Jobbnorge-ID: 112465
Søknadsfrist: Closed
Nettside:
Omfang:
Varighet:

Research fellow / Postdoctoral fellow in Improved Oil Recovery Molecular Processes

The University of Stavanger invites applications for a doctorate scholarship/postdoctoral scholarship in Improved Oil Recovery Molecular Processes at Department of Petroleum Engineering.

The position is funded by The National IOR Centre of Norway.

Project description: Modelling of molecular processes in IOR applications: Wettability studies on heterogeneous minerals, and effects of hydrocarbon and polymer adsorption. Preferred background: Fluid dynamics, physics, numerical modelling, programming.

The research fellow will be appointed for three years. The postdoctoral fellow will be appointed for two years. The position is vacant by appointment. The appointee for the doctorate scholarship can accede when he/she is admitted to the PhD program in Petroleum Technology with an agreement to complete the doctorate within the duration of the scholarship.

Applicants for a doctorate scholarship must have a strong academic background with a five-year master degree or 3+2 years master degree or equivalent in science or engineering as a basis for the doctorate study. The grade of the master thesis and the GPA must both be at least a B, preferably recently, or possess corresponding qualifications which could provide a basis for successfully completing a doctorate. Both the grade for the master's thesis and the weight average grade of the master's degree must individually be equivalent to or better than a B grade. In the rating process, emphasis will be placed on the applicant's potential for research in the field, as well as that person's individual prerequisites for research education. The appointee must be able to work independently and as a member of a team, be creative and innovative. The research fellow must have a good command of both oral and written English. This fellowship position is important for obtaining a scientific position at a University. The doctorate will mainly be carried out at the University of Stavanger, apart from a period of study abroad at a recognized and relevant centre of research. This is a trainee position that will mainly give promising researchers an opportunity for professional development leading to a doctoral degree.

The applicant for the postdoctoral scholarship must submit a description of a research project and a plan for its completion. The plan must contain information about who will assume the professional supervision of the applicant. It must be clear from the application in what way the project will add to the applicant's competence. The applications will be assessed in relation to the relevance, quality and feasibility of the project. In addition to an evaluation of their submitted project plan and scientific work, potential candidates will be invited to an interview. The research project will be carried out at the University of Stavanger. It is assumed that the appointee will work full time on the project and that she/he will participate in the scholarly circles at the faculty and the university.

The position as research fellow is salaried according to the State Salary Code, I.pl 17.515, code 1017, LR 20, ltr. 50, of NOK 429 700,- per annum. The position as postdoctoral fellow is salaried according to the State Salary Code, I.pl 17.510, code 1352, ltr. 58, of NOK 491 400,- per annum. In special cases higher salaries may apply.

The position provides for automatic membership in the Norwegian Public Service Pension Fund, which guarantees favorable retirement benefits. Members may also apply for home investment loans at favorable interest rates.

Project description and further information about the position can be obtained from Professor Aksel Hiorth, UIS-IRIS, telephone (+47) 51875040; (+47) 924 62 776, email aksel.hiorth@iris.no or Roar Skartlien, IFE, email roar.skartlien@ife.no.

Information about the appointment procedures can be obtained from HR Consultant Kathrine Molde, telephone (+47) 51831744, email kathrine.molde@uis.no.

The University is committed to a policy of equal opportunity in its employment practices. The University currently employs few female research fellows within this academic field and women are therefore particularly encouraged to apply.

Certificates/diplomas, references, list of publications and other documentation that you consider relevant, should be submitted as attachments to the application. Please upload all attachments as separate files. If the attachments exceed 15 MB alltogether, they will have to be compressed before uploading.

Project description: Modelling of molecular processes in IOR applications: wettability studies on heterogeneous minerals, and effects of hydrocarbon and polymer adsorption

Key scientific goals:

To determine effects on wettability from nanoscale heterogeneities on reservoir mineral surfaces (both chemical and structural). In particular, we will investigate the role of adsorbed hydrocarbons indigenous to the oil, and the role of adsorbed polymers. We will also consider the flow of polymer solutions and evaluate rheological properties, with the effects of polymer adsorption onto minerals.

Tasks and methods:

We intend to address these issues with molecular simulations at the nanoscale, using the efficient technique of DPD (Dissipative Particle Dynamics) that we already use to study adsorption of large hydrocarbons, such as asphaltenes, onto mineral surfaces.

The candidate will primarily use the existing DPD simulation model, but some modifications and developments will be necessary. The modelling will incorporate polymers in water, oil, and mineral surfaces, and we will evaluate wettabilities with effects of polymer adsorption. Rheologies of flowing polymer solutions will be evaluated. The results may be used as input to lattice Boltzmann modelling within the IOR centre (wall boundary conditions for rheological models, surface energy and wetting parameters, etc).

Anticipated results:

The project activities will significantly improve our understanding of IOR processes at the molecular level that are related to the injection of polymer solutions and chemically altered water (low salinity or altered mineral composition). Breakthroughs in the understanding of the molecular mechanisms at mineral surfaces and oil/water interfaces, will in turn generate new schemes and recipes for IOR.

Requirements for the candidate:

- Background in fluid dynamics, physics and programming is required
- Experience from numerical simulation work and analysis of data from large scale simulations are required
- Experience with parallel programming is an advantage
- Knowledge of chemistry is an advantage
- The candidate will work within an interdisciplinary environment
- Ability to learn new research areas quickly

Tilleggsinformasjon

Arbeidssted: