NTNU
Norwegian University of Science and Technology

Jobbnorge ID: 187634
Deadline: 6/10/2020
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Temporary

The Department of Geophysics and Petroleum has a vacancy for a

PostDoc position in Reservoir Engineering and Petrophysics - IV-130/20

This is NTNU

At NTNU, creating knowledge for a better world is the vision that unites our 7 400 employees and 42 000 students.

We are looking for dedicated employees to join us.

You will find more information about working at NTNU and the application process here.

Video: https://www.youtube.com/watch?v=clgKd1SwGLI

About the position

We have a vacancy for a two-year Postdoctoral researcher position in the research group Reservoir Engineering and Petrophysics at the Department of Geoscience and Petroleum (IGP) at NTNU. This position is part of the project “Pore Scale Simulations for Wettability Description” funded by The Research Council of Norway. It will be in the area of pore scale simulations, with a focus on wettability, both concerning description and measurement of wettability, and the effect of wettability on multiphase flow. The positions will be linked to the center of excellence PoreLab (www.porelab.no).

Wettability is an important property governing multiphase flow in porous media, including oil trapping and recovery during water flooding in oil reservoirs. However, the relation between wettability and two-phase flow in complex porous media is not well understood and the protocols of wetting state measurements show limitations using existing definitions. Measurements of the contact angle on a substrate or the wettability index in spontaneous imbibition and centrifuge experiments do not provide a good description of the complex pore scale distribution of wettability. The project will focus on simulation of wettability descriptions using dynamic fluid distribution of porelevel micro computed tomography.

The PostDoc is expected to collaborate closely with a PhD in the same project, and shall be an integral part of the relevant research groups in PoreLab and at IGP. Main responsibilities for this position is development of numerical methods for simulation of fluid distribution at the pore scale, and development of workflows for using such pore scale simulations to determine the wettability from micro-CT images of fluid distribution. The main numerical scheme is expected to be the lattice-Boltzmann method, where we will use the open source C++ code LBPM (github.com/OPM/LBPM). The PostDoc will focus mainly on workflow development, while the parallel PhD position will have a stronger focus on testing, applications and integration of the workflow into existing experimental procedures for wettability measurements.

PoreLab was established in 2017 at NTNU and UiO. PoreLab focuses on the physics of porous media using experimental, theoretical and computational methods. It is led by six principal scientists from physics, chemistry and reservoir engineering. This position will be linked to work package 6 (porelab.no/microfluidics-and-field-studies), which focus on a pore scale description of wettability.

The position report to Associate Professor Carl Fredrik Berg at the Department of Geoscience and Petroleum (IGP) at NTNU. However, the position will be part of an inter-disciplinary team of PhDs, Postdocs and Researchers from several departments at NTNU, including the Physics and Chemistry Department.

Duties of the position

This position is part of the project “Pore Scale Simulations for Wettability Description” funded by The Research Council of Norway. The duties of the position are thereby defined by this project. These duties will include:

- Software development, including software development inside the open source code LBPM
- Pore scale simulations, with a focus on lattice-Boltzmann simulations
- Implementation of workflows for wettability estimation by use of available experimental data

While this position has a defined roadmap and duties, both the roadmap and duties can be subject to significant changes depending on background, expertise and interest of the candidates, on research outcomes both in our group and in the field, and on needs arising in the research group.

Required selection criteria

A postdoctoral research fellowships is a qualification position in which the main objective is qualification for work in academic positions. You must have completed a Norwegian doctoral degree in Geoscience and Petroleum Engineering, Physics, Mathematics or similar or corresponding foreign doctoral degree recognized as equivalent to a Norwegian doctoral degree is required.

If, for any reason, you have taken a career break or have had an atypical career and wish to disclose this in your application, the selection committee will take this into account, recognizing that the quantity of your research may be reduced as a result.

The appointment is to be made in accordance with the regulations in force concerning State Employees and Civil Servants and national guidelines for appointment as PhD, post doctor and research assistant.

Other qualifications:

- Strong skills in computer (object-oriented) programming for mathematical applications
- Good written and oral English language skills. Applicants who are not native English speakers or from Scandinavia must provide evidence of English language proficiency, e.g. TOEFL, Academic IELTS, and Cambridge CAE or CPE

Preferred selection criteria

- Experience with lattice-Boltzmann modelling, especially with the LBPM code base
- Experience with other pore scale simulation methods, e.g. surface evolver
- General knowledge on wettability, both pore scale description of wettability and core scale experimental methods
- Knowledge of optimization, including derivative free methods, is an advantage
- Norwegian language skills will be considered positively

Personal characteristics

- The ability to work both independently and in a team.
- Personal initiative and motivation

The candidate will be evaluated in terms of the qualification requirements specified in the advertisement. However, in the evaluation of which candidate is best qualified, emphasis will be placed on education, experience as well as personal and team suitability.

We offer

- exciting and stimulating tasks in a strong international academic environment
- an open and inclusive work environment with dedicated colleagues
- favourable terms in the Norwegian Public Service Pension Fund
- employee benefits

Salary and conditions

The employment period is 2 years.

Postdoctoral candidates are placed in code 1352, and are normally remunerated at gross from NOK 542 400 per annum before tax, depending on qualifications and seniority. From the salary, 2% is deducted as a contribution to the Norwegian Public Service Pension Fund.

The engagement is to be made in accordance with the regulations in force concerning State Employees and Civil Servants, and the acts relating to Control of the Export of Strategic Goods, Services and Technology. Candidates who by assessment of the application and attachment are seen to conflict with the criteria in the latter law will be prohibited from recruitment to NTNU. After the appointment you must assume that there may be changes in the area of work.

The position is subject to external funding.

It is a prerequisite you can be present at and accessible to the institution daily.

About the application

The application and supporting documentation to be used as the basis for the assessment must be in English.

Publications and other scientific work must follow the application. Please note that applications are only evaluated based on the information available on the application deadline. You should ensure that your application shows clearly how your skills and experience meet the criteria which are set out above.

The application must include:

- CV, certificates and diplomas
- Research plan or project proposal
- Academic works - published or unpublished - that you would like to be considered in the assessment
- Name and address of three referees

Joint works will be considered. If it is difficult to identify your contribution to joint works, you must attach a brief description of your participation.

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal suitability.

NTNU is committed to following evaluation criteria for research quality according to The San Francisco Declaration on Research Assessment - DORA.

General information

Working at NTNU

A good work environment is characterized by diversity. We encourage qualified candidates to apply, regardless of their gender, functional capacity or cultural background.

The city of Trondheim is a modern European city with a rich cultural scene. Trondheim is the innovation capital of Norway with a population of 200,000. The Norwegian welfare state, including healthcare, schools, kindergartens and overall equality, is probably the best of its kind in the world. Professional subsidized day-care for children is easily available. Furthermore, Trondheim offers great opportunities for education (including international schools) and possibilities to enjoy nature, culture and family life and has low crime rates and clean air quality.

As an employee at NTNU, you must at all times adhere to the changes that the development in the subject entails and the organizational changes that are adopted.

Information Act (Offentleglova), your name, age, position and municipality may be made public even if you have requested not to have your name entered on the list of applicants.

If you have any questions about the position, please contact Associate Professor Carl Fredrik Berg, telephone +47 907 088 69, email: carl.f.berg@ntnu.no or Associate Professor Antje van der Net, telephone +47 413 12 611, email: antje.van.der.net@ntnu.no. If you have any questions about the recruitment process, please contact Anne-Lise Brekken, e-mail: anne.lise.brekken@ntnu.no.

Please submit your application electronically via jobbnorge.no with your CV, diplomas and certificates. Applications submitted elsewhere will not be considered. Diploma Supplement is required to attach for European Master Diplomas outside Norway. Chinese applicants are required to provide confirmation of Master Diploma from China Credentials Verification (CHSI).

If you are invited for interview you must include certified copies of transcripts and reference letters. Please refer to the application number IV-130/20 when applying.

Application deadline: 10.06.2020

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The Norwegian University of Science and Technology (NTNU) creates knowledge for a better world and solutions that can change everyday life.

Department of Geoscience and Petroleum

We conduct teaching and research related to management of Earth’s geological resources. Norway’s rich resources of wind, water, oil, gas and minerals have been and are essential to the country’s prosperity, and will continue to be in the future. The Department plays a key role in the development of technology and the education of graduates who enable value creation based on our natural resources. The Department of Geoscience and Petroleum is one of eight departments in the Faculty of Engineering.

Additional information

Place of service:

S.P.Andersens vei 15A 7491 Trondheim (Trondheim Municipality)