Jobbnorge ID: 238061
Deadline: 3/1/2023
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Temporary

The Department of physics has a vacancy for a

PhD in experimental physics- 3D in-situ X-ray imaging for CCS applications

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 44,000 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

We are searching for a creative, skilled and ambitious candidate for our activities on 3-dimensional in-situ X-ray imaging, funded under the FRINATEK program of the Norwegian Research Council. The PhD student will be supervised by NTNU and SINTEF and will work in an international team of several principal investigators, PhD students, postdocs and master students. External collaboration with other academic research groups and industry actors is an important part of the position.

The doctoral candidate will work in the SaltyPORE project and develop research within the area of CO2 Capture and Storage (CCS). The central aim of the project is to obtain a better understanding of salt precipitation in porous aquifers during CO2 injection utilizing in-situ 3D X-ray imaging methodologies. The societal relevance is high, both as applied to CCS, but also fundamentally with the many strong links between CO2, salt and the environment. The SaltyPORE project is connected to established Centre for environment-friendly energy research - FME NCCS, https://www.sintef.no/projectweb/nccs/ .

Duties of the position

The research work will involve designing, constructing and using state-of-the-art experimental setups. Sophisticated analysis and handling of large datasets, including statistical and machine learning (artificial intelligence) methods will be relevant tasks. Major emphasis is put on developing advanced 4-dimensional (3D + time resolution) X-ray imaging methods based on scattering and phase contrast. The key scientific motivation for the project is to solve imminent and long-standing challenges of huge societal impact through innovative imaging methods. In addition, the candidate is expected to participate actively in the group activities, including mentoring of students.

Required selection criteria

- You must have a professionally relevant background in physics or material science.Exceptional candidates with a background in closely related fields like nanotechnology or photonics will also be considered.
- Your education must correspond to a five-year Norwegian degree program, 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 in physics.
- The position requires a strong interest in experimental physics and data analysis.
- Interest in hardware building.

The appointment is to be made in accordance with 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

- Experience from nanoscale studies using scattering, diffraction or high-resolution microscopy methods would be considered a strong advantage. It is beneficial if the candidate has experience working in synchrotron facilities .
- Knowledge in chemistry and thermodynamics.
- Experience with handling and analyzing big data sets.
- Very good written and oral language skills in English.
- Working knowledge of Norwegian or another Scandinavian language would be evaluated positively.

Personal characteristics

- Be creative, ambitious and enthusiastic, with a strong ability to work independently.
- Be self-motivated, focused and goal-oriented
- Scientifically curious and open to new research challenges, demonstrate persistence in addressing research problems.
- Excellence in scientific writing and good oral presentation skills.
- Enjoy interdisciplinary research and take keen interest in learning and working in teams, which is of high importance in this multidisciplinary project.
- Ability to contribute positively to the work environment.

Emphasis will be placed on personal and interpersonal qualities.

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

As a PhD candidate (code 1017) you are normally paid from gross NOK 501 200 per annum before tax. From the salary, 2% is deducted as a contribution to the Norwegian Public Service Pension Fund.

The period of employment is 3 years.Starting date is 01.08.23.

Appointment to a PhD position requires that you are admitted to the PhD programme in physics 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.

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 your application will be considered based solely on information submitted by the application deadline. You must therefore ensure that your application clearly demonstrates how your skills and experience fulfil the criteria specified above.

The application must include :

- The following requirements on qualifications will be given major weight in the evaluation of the candidate. In the cover letter (or in the CV), the applicant must specifically describe his/her expertise in relevant fields like X-ray scattering/diffraction/imaging analysis of large datasets, artificial intelligence / machine learning and computer programming.
- 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.
- A copy of the master's thesis. If you recently have submitted your master's thesis, you can attach a draft of the thesis. Documentation of a completed master's degree must be presented before taking up the position.
- Names and contact details of 2-3 references (name, relation to candidate, e-mail and telephone number)
- If you have publications or other relevant research work

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.

We will take joint work into account. If it is difficult to identify your efforts in the joint work, you must enclose a short 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

NTNU believes that inclusion and diversity is our strength. We want to recruit people with different competencies, educational backgrounds, life experiences and perspectives to contribute to solving our social responsibilities within education and research. We will facilitate for our employees' needs.

NTNU is working actively to increase the number of women employed in scientific positions and has a number of resources to promote equality.

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.

A public list of applicants with name, age, job title and municipality of residence is prepared after the application deadline. If you want to reserve yourself from entry on the public applicant list, this must be justified. Assessment will be made in accordance with current legislation. You will be notified if the reservation is not accepted.

For further information please contact: Research Scientists Dr. Basab Chattopadhyay, phone: +47 73559085, email: basab.chattopadhyay@ntnu.no , +47 98764815 Dr. Elvia A. Chavez Panduro, email: elvia.a.c.panduro@ntnu.no or Dr. Ingrid Snustad, phone +47 91573780, email ingrid.snustad@sintef.no

If you think this looks interesting and in line with your qualifications, please submit your application electronically via jobbnorge.no with your CV, diplomas and certificates attached. Applications submitted elsewhere will not be considered. Upon request, you must be able to obtain certified copies of your documentation.

Application deadline: 01.03.23

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 Physics

Our research and teaching are both experimental and theoretical, covering a wide range of disciplines. Our activities contribute to development of new medical technology and to finding solutions for the next generation's communication technology, energy utilization and development of materials. The Department of Physics is one of eight departments in the Faculty of Natural Sciences.

Additional information

Place of service:

Høgskoleringen 5 7034 Trondheim (Trondheim Municipality)