

PhD in Development of Magnetic Sensors for Monitoring Nuclear Waste Canisters

Nuclear Decommissioning Authority studentship

University of Sheffield - Functional Materials Group and the Immobilisation Science Laboratory

Academic Supervisors: Dr Tom Hayward and Dr C L Corkhill

PhD Research Project available, commencing October 2017

We are seeking an enthusiastic, motivated individual who wishes to be involved in the development of novel sensors for remotely monitoring the integrity of nuclear waste storage canisters, with the aim of demonstrating the feasibility of a system that could be integrated into real-world intermediate level nuclear waste repositories. We are offering an opportunity for a 3.5 year, fully-funded PhD, sponsored by the Nuclear Decommissioning Authority, within the world-leading Functional Materials and Immobilisation Science Laboratories in the Department of Materials Science and Engineering, University of Sheffield.

You will undertake a PhD project, focused on developing sensors that allow the electrical detection of small distortions of the shapes of bands or wires of ferromagnetic materials which could be attached to the surfaces of intermediate level nuclear waste canisters to monitor their structural integrity. By the end of the project it is anticipated that you will be able to demonstrate the ability of the system to detect distortions in substitute waste canisters fabricated using our own facilities, thus paving the way for real-world realisation of the system. The successful applicant will work in between the Functional Materials Group and the Immobilisation Science Laboratory at the University of Sheffield, alongside over 60 other PhD students, and have access to the state of the art fabrication and characterisation facilities of both groups, as well as the department. Both groups make frequent use of national and international beamline facilities (synchrotrons, neutron sources), and regularly present at international conferences, and we anticipate that the successful applicant will have opportunities to do both. The project may also offer opportunities for placements within the nuclear industry (eg NNL, Sellafield Ltd).

To be eligible for the studentship, you must either be a UK citizen or a European Union national who has been resident in the UK for at least 3 years prior to starting the course.

This project would be well suited to a candidate with a 1st class or 2:1 Bachelor or Masters degree in physics, materials science or electrical engineering, but we would also welcome applications from high quality candidates from other, related disciplines.

