Jobbnorge ID: 219206
Deadline: 2/15/2022
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Temporary

The Department of Structural Engineering has a vacancy for a

PhD Candidate - From Atomistic Mechanisms to Smart Materials for Energy and Environment application

This is NTNU

NTNU is a broad-based university with a technical-scientific profile and a focus in professional education. The university is located in three cities with headquarters in Trondheim.

At NTNU, 9,000 employees and 42,000 students work to create knowledge for a better world.

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

Video: https://youtu.be/Xt-yHCN5QS0

About the position

The NTNU Nanomechanical Lab in the Department of Structural Engineering at the Norwegian University of Science and Technology (NTNU) is seeking a PhD Candidate in the field of atomistic modeling applied to materials science.

Atomistic interactions underlie materials properties. To name a few examples, interactions of chemicals and functional groups in a material with CO2 define the CO2-philicity of the materials applied in carbon capture and storage; adhesion of water molecules on a surface determine the hydrophobicity and further the icephobicity of the surface; atomistic interactions between two dis-similar materials decide the dynamics and the robustness of the interface between the two materials. The atomistic interactions are at small scales in nanometer range, which touch the limit of resolution in experiments and should be addressed by advanced atomistic modeling. With the fast development of power in supercomputing, it is becoming feasible to elucidate the collecting effects of atomistic interactions for establishing the materials structure-property-function relationship. Applying atomistic modeling to probe the atomistic-level mechanisms of materials properties is in urgent demand by smart materials design nowadays.

The NTNU Nanomechanical Lab has a long-term research experience in atomistic modeling applied to materials science. The research group has strong expertise in fracture mechanics, interface mechanics and nanoscale thermal transport. Currently, the research team is looking for expanding the research strength in materials smart phobicity/philicity, aiming for understanding the relevant critical atomistic insights for pushing forward the frontier in smart materials design. The research activities of this advertised PhD position will contribute to laying the basis of multiscale principles in the fabrication of smart materials for energy and environment applications.

The PhD candidate will work at the NTNU Nanomechanical Lab, chaired by three full time professors, one associate professor and two adjunct professors from the industry. Currently, the lab hosts 12 PhD students, 2 post-doc fellows, a number of scientific visiting scholars and master students.

The PhD candidate will report to the supervising professors.

Duties of the position

- Perform excellent and independent research on the topic attached to the position
- Publish and contribute to top-ranking peer-reviewed scientific articles
- Report research results in scientific seminars and conferences
- Contribute to the group internal synergy and the related external cooperation
- Complete and defend a PhD dissertation within 3 years

Required selection criteria

- You must have a relevant background in material science, physics, nanotechnology or chemical engineering
- Your education must correspond to a five-year Norwegian degree programme, where 120 credits are obtained at master's level
- You must have a strong academic background from your previous studies and an average grade from the master's degree program, or equivalent education, which is equal to B or better compared with NTNU's grading scale. If you do not have letter grades from previous

studies, you must have an equally good academic basis. If you have a weaker grade background, you may be assessed if you can document that you are particularly suitable for a PhD education.
- You must meet the requirements for admission to the faculty's doctoral program
- You must have good written and oral English language skills
- You must have experience in computer programming
- You must have knowledge of atomistic modeling and simulations

The appointment is to be made in accordance with the regulations in force concerning State Employees and Civil Servants and Regulations concerning the degrees of Philosophiae Doctor (PhD) and Philosodophiae Doctor (PhD) in artistic research national guidelines for appointment as PhD, post doctor and research assistant

Preferred selection criteria

- Norwegian language skills
- Experience in peer-reviewed publications, and presentation in international conferences

Personal characteristics

- Excellent communication skills
- Motivative and ambitious team player
- Ability to work independently
- A high-level of personal responsibility

We offer

- An experienced and supportive PhD supervising team
- A socially active international group full of positive energy
- A network with international leading research groups
- 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 491 200 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 period of employment is 3 years.

Appointment to a PhD position requires that you are admitted to the PhD programme in Engineering within three months of employment, and that you participate in an organized PhD programme during the employment period.

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 the condition that the candidate can start the PhD study before the end of August 2022.

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 (Departments to choose from the following):

- CV, certificates and diplomas
- transcripts and diplomas for bachelor's and master's degrees. If you have not completed the master's degree, you must submit a confirmation that the master's thesis has been submitted.
- Name and address of three referees
- Academic works, either publish or unpublished, that you would like to be considered in the assessment

If all, or parts, of your education has been taken abroad, we also ask you to attach documentation of the scope and quality of your entire education, both bachelor's and master's education, in addition to other higher education. Description of the documentation required can be found here. If you already have a statement from NOKUT, please attach this as well.

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 and interpersonal qualities. Motivation, ambitions, and potential will also count in the assessment of the candidates.

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.

In accordance with The Public 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 Senbo Xiao, email senbo.xiao@ntnu.no. If you have any questions about the recruitment process, please contact HR Consultant Elin Pedersen Nystuen, email elin.p.nystuen@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 SO-IV-32/22 when applying.

Application deadline: 15.02.2022

NTNU - knowledge for a better world

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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 Structural Engineering

We teach mechanical engineering, engineering and ICT, and civil and environmental engineering. The Department conducts internationally leading research and participates in several large national research projects. The Department of Structural Engineering is one of eight departments in the Faculty of Engineering.

Additional information

Place of service:

Richard Birkelands vei 1A 7034 Trondheim (Trondheim Municipality)