

## CANDIDATE BRIEF

Research and Innovation Fellow in Colloid Chemistry of Alternative Proteins  
School of Food Science and Nutrition



**Salary: Grade 7 (£39,105 - £46,485 p.a.)**

**Reference: ENVFS1128**

**Fixed-term for 30 months from 1<sup>st</sup> January 2025**

## Research Fellow in Colloid Chemistry of Alternative Proteins, School of Food Science and Nutrition, Faculty of Environment

**Are you an ambitious researcher looking for your next challenge? Do you have an established background in colloid and interface science and interests in discovering new knowledge in alternative proteins? Are you interested to explore the innovation potential of a scientific discovery to bring the research to marketplace by working with food industry stakeholders? Do you want to further your career in one of the UK's leading research-intensive universities?**

We are looking for a Research and Innovation Fellow to join a project funded by the National Alternative Protein Innovation Centre (NAPIC). NAPIC is a £38m entity (including a £15m UKRI investment) to lead the UK's alternative protein knowledge and Innovation ecosystem. NAPIC's vision is to make alternative proteins mainstream for a sustainable planet. The centre is led by the Universities of Leeds, Sheffield, Imperial College London and the James Hutton Institute, in collaboration with over 100 national and international partners. NAPIC is a cohesive pan-UK centre poised to revolutionise the UK's agri-food sector by harnessing our world-leading science base through a co-created alternative protein strategy across the Discovery → Innovation → Commercialisation pipeline to support the transition to a sustainable, high growth, blended protein bioeconomy. NAPIC features four integrated activity streams: research to address innovation challenges; a national alternative protein knowledge base; workforce of the future; and accessible Innovation facilities.

NAPIC is actively recruiting a number of Research and Innovation Fellows across the four leading organisations. We seek highly motivated researchers across a range of disciplines who are eager to lead the UK's alternative protein revolution. These Research and Innovation fellows will benefit from collaborations (industry and academia), international placement opportunities and tailored entrepreneurship training. They can also lead their own alternative protein agile projects within the centre.

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This particular project will be using a combination of experimental colloidal measurements and data science to collate and compare the functional properties of plant proteins with well-established animal proteins with a view to predicting the performance of plant proteins that might most successfully replace current animal-based food structures in ingredients or in finished food formulations. The sorts of functional properties that are key are: solubility, molecular dimensions, interfacial tension, protein surface load, foam- and emulsion- stabilizing properties, interfacial rheological properties, gelation and tribological properties.

Data mining will be used to collate these properties where they exist or fill in key gaps via laboratory measurement. Artificial Intelligence (AI) and established machine learning (ML) tools will then be used to develop predictive relationships between the fundamental properties of the individual proteins: amino acid sequence (e.g., from the Protein Data Bank); protein charge; molecular weight of the monomer & its aggregation number(s) and their colloidal performance. This will speed up the search for untested alternative proteins and/or their fragments/ combinations that can mimic the properties of traditional animal proteins such as caseins, gelatin, *etc.*

You will join a highly dynamic, interdisciplinary team focusing on the whole theme of alternative proteins, collaborating with a wide range of academics and industrial partners, helping to run workshops, develop micro credentials and outreach activities as well as conducting your own research program.

You will have a PhD in Food Science, Physical chemistry, Material Science or a closely related discipline together with a strong background in colloid and interfacial science. You will also have a positive attitude to collaborative research and the drive to make a significant contribution to making this ground-breaking project a success.





## Main duties and responsibilities

- Designing, planning and conducting a programme of investigation, in consultation with Professor Anwasha Sarkar, Professor Brent Murray and Professor Nik Watson;
- Seeking opportunities to collaborate with relevant commercial stakeholders to accelerate innovation and commercialization of the scientific discovery;
- Evaluating methods and techniques used and results obtained by other researchers and relating such evaluations to your own work and research;
- Generating independent and original research ideas and methods for finding relationships between protein molecular properties and their functional properties;
- Undertaking appropriate experimental measurements where they are lacking in the literature;
- 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 and engaging in national or international knowledge-transfer activities and relevant alternative protein micro-credential development where appropriate;
- Contributing to the supervision of junior researchers and PhD students and acting as a mentor to less experienced colleagues;
- Maintaining your own continuing professional development;
- Contributing to, and encouraging, a safe working environment.

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.

## Qualifications and skills

### Essential

- A PhD in Food Science, Physical chemistry, Material Science or a closely related discipline;
- A strong background and experience in bulk and interfacial properties of



proteins;

- Experience in bulk rheology, microscopy and other colloid and interfacial science techniques;
- Experience of using software for fitting data, statistics and data management;
- Experience of combining the results of multiple approaches across different disciplines to develop new insights into a field of study;
- The ability to design, execute and write up research independently;
- A 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;
- Good time management and planning skills, with the ability to meet tight deadlines, manage competing demands and work effectively under pressure without close supervision;
- A proven ability to work well both independently and as part of a team;
- A strong commitment to your own continuous professional development.

### Desirable

- Experience with advanced statistical analyses;
- Knowledge of data science and machine learning to handle large datasets.

## 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 Anwasha Sarkar, Professor of Colloids and Surfaces**

Email: [A.Sarkar@leeds.ac.uk](mailto:A.Sarkar@leeds.ac.uk)



**Professor Brent S. Murray, Professor of Food Colloids**

Email: [b.s.murray@food.leeds.ac.uk](mailto:b.s.murray@food.leeds.ac.uk)

**Professor Nik Watson, Professor of Artificial Intelligence in Food**

Email: [b.s.murray@food.leeds.ac.uk](mailto:b.s.murray@food.leeds.ac.uk)

## **Additional information**

Please note: If you are not a British or Irish citizen, from 1 January 2021 you will require permission to work in the UK. This will normally be in the form of a visa but, if you are an EEA/Swiss citizen and resident in the UK before 31 December 2020, this may be your passport or status under the EU Settlement Scheme.

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: [www.gov.uk/skilled-worker-visa](http://www.gov.uk/skilled-worker-visa)

For research and academic posts, we will consider eligibility under the Global Talent visa. For more information please visit: <https://www.gov.uk/global-talent>

Find out more about the [Faculty of Environment](#).

Find out more about the [School of Food Science and Nutrition](#)

### **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.

### **A diverse workforce**

The Faculty of Environment is 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.





### **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](mailto: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.

