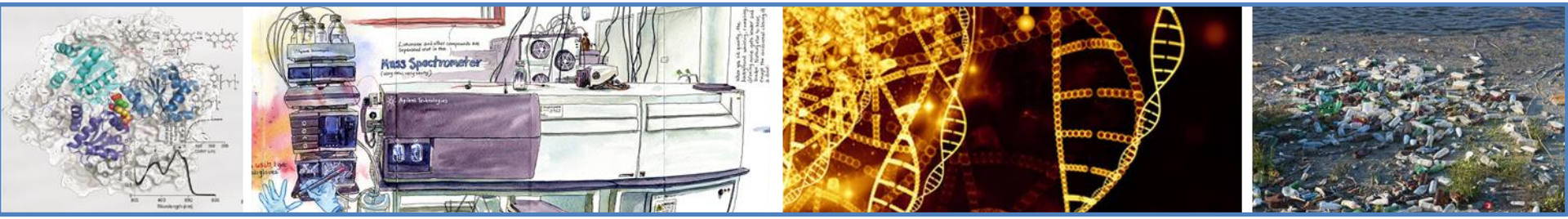




Chemical Biology and Biological Chemistry



We are an interdisciplinary research grouping working at the interface between chemistry and biology, seeking to understand and engineer biology at the molecular level. This encompasses biochemistry, enzymology, directed evolution, structural biology, genomics, proteomics, bioinformatics and bioprocessing. Our research aims to tackle societal challenges in health, energy & environment, and sustainable production of chemicals.

Andrew Buller, Patrick Cai, Roberto Chica, Neil Dixon, Elizabeth Fullam, Anthony Green, Florence Hardy, Yi Jin, David Leys, Sarah Lovelock, Claire Megarity, Gavin Miller, Richard Obexer, Jack Rowbotham, Will Smith, Lu Shin Wong



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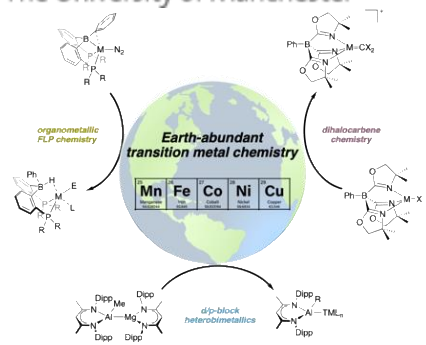
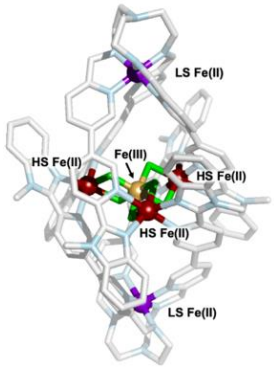
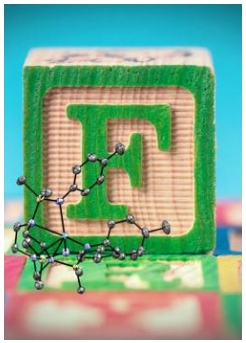
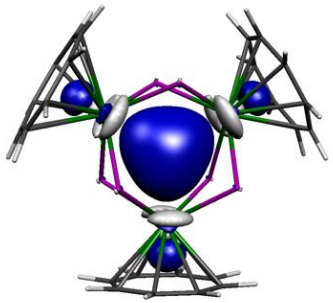
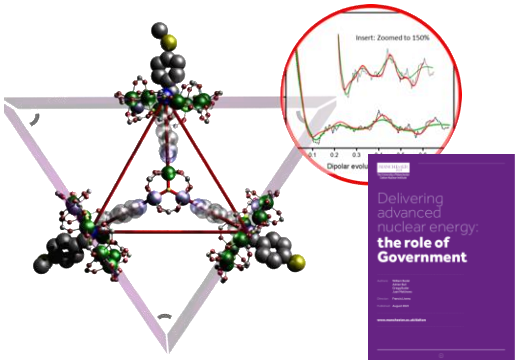
Inorganic Chemistry





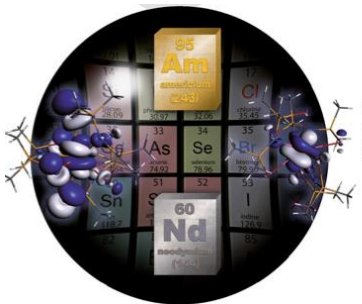


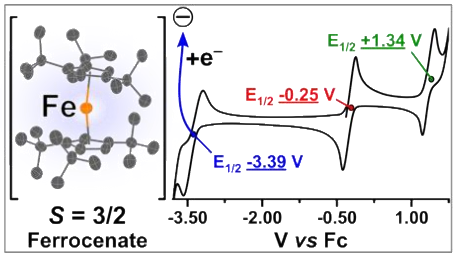


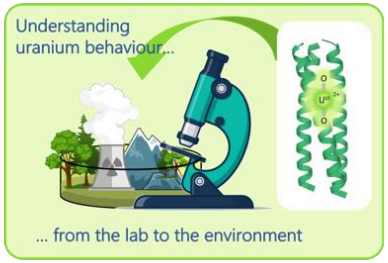


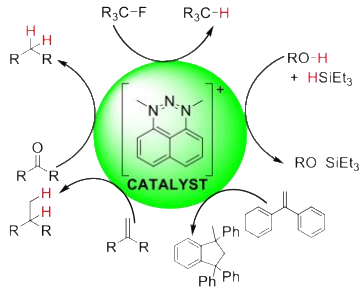
Our topics span the Periodic Table, including: Molecular and environmental chemistry of the lanthanides and actinides; Molecular magnetism; Homo- and heterogeneous catalysis mediated by novel transition metal and main group catalysts; Bioinorganic chemistry; Spectroscopic and magnetic techniques to probe metal complexes; Functional supra-molecular architectures and porous materials.

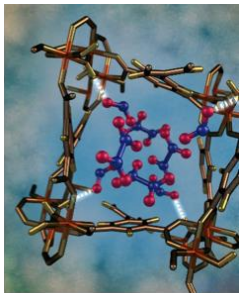
Josh Abbenseth, David Collison, Conrad Goodwin, Steve Liddle, Francis Livens, Eric McInnes, David Mills, Louise Natrajan, Floriana Tuna, Darren Willcox, Sihai Yang











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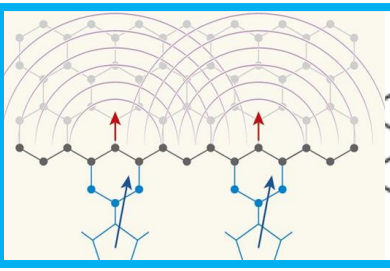
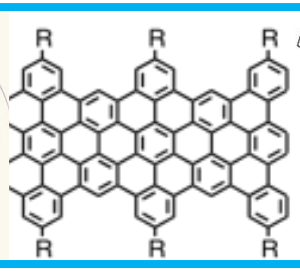
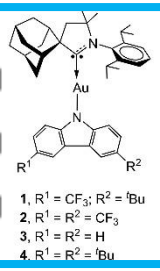
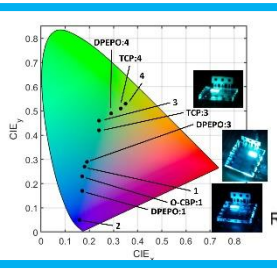
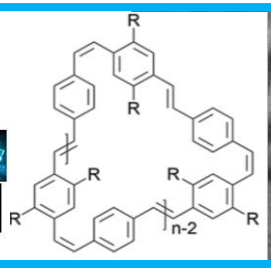
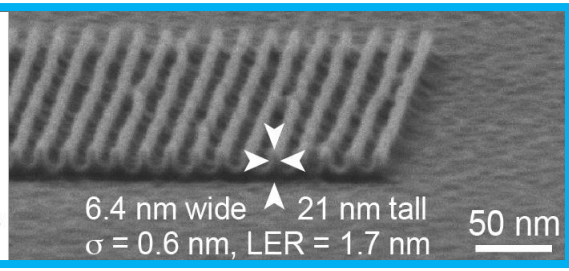
Materials Chemistry



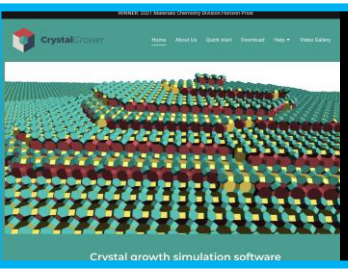


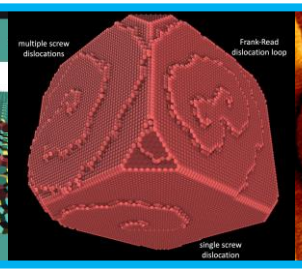




Materials chemistry focuses on designing, synthesizing, and understanding materials based on their composition, structure, and processing with the goal of tailoring them for specific applications. We cover organic materials and polymers, porous materials such as zeolites and metal-organic frameworks, and 2D materials, such as graphene and their derivatives. Applications in electronics, healthcare, sustainability and quantum computing. Have unique facilities to investigate radiation-induced changes enabling insights into the stability and performance of materials in harsh environments.

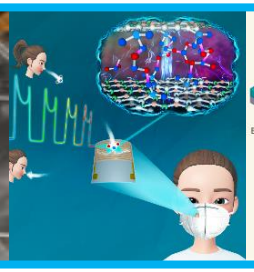
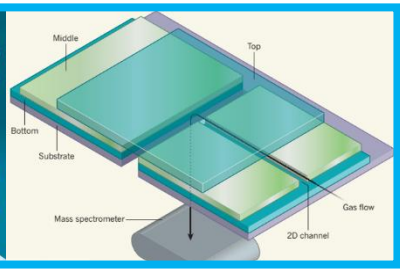
Martin Attfield, Alex Baidak, Cinzia Casiraghi, Ashok Keerthi, Alex Romanov, Martin Schröder, Michael Turner, Alex Walton, Richard Winpenny, Matt Gibson, Tom McDonald









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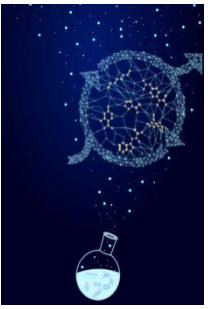
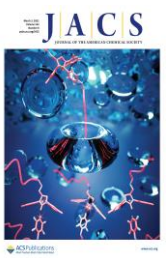
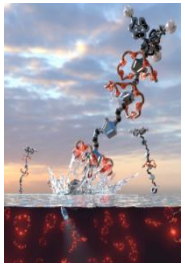
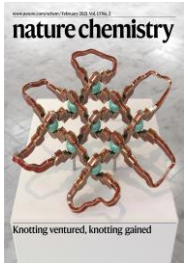
Organic Chemistry – Making is Understanding

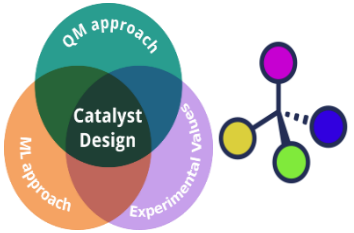






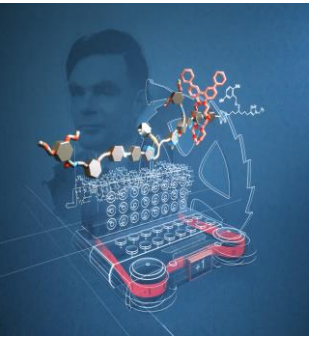


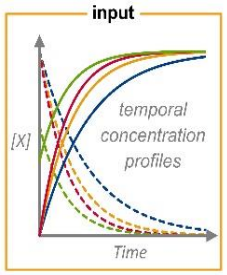


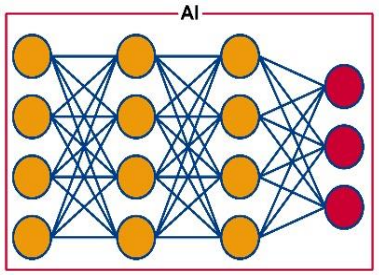


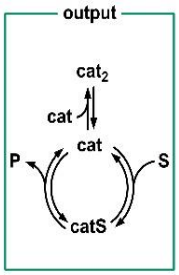
Synthesis allows us to design and realise fantastic molecular architectures that possess unprecedented physical, chemical and biological properties. We use chemistry to enhance sustainability, and to target molecular architectures that intervene in biological processes. Assembly of molecular components using weak interactions is the basis of supramolecular chemistry, which opens up exciting possibilities for machines that operate at the molecular level.

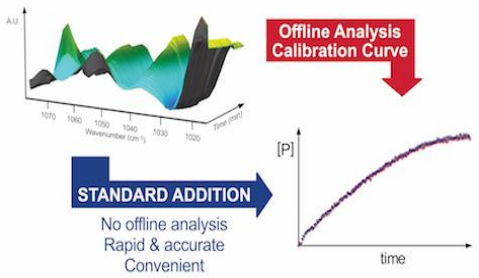
Giacomo Crisenza, Guillaume De Bo, John Gardiner, Michael Greaney, Michael James, Igor Larrosa, David Leigh, David Procter, Andrew Regan, Aaron Trowbridge, Cristina Trujillo, Simon Webb











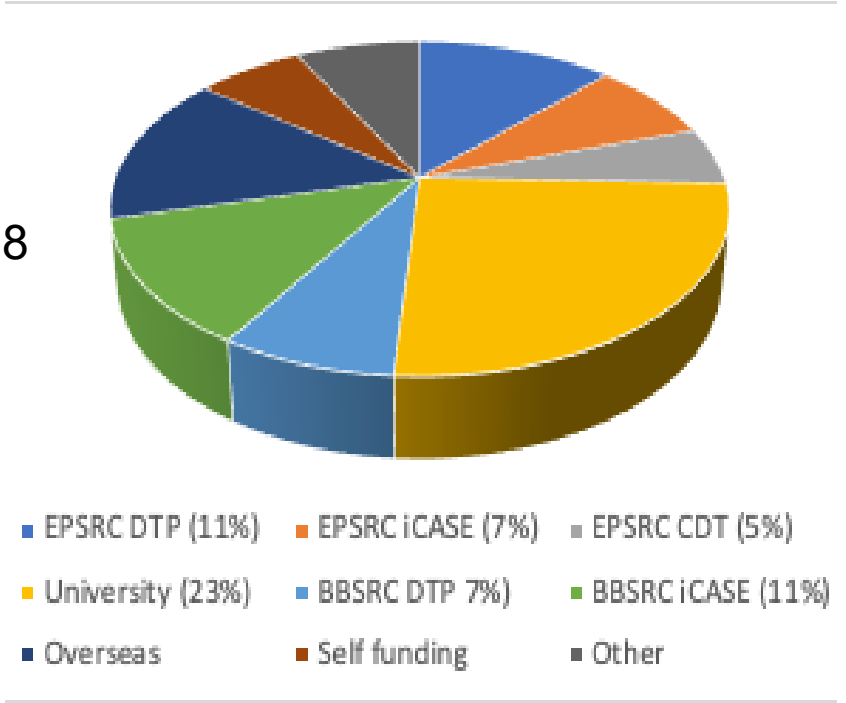
Studentships, Grants and Fees

Typically we admit around 80 PhD and find the funds for 50+ of these students.

Most funds are tied to individual supervisors, but some are awards to outstanding candidates themselves.

Studentships may include:

1. A maintenance grant ≥ £21805 pa for 2027/28
2. University fees (full time)
   - home £8100 (Sept 2027) + other project costs
   - overseas Band A: £31400 + other project costs



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Scholarships Available



https://www.se.manchester.ac.uk/phds-science-engineering

1. Individual Research studentships (for example EPSRC, BBSRC and MRC) are available from various funding bodies. These are advertised when available (deadlines start usually mid-12/26 onwards).
2. President's Doctoral Scholar Award (1st round 18/12/2026)
3. School PhD Studentships (2nd round 15/1/27, maybe 3rd round)
4. China Scholarships Council/ UoM scholarships (11/1/27)
5. Faculty of Science and Engineering Africa Futures Scholarship Awards (4/12/26)
6. School of Natural Science PhD Scholarships (TBC)
7. Dual PhD Melbourne (31/5/27), Peking University (30/11/2026), University of Tokyo (19/4/27), Tsinghua University (4/1/27)
8. Split site A*STAR in Singapore Studentships (TBC), Dual PhD IIT Kharagpur (TBC), IISc Bangalore (TBC)
9. Centres for Doctoral Research (CDTs) - 2DMoT and SATURN – rolling application (apply as soon as possible)
10. PG Loans – for MPhil and now PhD
11. Alternative Sources – Alternative Guide to Postgraduate Funding

http://manchester.ac.uk/study/postgraduate-research/funding/alternative-sources

Further Information

- http://www.chemistry.manchester.ac.uk
- https://www.se.manchester.ac.uk/phds-science-engineering
- FSE DA Admissions FSE.doctoralacademy.admissions@manchester.ac.uk
- Academic Research Pages - see Chemistry Concourse Slides
- Please have a chat with us…