Jobbnorge ID: 249003
Deadline: 10/1/2023
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Fixed Term

The Department of Materials Science and Engineering has vacancies for

Two Postdoctoral Fellows in Materials Science / Physics

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 43,000 students work to create knowledge for a better world.

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

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

About the job

Two postdoctoral research fellow positions in the field of functional materials for future electronics are available (both positions are for 2 years). The postdoctoral researchers will be part of our ATRONICS project, which is funded by the European Research Council (ERC), with the goal to enable the building blocks required for next-generation atomic-scale electronics.

To emulate the behavior of key electronic components at ultra-small length scales, our team utilizes domain walls in improper ferroelectrics. These domain walls separate regions of uniform polarization and have physical properties different from the rest of the material (see, e.g., Nature Rev. Mater. 7, 157 (2022), Nature Mater. 19, 1195 (2020), and Nature Nanotech.13, 1028 (2018)).

In the first part of the ATRONICS project, we investigated the electronic responses of different types of domain walls and developed concepts for applications. In the next step, we will realize basic domain-wall-based devices, such as diodes, transistors, and logic gates. We will evaluate the performance of individual devices and explore possibilities for integrating them into quasi-2D circuitry and networks with a higher order of complexity. In this context, we are looking for two postdoctoral researchers with profound expertise in

- fabrication of semiconductor devices and electrical measurements (position 1)
- nanostructuring of oxide materials (position 2)

(In your application, please clearly indicate for which of the two positions you are applying.)

Additional information about our scientific activities and the research team can be found here:
https://www.ntnu.edu/web/ima/research/facet/topological

Duties of the position

The postdoctoral researchers will perform original research and help supervising / closely work together with different PhD candidates; together, they will plan and perform the fabrication and testing of the domain-wall devices, pushing the development of 2D functional materials for future technologies within the framework of our ATRONICS project.

Required selection criteria

- You must have completed a Norwegian doctoral degree or corresponding foreign doctoral degree recognized as equivalent to a Norwegian PhD
- If you can document that the PhD thesis has been submitted, your application can be assessed even if you have not yet defended your dissertation. Documentation of the obtained doctoral degree must be presented before you can take up the position.
- You must have a professionally relevant background in physics, materials science, nano-science/technology, materials physics, or equivalent
- You must have cleanroom experience and document your experience in either device fabrication and electrical measurements (position 1) or nanostructuring of oxides (position 2)
- Applicants must be able to communicate fluently in English

The appointment is to be made in accordance with Regulations on terms of employment for positions such as postdoctoral fellow, Ph.D Candidate, research assistant and specialist candidate.

Preferred selection criteria

General

- Strong publication record that documents the relevant experience
- Good written and oral English language skills
- Background in oxide materials, semiconductors, or correlated electron systems

Position 1:

- Documented hands-on experience in the fabrication and electrical characterization of semiconductor devices, including lithography methods, wire-bonding, etc.
- Experience in setting up / customizing electrical measurements at the nanoscale (e.g., by using a probe station, two-probe and four-probe measurements)
- Profound experience with the physics of metal-semiconductor contacts

Position 2:

- Documented hands-on experience in the nanostructuring of (oxide) materials by focused ion beam (FIB)
- Experience with nanoscale imaging techniques (scanning electron microscopy and scanning probe microscopy)

Personal characteristics

We search for a person that is creative, innovative and can work independently within an international team. The person we are searching for has excellent communication skills and enjoys collaborating with different PhD candidates, postdocs, and international researchers.

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 Postdoctoral Fellow (code 1352) you are normally paid from gross NOK 594 500 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 2 years.

Starting date: As early as possible, but no later than March 1st, 2024.

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 on a daily basis.

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 be attached to 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.

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 application must include :

- CV and certificates
- transcripts and diplomas for bachelor's-, master's- and PhD degrees. If you have not yet completed your Ph.D, you must provide confirmation on your estimated date for the doctoral dissertation, or that your PhD thesis has been submitted
- A copy of the doctoral thesis. If you are close to submitting, or have recently submitted your thesis, you can attach a draft of the thesis. Documentation of a completed doctoral degree must be presented before taking up the position.
- Academic works - published or unpublished - that you would like to be considered in the assessment (up to 10 items)
- Name and contact information of three referees

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. 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

NTNU believes that inclusion and diversity is a strength. We want our faculty and staff to reflect Norway's culturally diverse population and we continuously seek to hire the best minds. This enables NTNU to increase productivity and innovation, improve decision making processes, raise employee satisfaction, compete academically with global top-ranking institutions and carry out our social responsibilities within education and research. NTNU emphasizes accessibility and encourages qualified candidates to apply regardless of gender identity, ability status, periods of unemployment or ethnic and cult

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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.

If you have any questions about the position, please contact Prof. Dennis Meier, email dennis.meier@ntnu.no.

If you have any questions about the recruitment process, please contact Marie Kristiansen, e-mail: marie.kristiansen@ntnu.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: 01.10.2023

NTNU

NTNU - knowledge for a better world

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

Department of Materials Science and Engineering

We are Norway's leading educational and research environment in materials engineering, materials chemistry and materials science. In collaboration with business and industry, we are a driving force for the development of innovative materials as well as new applications and manufacturing processes. Activities in our disciplines are vital for the green shift. The Department of Materials Science and Engineering is one of eight departments in the Faculty of Natural Sciences.

Additional information

Place of service:

Trondheim 7491 Trondheim (Trondheim Municipality)