



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Reactor Automation, Faculty of Engineering & Physical Sciences



Salary: Grade 7 (£33,797 – £40,322 p.a.)

Reference: EPSPE1012

Closing date: 31 May 2020

Fixed-term for 24 months

We will consider flexible working arrangements

Research Fellow in Reactor Automation Schools of Chemical and Process Engineering and Chemistry

Are you looking to apply your skills in reaction chemistry and engineering to the development of new approaches for defence against chemical warfare agents? Do you want to further your career in one of the UK's leading research intensive Universities?

We are seeking a Research Fellow in Reaction Automation to join a major two year Defence Science and Technology Laboratory (DSTL) funded programme.

The overarching project aims to develop an Industry 4.0 approach, revolutionising the destruction of chemical warfare agents using advanced data-rich and cognitive computing technologies. A key novelty is the use of fully autonomous experimental platforms. This enables the application of machine learning to the development of chemical processes: the system will continuously learn, increasing in confidence and knowledge over time, from previous iterations.

Your position will work alongside a team of Research Fellows with Process Chemistry and Engineering expertise at the Institute of Process Research and Development at Leeds. You will interact with partners at the Defence Science and Technology Laboratory (DSTL).

Due to the sensitive nature of the project, recruitment to this role will be based on passing national security checks at DSTL in Porton Down in Salisbury.

What does the role entail?

As a Research Fellow your main duties will include:

- Contributing to the development of the project by assisting with the design, construction and testing of the automated reactor platforms;
- Design, build and construct automated continuous reactors, and operate the resultant reactor platforms, associated online analysis systems and control software;
- To integrate and develop the use of machine learning algorithms for chemical composition prediction and compare to current methodologies;



- To run reaction chemistry examples to optimise chemical weapon decomposition or decommissioning;
- To generate high quality and impactful publications in collaboration with the project team;
- To interact successfully with members of the Leeds project team and collaborate effectively with DSTL including translation of technologies;
- To deliver project objectives to agreed timelines;
- To communicate or present research results within the research team, at national and international meetings and in learned journals;
- To comply with Health and Safety regulations, and encourage and ensure a safe working environment;
- To aid other laboratory members and to provide guidance to masters and PhD students.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.

What will you bring to the role?

As a Research Fellow you will have:

- A PhD (or close to completion) in Chemistry or Chemical Engineering or related appropriate discipline;
- Expertise in reactor control and automation;
- Demonstrable record of the ability to solve process and equipment problems, and generate new process understanding;
- Expertise in process engineering including the design and construction of process equipment, process automation and control and preferentially chemical analysis;
- A solid understanding of reaction chemistry/engineering concepts and their application;
- Proof of independence as a researcher, for example, through evidence of leadership of a high-impact peer-reviewed publication in process development/process analytical technology/reaction engineering;
- Demonstrable ability in independent planning of medium-term objectives, effective methods for delivering those objectives, and ability to contribute to planning of longer-term objectives with a team environment;



- Experience in sourcing, specifying, designing, automation and integration of chemical processing equipment and risk assessment of this equipment and experimentation;
- The ability to summarise research outputs/plans clearly and concisely in written scientific articles;
- Excellent interpersonal skills to enable effective communication with industrial collaborators with complementary expertise.

You may also have:

- Expertise in the use of high temperature and pressure fluid systems;
- Experience in the use of reaction automation platforms such as LabView or MATLAB.

How to apply

You can apply for this role online; more guidance can be found on our [How to Apply](#) information page. Applications should be submitted by **23.59** (UK time) on the advertised [closing date](#).

Contact information

To explore the post further or for any queries you may have, please contact:

[Richard Bourne](#), Associate Professor in Reaction Engineering

Tel: +44 (0)113 343 7620

Email: R.A.Bourne@leeds.ac.uk

Additional information

Faculty and School Information

Further information is available on the research and teaching activities of the [Faculty of Engineering & Physical Sciences](#), and the [School of Chemical and Process Engineering](#).

A diverse workforce

The Schools in the Faculty of Engineering & Physical Sciences are proud to have been awarded the Athena SWAN [Bronze or Silver](#) Award from the Equality Challenge Unit,



the national body that promotes equality in the higher education sector. Our [equality and inclusion webpage](#) provides more information.

Working at Leeds

Find out more about the benefits of working at the University and what it is like to live and work in the Leeds area on our [Working at Leeds](#) information page.

Candidates with disabilities

Information for candidates with disabilities, impairments or health conditions, including requesting alternative formats, can be found on our [Accessibility](#) information page or by getting in touch with us at disclosure@leeds.ac.uk.

Criminal record information

Rehabilitation of Offenders Act 1974

A criminal record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our [Criminal Records](#) information page.

Security Clearance

Due to the sensitive nature of the project, recruitment to this role will be based on passing national security checks at DSTL in Porton Down in Salisbury.

