EXACT
Next Generation Accelerated Characterisation Technologies
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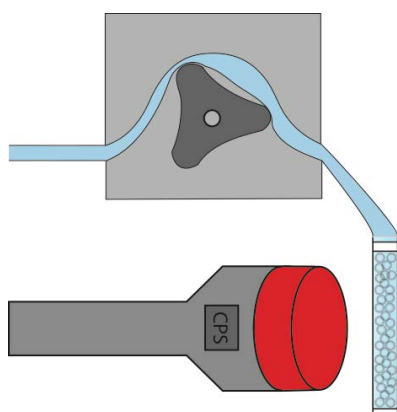
NNUF-EXACT (Next Generation Accelerated Characterisation Technologies) at the University of Southampton aims to be a world-leading radiochemistry facility enabling research and training in accelerated nuclear characterisation and remediation technologies underpinning civil nuclear programmes, decommissioning and site clean-up, and new nuclear infrastructure.

Aims
To provide an easily accessible state-of-the-art test-bed facility and supporting infrastructure for research, technology development / validation and training in *in-situ*, on-site and off-site characterisation and remediation methods, including for complex/problem waste streams.

Objectives
- To provide a state-of-the art, flexible facility to support world-leading research on accelerated nuclear characterisation and remediation technologies.
- To lead in the development of automated and rapid measurement techniques for *in-situ*, on-site and off-site radionuclide measurement, including those that can be integrated into robotic delivery systems.
- To develop technologies and enhanced methodologies for separation, characterisation and remediation of complex waste forms including oils, sludges, and reactive metals.
- To promote monitoring and characterisation technology transfer from the non-nuclear sector (including the latest ocean / aerospace / oil and gas sensor developments) by facilitating testing of novel technologies in a nuclear relevant environment.
- To lead in the development of robust method testing and validation processes for *in-situ* and on-site characterisation.
- To provide a comprehensive training platform for the next generation of radiochemists, site engineers and other nuclear professionals.
- To act as a focal point for international collaboration in the field of radionuclide separation, radioanalytical chemistry, characterisation and remediation technologies.

Training
In addition to the comprehensive training offered to all users of the facility including safe working practices in a radiochemical laboratory and training in characterisation techniques and radiometric instrumentation (including sensor and on-site technologies), a series of training courses and workshops are offered. These courses are held in lecture theatres and classrooms at the University of Southampton's Waterfront Campus and delivered by leading industry and academic professionals in collaboration with NNUF-EXACT partner organisation **NPL**.

NNUF-EXACT laboratory facility
The laboratory facility provides a flexible space for the development and testing of new methodologies and technologies with low level active reference materials and radiotracers. The laboratory features fume cupboards and bench and floor space with a customisable aqueous test rig to permit active testing of in-line and on-line sensors. The facility contains a portable gamma detector, an automated gamma spectrometer, a benchtop liquid scintillation counter and an SBET analyser as well as access to a vast range of radiometric and non-radiometric instrumentation via the supporting facilities.

Supporting facilities
Users of NNUF-EXACT have access to the following supporting facilities:

- **GAU-Radioanalytical Laboratories (GAU)**
- The University of Southampton's **Geochemistry Research Group**
- **The Stable isotope lab** at the University of Southampton's newly established SEAPORT laboratories.
- Access to the **Bristol interface analysis centre** is provided through the NNUF-EXACT partner organisation, the **South West Nuclear Hub**.

The NNUF-EXACT laboratory facility will feature a customisable aqueous test rig to permit active testing of in-line and on-line sensors.

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Contact details
Please email **NNUF-EXACT@soton.ac.uk** at any point for a discussion about your potential project.

Availability
NNUF-EXACT is currently scheduled to be available for access by external users from April 2021. Please consult **https://www.nnuf.ac.uk/exact** for the latest information.