



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

**Research Fellow in the Impact of Fluid-Induced Forces on Protein Stability,
Faculty of Engineering and Physical Sciences**



Salary: Grade 7 (£39,355 – £46,735 p.a.) Due to funding restrictions, an appointment will not be made higher than £39,355 p.a.

Reference: EPSME1191

Location: Leeds main campus

Closing date: Sunday 11 May 2025

Fixed-term for up to 22 months

We are open to discussing flexible working arrangements

Research Fellow in the Impact of Fluid-Induced Forces on Protein Stability, School of Mechanical Engineering (in close collaboration with Astbury Centre).

Do you have experience of developing and quantifying small-scale fluid-based devices? Do you want to use your experience to support developing the next generation of protein-based medicines? Do you want to further your career by working on a multidisciplinary project spanning engineering and biology in one of the UK's leading research-intensive universities?

This position supports the recently awarded EPSRC award titled EMBEDs: Ensuring Manufacturability of next-generation Biopharmaceuticals by Design. The project has been designed through careful collaboration between the University of Leeds and two industrial partners (Astra Zeneca and UCB) who are actively involved in developing the next generation of biopharmaceutical medicines. These are protein based, and there is a need to identify successful candidates that are both effective against the target disease but are also robust molecules that can survive the rigours of manufacturing.

We have a long track record of developing novel devices for assessing the stability of proteins in relation to hydrodynamic forces (e.g. [PNAS](#)) - and more recently shown that the measurements are unique amongst a much broader portfolio of tests that are carried out on candidate molecules. The focus of this work strand will be to develop new approaches to stressing proteins in a controlled manner.

You will be required to bring your understanding of fluid mechanics and fluid-flow equipment design to create new approaches to both stressing and evaluating protein response. As samples are limited, you will have experience in working with micro- and milli-fluidic systems. This will involve working with other scientists to identify appropriate physics-based measurement techniques and working with a unique range of protein samples developed within this project to quantify their behaviour. Within the wider team, you will be proactive in presenting your findings including to industrial partners and preparing your data for publication.



What does the role entail?

As a Research Fellow, your main duties will include:

- To design small-scale fluid flow devices that impart defined conditions on the flows within them;
- To work with technicians to manufacture such devices and create working systems that you use within the laboratory for evaluation of protein stability;
- To evaluate the effect of the flow on the protein solution. This extends to designing devices in a way for on-line biophysical analyses, as well as using a range of off-line biophysical measurements;
- To bring innovative thinking to assessing protein stability through combining biophysical techniques with flow-based approaches;
- Generating and pursuing independent and original research ideas in the appropriate subject area;
- Developing research objectives and proposals and contributing to setting the direction of the research project and team including preparing proposals for funding in collaboration with colleagues;
- Evaluating methods and techniques used and results obtained by other researchers and to relate such evaluations appropriately to your own research;
- Making a significant contribution to the dissemination of research results by publication in leading peer-reviewed journals and by presentation at national and international meetings;
- Working independently and as part of a larger team of researchers, both internally and externally, to develop new research links and collaborations and engage in knowledge transfer activities where appropriate;
- Maintaining your own continuing professional development and acting as a mentor to less experienced colleagues as appropriate;
- Contributing to the training of both undergraduate and postgraduate students, including assisting with the supervision of projects in areas relevant to the project.

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 have submitted your thesis before taking up the role) in engineering or physics or a closely allied discipline;
- The proven ability to design and characterise small-scale fluid flow devices for practical applications;
- Laboratory skills in operating fluid-flow devices and capturing performance metrics from such tests;
- A track-record in learning new skills and techniques from outside your core field of study;
- An innovative mindset and willingness to bring new ideas to fruition;
- Good time management and planning skills, with the ability to meet tight deadlines and manage competing demands effectively without close support;
- A developing track record of peer-reviewed publications in international journals;
- Excellent communication skills both written and verbal, and the ability to communicate your research at national and international conferences;
- A proven ability to work well both independently and in a team;
- A strong commitment to your own continuous professional development.

You may also have:

- Experience of pursuing external funding to support research;
- Experience in using novel biophysical approaches for assessing characteristics of proteins;
- Experience of life science 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 Nikil Kapur](#), Professor of Applied Fluid Mechanics

Tel: +44 (0)113 343 2152

Email: N.Kapur@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 Mechanical Engineering](#).

The project is interdisciplinary in nature, and you can find out more about [The Astbury Centre](#).

The position is in close collaboration with [Prof. David Brockwell](#) (Project Lead), [Prof. Sheena Radford](#) (Co-Investigator) and [Dr Leon Willis](#) (Researcher Investigator, who you will work alongside) from the Astbury Centre.

Working at Leeds

We are a campus-based community and regular interaction with campus is an expectation of all roles in line with academic and service needs and the requirements of the role. We are also open to discussing flexible working arrangements. To find out more about the benefits of working at the University and what it is like to live and work in the Leeds area visit our [Working at Leeds](#) information page.

A diverse workforce

As an international research-intensive university, we welcome students and staff from all walks of life and from across the world. We foster an inclusive environment where all can flourish and prosper, and we are proud of our strong commitment to student education. Within the Faculty of Engineering and Physical Sciences we are dedicated to diversifying our community and we welcome the unique contributions that individuals can bring, and particularly encourage applications from, but not limited to Black, Asian and ethnically diverse people; people who identify as LGBT+; and people with disabilities. Candidates will always be selected based on merit and ability.



The Faculty of Engineering and Physical Sciences are proud to have been awarded the Athena SWAN [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.

Information for disabled candidates

Information for disabled candidates, impairments or health conditions, including requesting alternative formats, can be found under the 'Accessibility' heading on our [How to Apply](#) information page or by getting in touch by emailing HR via hr@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.

Salary Requirements of the Skilled Worker Visa Route

Please note that this post may be suitable for sponsorship under the Skilled Worker visa route but first-time applicants might need to qualify for salary concessions. For more information, please visit [the Government's Skilled Worker visa page](#).

For research and academic posts, we will consider eligibility under the Global Talent visa. For more information, please visit [the Government's page, Apply for the Global Talent visa](#).

