

## Fully Funded PhD Studentship

### *Assessment of the behaviour of metallic uranium during encapsulated product evolution*

#### Project Description:

At Sellafield site in Cumbria, significant quantities of spent metallic uranium fuel is stored in legacy pond facilities alongside skips containing zeolites and 'bit-bins' containing parts of fuel rods. There is an urgent need to retrieve and repackage these materials and in doing so materials which have been slowly corroding under a layer of pond sludge (predominantly Magnesium hydroxide with lesser quantities of Aluminium and Uranium) will be exposed to mechanical disturbance and a rapid change in corrosion environment. This project will investigate the fundamental mechanisms by which uranium metal will corrode when encapsulated in sludges of different types examining the mechanisms and extent for hydrogen gas hold-up in the sludge, produced by metallic corrosion. A further objective of the PhD will be the establishment of a series of long-term corrosion experiments that investigate different sludge and water chemistries and simulate both existing wet conditions and then material drying conditions expected for retrieval to 3M3 storage boxes.

#### Application and Funding:

This project is funded by the UK Government and Sellafield. The studentship provides funding for tuition fees, stipend (standard UKRI rate), and a research training grant subject to eligibility.

If you are interested to apply for the position, please get in touch with Tom Scott ([t.b.scott@bristol.ac.uk](mailto:t.b.scott@bristol.ac.uk)) or Keith Hallam ([k.r.hallam@bristol.ac.uk](mailto:k.r.hallam@bristol.ac.uk)). A formal application needs to be submitted through the University of Bristol online application: <http://www.bristol.ac.uk/study/postgraduate/apply/>.

Please choose "Physics PhD" as course, and mention "Sellafield Sludge" as corresponding studentship advert and "Tom Scott" as contact person. Applications should include a Curriculum Vitae, contact information for two potential referees and a short letter outlining the applicant's scientific interests, suitability and motivation to work on the topic.

**Deadline:** Applications close online at 5pm on 31st May 2020.