



UNIVERSITY OF LEEDS

Research Fellow in Fluid Dynamics

Faculty of Engineering & Physical Sciences



Salary: Grade 7 (£33,797 – £40,332 p.a.)

Reference: EPSPE1010

Closing date: 17 March 2020

Two posts are available

Fixed-term until end March 2021

We will consider flexible working arrangements

Research Fellow in Fluid Dynamics

School of Chemical and Process Engineering

Do you have a fascination and energy for understanding the behaviour of fluids, and in particular the behaviour of particles and droplets? Can you demonstrate your expertise in the area, and your ability to design, analyse and interpret experiments that give us new insights? Do you want to develop your career in an active group at one of the UK's leading research intensive universities?

We are seeking to appoint two talented and highly motivated Research Fellows to study the behaviour and interactions of droplets and particles. In particular, we are interested in furthering our understanding of droplet and particle interactions as droplets dry. These roles will be part of an EPSRC funded collaborative project '[Evaporative Drying of Droplets and the Formation of Micro-structured and Functional Particles and Films](#)' and is a collaboration between the Universities of [Leeds](#), [Durham](#) and [Bristol](#) and 13 industrial partners. The project brings together modelling and experimental expertise to address the complex challenge of understanding the wealth of dynamics that change the distribution of material inside a droplet as it dries and how particles come together to form agglomerates and films.

The research will primarily involve designing, performing and analysing experiments that enable our understanding of the collision and spreading dynamics of droplets and particles to be characterised, quantified and understood. From these, the role holders will develop new insights and models which can be used to predict behaviour and guide design in industrial applications.

What does the role entail?

As a Research Fellow, your main duties will include:

- Designing, developing and conducting novel experiments for the investigation of droplets and particles;
- Identifying appropriate, and developing new, analysis techniques to quantify the results. From these develop models of the behaviours;
- Using your theoretical understanding to interpret, develop insights and mechanistic based models of the observations;



- Generating independent and original research ideas and methods in experimental fluid dynamics with an aim to extend the research portfolio of the group;
- Making a significant contribution to the dissemination of research results by publication in leading peer-reviewed journals, and by presentation at consortium meetings and national and international conferences.
- Working independently on a day to day basis, with the support of supervisors as appropriate, setting own direction and goals and taking accountability and responsibility for the successful, on time, delivery of the allocated project tasks and objectives;
- Contributing to overall project management and development of research objectives, suggesting revisions where necessary, to ensure that project objectives are met;
- Applying initiative, creativity and judgement to find solutions to meet the project aim and generate original research ideas;
- Actively collaborating with academic and industrial partners to maximise the success and impact of current and future research;
- Contributing to the administration, support and development of a world class research group in Leeds;
- Contributing to the support, training and management of Masters, Doctoral and Summer students;
- Building contacts and participating in networks to form relationships for future collaboration. Supporting the development of new and existing national and international collaborations and research proposals;
- Evaluating methods and techniques used and results obtained by other researchers and to relate such evaluations appropriately to your own work.

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 relevant PhD (or close to completion), or equivalent experience, in Engineering, Physics, Mathematics or similar;
- Demonstrated excellence in experimental fluid dynamics applied to multi-phase systems;
- Proven ability to design, prototype and build experimental systems;
- A sound theoretical understanding of the physics controlling the behaviour of droplets;
- A proven ability in image analysis and development of image analysis algorithms;
- Excellent written and verbal communication skills including presentation skills and the ability to communicate effectively with a wide range of stakeholders;
- A track record, or developing track record, of publication in high impact journals;
- A proven ability to work well both individually and in a team;
- Good time management and planning skills, with the ability to meet tight deadlines and work effectively under pressure, and the demonstrated ability to plan and execute research tasks and manage projects;
- Demonstrated ability to set your own direction and goals without close supervision, showing initiative, and creativity;
- A strong commitment to your own continuous professional development.

You may also have:

- Experience working with lasers and laser based experimental fluid dynamics techniques;
- A strong understanding of imaging system design;
- Experience with:
 - mechatronic system design and control using labview or similar;
 - the generation and control of droplets;
 - spray drying or inkjet printing techniques and industries.
- Experience of pursuing external funding to support research.



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:

[Professor Andrew Bayly](#), Chair of Chemical Engineering

Tel: +44 (0)113 3430167

Email: a.e.bayly@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.

