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Nettside: http://www.ntnu.no
Omfang: Heltid
Varighet: Vikariat/Midlertidig

The Department of Chemistry has a vacancy for a

PhD position in theoretical chemistry and biophysics

This is NTNU

At NTNU, creating knowledge for a better world is the vision that unites our 7 000 employees and 40 000 students.

We are looking for dedicated employees to join us.

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

About the position

We have a vacancy for a PhD position within the field of theoretical chemistry and biophysics at PoreLab, Department of Chemistry. The appointment has duration of 3 years with the possibility of until 1 year extension with 25% teaching duties in agreement with the department. The PhD student should start September 2020.

The Department of Chemistry has 12 professors, 9 associate professors, 5 adjunct professors, 6 post docs and about 34 PhD research fellows. The research at the department is organized in the following sections: Organic Chemistry, Theoretical Chemistry, Thermodynamics, Environmental- and Analytical Chemistry. The PhD will be a member of the research group in Thermodynamics.

The position is organized at the Centre of Excellence PoreLab under the Department of Chemistry

PoreLab is a Norwegian Center of Excellence under the auspices of the Research Council of Norway. It was created in 2017 and it is situated at the Norwegian University of Science and Technology (NTNU) in Trondheim, and the University of Oslo.

PoreLab is an interdisciplinary center with joint efforts in theory, computer simulations and experiments, both in fundamental and in more applied directions. The center works to advance the understanding of porous media by developing theories, principles, tools and methods to replace ad hoc approaches to porous media with a fundamental understanding of porous media with relevance in biology, chemistry, geology and geophysics based on fluid mechanics, non-equilibrium thermodynamics and statistical mechanics.

The position reports to Professor Signe Kjelstrup, PoreLab, Department of Chemistry, NTNU, Phone: +47 91897079, e-mail: signe.kjelstrup@ntnu.no

Main duties and responsibilities

The PhD student will work on the project “Ultrasound-mediated transport of nanoparticles in tissue: Creating a predictive model combining theory, simulations and experiments” funded by the Research Council of Norway. Two PhDs will be hired under this project and the PhD student referred on this ad is one of them. It is expected that the 2 PhDs collaborate closely, one working experimentally and the one referred on this ad on simulations and modelling. A major challenge in cancer therapy is to obtain adequate delivery of the therapeutic agents to cancer cells, and limit the systemic exposure. Encapsulating drugs into nanoparticles reduces the uptake of drugs to normal tissue and thus toxic effects. However, the distribution of nanoparticles in tumor tissue is rather low and heterogenous, mainly located close to the blood vessel wall. Focused ultrasound and microbubbles are used to improve the delivery of nanoparticles. In this project the two PhD students will work closely to develop a model to predict the effect of ultrasound and microbubbles on the distribution of nanoparticles and drugs in tissue.

The modelling work will start with a literature review of the field, and with an evaluation of different modelling approaches. The vision of PoreLab is to create a non-equilibrium thermodynamic description of porous media transport, and this project represents a new application of theories presently under development, in direction of biology. The model set up for the cancerous tissue, will be solved on the computer. Programming skills are therefore an advantage.

For more information about the research activities see https://www.ntnu.edu/physics/biophysmedtech/drugdel#/view/about

Qualification requirements

The PhD-position's main objective is to qualify for work in research positions. The qualification requirement is completion of a master’s degree or second degree (equivalent to 120 credits) with a strong academic background in theoretical chemistry or chemical engineering, statistical

thermodynamics or numerical physics or biophysics or equivalent education with a grade of B or better in terms of NTNU's grading scale. Applicants with no letter grades from previous studies must have an equally good academic foundation. Applicants who are unable to meet these criteria may be considered only if they can document that they are particularly suitable candidates for education leading to a PhD degree.

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, postdoctor and research assistant

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

Other qualifications

- Background within non-equilibrium thermodynamics will be an advantage.
- Programming experience in Matlab or corresponding codes is required
- Good written and oral English are required

Personal characteristics

- The successful applicant is a highly competent, motivated and ambitious student.
- We are looking for a positive and balanced personality open to new proposals.
- We are looking for candidates who can think creatively and critically,
- and who can work independently and consistently on the research project.
- He/she should also enjoy interdisciplinary research
- He/she should take keen interest in learning and working in teams.

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal suitability, as well as motivation, in terms of the qualification requirements specified in the advertisement

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

PhD candidates are remunerated in code 1017, and are normally remunerated at gross from NOK 479 600 before tax per year. From the salary, 2 % is deducted as a contribution to the Norwegian Public Service Pension Fund.

The period of employment is 3 years with the possibility of until 1 year extension with 25% teaching duties in agreement with the department. Appointment to a PhD position requires admission to the PhD programme in Chemistry.

As a PhD candidate, you undertake to participate in an organized PhD programme during the employment period. A condition of appointment is that you are in fact qualified for admission to the PhD programme within three months.

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 criterias 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.

General information

A good work environment is characterized by diversity. We encourage qualified candidates to apply, regardless of their gender, functional capacity or cultural background. Under the Freedom of Information Act (offentleglova), information about the applicant may be made public even if the applicant has requested not to have their name entered on the list of applicants.

The national labour force must reflect the composition of the population to the greatest possible extent, NTNU wants to increase the proportion of women in its scientific posts. Women are encouraged to apply. Furthermore, Trondheim offers great opportunities for education (including international schools) and possibilities to enjoy nature, culture and family life (http://trondheim.com/). Having a population of 200 000, Trondheim is a small city by international standards with low crime rates and little pollution. It also has easy access to a beautiful countryside with mountains and a dramatic coastline.

Questions about the position can be directed to Professor Signe Kjelstrup, Department of Chemistry, NTNU, Phone: +47 91897079, e-mail: signe.kjelstrup@ntnu.no or Magnus Aashammer Gjennestad, email: magnus.aa.gjennestad@ntnu.no

About the application:

A letter of motivation is expected.

Publications and other academic works that the applicant would like to be considered in the evaluation must accompany the application. Joint works will be considered. If it is difficult to identify the individual applicant's contribution to joint works, the applicant must include a brief description of his or her contribution.

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): http://www.chsi.com.cn/en/)

Applicants invited for interview must include certified copies of transcripts and reference letters. Please refer to the application number 6/20 when applying.

Application deadline: 16.02.2020

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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.

The Faculty of Natural Sciences

The Faculty of Natural Sciences is a key player in national and international research and education programmes in natural sciences and technology. Our research focuses on global challenges in the areas of energy, climate, the environment, food, water, health and welfare. The Faculty consists of eight departments as well as the Faculty Administration.

Tilleggsinformasjon

Arbeidssted:

Høgskoleringen 5 7491 Trondheim (Trondheim Kommune)