



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Nanotechnology Assisted Polymer Flooding, Faculty of Engineering



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

Reference: EPSPE1013

Closing date: 19 July 2020

Fixed-term until 01 August 2021

We will consider flexible working arrangements

Research Fellow in Nanotechnology Assisted Polymer Flooding

School Chemical and Process Engineering

Are you an ambitious researcher with a background in nanotechnology? Can you demonstrate your expertise in Enhanced Oil Recovery? Do you want to develop yourself at one of the UK's leading research intensive universities?

The application of nanotechnology in the oil and gas sectors is a recent and rapid development field. Polymer flooding is a promising Enhanced Oil Recovery (EOR) technology but still has many technological limitations, especially under high temperature. Properly engineered, nanoparticles hold great potential for tuning the interfacial and rheological properties of polymers and improving oil recovery rate in harsh conditions. Understanding the nanoparticle-polymer interaction and nanoparticle-assisted polymer flooding process is critical to these applications.

This project aims to explore the use of different nanomaterials for polymer related EOR applications. You will be responsible for designing and synthesising suitable nanomaterials, exploring the effective interfacial and rheological properties of flooding polymers under the influence of nanomaterials and their interactions and performing flooding experiments under different oil saturations and environments. You will to participate actively in planning a piloting testing to examine the effect of nanoparticles at the field scale. This is a challenging and exciting project for a high motivated candidate with solid nanoparticle, polymer, and EOR experience to work at the interface of nanotechnology and petroleum engineering.

Holding a first degree and PhD (or close to completion) in chemical engineering, petroleum engineering, or a closely allied discipline, you will have a strong background in nanoparticle and polymer preparation and characterisation and extensive experimental experience in rheological properties and chemical flooding experiments.

What does the role entail?



As Research Fellow, your main duties will include:

- Proactively develop objectives and take a key role in the design of nanoparticles, and the exploration of nanoparticle-polymer interactions;
- Characterise nanoparticle-polymer dispersions including their interfacial and rheological properties under reservoir-like conditions using a range of advanced techniques;
- Lead and perform polymer flooding experiments at the pore-scale and core scale, and examine the effects of various nanomaterials;
- Drive the on-going running, collection, analysis and processing of experimental data. Interpret and draw conclusions from the data; Produce and write high quality research articles for leading national and international journals;
- Present research outcomes, applying knowledge acquired from own and collaborative research, in national and international conferences and workshops;
- Seek out and engage with internal and external contacts to develop and implement robust knowledge and understanding;
- Manage on-going relationships and explore new ones for future effective collaboration and potential sources of funding, and actively planning pilot scale demonstration;
- Support PhD students in their research, participate in their supervision and help them develop their research skills;
- Attend relevant meetings and contribute to decisions affecting the work of the team.

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 first degree and PhD (or close to completion) in chemical engineering, petroleum engineering, or a closely allied discipline;
- A strong background in nanoparticle and polymer preparation and characterisation;



- Extensive experimental experience in rheological properties and chemical flooding experiments;
- Experience with the concept nanotechnology for oil and gas applications, including controlled delivery and release;
- A proven track record of peer-reviewed publications in high impact factor journals;
- Good time management and planning skills, with the ability to meet tight deadlines and work effectively under pressure;
- Excellent written and verbal communication skills including presentation skills;
- Proven ability to manage competing demands effectively, responsibly and without close support;
- A proven ability to work well both individually and in a team;
- A strong commitment to your own continuous professional development.

You may also have:

- Ability to develop industrial relationships and seek future funding;
- Experience of supporting PhD students with their research;
- Experience of leading meeting discussions.

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 Dongsheng Wen](#) School of Chemical and Process Engineering

Tel: +44 (0)113 343 1299

Email: d.wen@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.

