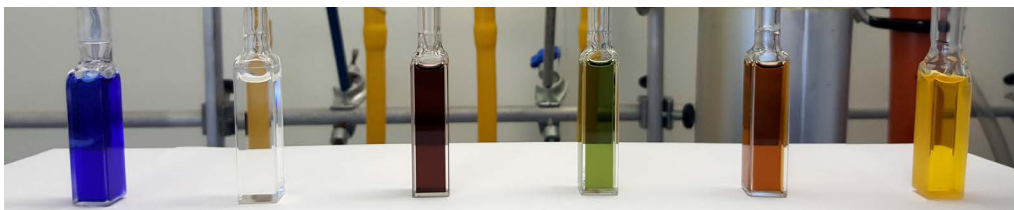


Centre for Radiochemistry Research

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Actinide complexes in solution.

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Our vision is that the 'NNUF@CRR' will be an accessible 'one-stop-shop' for making and studying compounds of relevance to academic and industrial radiochemistry and other nuclear-related research, enabling new generations of researchers to overcome the barriers that have long prevented discovery, analysis, and synthesis in this area.

The CRR will be composed of controlled and supervised areas underpinned by state-of-the-art analytical techniques. HEPA-filtered controlled areas will support medium-activity level radiochemistry in low-pressure glove boxes for synthesis, molten salts, and recycling. The supervised areas will be laboratories equipped with fume cupboards for handling aqueous and organic solvents and large quantities of acids to support more traditional, low-activity level radiochemistry.

The facility will hold radioisotopes, and as such the NNUF@CRR will support a wide range of radiochemistry and other nuclear-related research.

An indicative list of science that the NNUF@CRR will support includes:

- (i) speciation of coordination/organometallic complexes
- (ii) spectroscopy
- (iii) magnetism
- (iv) reprocessing
- (v) computational modelling
- (vi) precursors to materials, fuels (e.g. ATFs), and molten salts, the latter in the **MSNTL NNUF Facility**.
- (vii) collaboration with the **RADER NNUF Facility**, including environmental radiochemistry, geochemistry, mobility, nuclear forensics, decommissioning, colloids.

The NNUF@CRR will feature a range of capabilities, especially to underpin medium-activity level work, indicatively including:

- Single crystal X-ray diffraction with Mo and Cu K α sources
- 400 MHz NMR spectroscopy with multi-nuclear and variable temperature capability
- SQUID 7 Tesla Magnetometry with variable temperature, VSM, and AC susceptibility capability
- Low-pressure glove boxes for handling, synthesising, and recycling of transuranic compounds
- Alpha counters
- Liquid scintillation
- Gamma counters
- Fluorescence spectroscopy
- 2-Photon spectroscopy
- Laser-induced breakdown spectroscopy
- Attenuated total reflectance infrared spectroscopy
- Ultra-violet, visible, and near infrared spectroscopy
- Ball milling
- Centrifugation
- Stocks of various actinides and other radioisotopes.

Contact details

Please email the CRR Co-Directors, steve.liddle@manchester.ac.uk and nikolas.kaltsoyannis@manchester.ac.uk, copying in the CRR Administrator (aqsa.aziz@manchester.ac.uk), to discuss a potential project.

Availability

The CRR is currently under development.

Please consult <https://www.nnu.ac.uk/centre-radiochemistry-research> for the latest information.