UNIVERSITETET I OSLO

Jobbnorge ID: 301792
Deadline: 6/2/2026
Website: http://www.uio.no/
Scope: Fulltime
Duration: Fixed Term

PhD Research Fellow in Semiconductor Physics and Quantum Materials

About the position

We invite applications for position as PhD Research Fellow in Semiconductor Physics and Quantum Materials at Centre for Materials Science and Nanotechnology, the Department of Physics, University of Oslo.

Preferred starting date 01. October, 2026.

The fellowship period is three years.

A fourth year may be considered and it will involve 25 % of other career-promoting work. Other career-promoting work may consist of teaching, supervision, and/or research assistance. This is dependent upon the qualification of the applicant and the current needs of the department.

No one can be appointed for more than one PhD Research Fellowship period at the University of Oslo.

Place of work is Centre for Materials Science and Nanotechnology at Blindern, Oslo

Job description

A PhD Research Fellow is available at Centre for Materials Science and Nanotechnology (SMN), within the Division of Solid-state Physics and Quantum Technology. This position will be part of the Centre for Defects in Semiconductors for Quantum Sensing (DSQS) which is one of four national research centers within quantum technology in Norway. The aim of the center is to demonstrate functioning quantum sensor components based on dopants or defects in semiconductors. DSQS aims to build a competitive research environment that spans over a large portion of the value chain - from fundamental understanding of materials and defects to integration and sensing applications. The Norwegian partners are the University of Oslo, SINTEF and Norwegian Defence Research Establishment (FFI) as well as international collaboration envisaged with Nordic partners in Denmark and Sweden.

In this context, the present PhD Research Fellow will contribute to DSQS by developing in-operando measurements of electronic structure using photoemission microscopy (PEEM).

The work of the PhD Research Fellow will be of experimental character. In particular, PhD Research Fellow will deal with;

- Operating, maintaining and upgrading our newly acquired PEEM.
- Creating prototype device structures in semiconductors, suitable for PEEM investigations (in collaboration with NBI and Aarhus University)
- Combining PEEM-based electronic structure measurements with transport measurements performed simultaneously.
- Conducting synchrotron photoemission measurements as required to supplement the home laboratory data (primarily at ASTRDI-II, Aarhus University and at MAX-IV, Sweden)
- All aspects of data analysis and dissemination.

The PhD research fellow will be affiliated with the Solid-State Physics and Quantum Technology research division at UiO with around 60 highly dedicated professors, researchers, postdocs, PhD Research Fellows, engineers, administrative staff and master students. The research group has excellent infrastructure, MiNaLab, covering chemical, structural, optical and electrical characterization methods, material growth, device fabrication and simulations. The PhD Research Fellow will also be affiliated with the Centre for Materials Science and Nanotechnology, which is an interdisciplinary research centre in materials science and nanotechnology at UiO. The Centre is an international leader in basic science within functional materials and nanoscience, with applications within renewable energy, materials science, and nanotechnology.

The infrastructure includes the Micro- and Nanotechnology Laboratory (MiNaLab) with a clean room area in excess of 400 m2 with a multitude of modern fabrication and characterization facilities. The PhD Research Fellow will be closely knit with the supervisors' other projects and activities, and in several cases work in a larger team with colleagues at the University of Oslo.

What skills are important in this role?

The Faculty of Mathematics and Natural Sciences has a strategic ambition to be among Europe's leading communities for research, education and innovation. Candidates for these fellowships will be selected in accordance with this, and expected to be in the upper segment of their class with respect to academic credentials.

Required qualifications:

- Master’s degree or equivalent in physics or materials science, or a closely related field.
- Foreign completed degree (M.Sc.-level) corresponding to a minimum of four years in the Norwegian educational system
- Solid background in solid state physics relevant to quantum technology
- Fluent oral and written communication skills in English

Candidates without a master’s degree have until August 30, 2026, to complete the final exam.

Desired qualifications:

- Experience with semiconductor doping, semiconductor growth and patterning
- Experience with photoemission spectroscopy in general, and PEEM, ARPES or momentum microscopy specifically.
- Hands-on experience with UHV systems and surface science instrumentation.
- Experience with modification/customisation of instrumentation - especially for in-operando device physics in UHV
- Experience with analysis of ARPES data and related surface science methods.

Language requirement:

- Good oral and written communication skills in English
- English requirements for applicants from outside of EU/ EEA countries and exemptions from the requirements: https://www.mn.uio.no/english/research/phd/regulations/regulations.html#toc8

Grade requirements:
The norm is as follows:

- The average grade point for courses included in the Bachelor’s degree must be C or better in the Norwegian educational system
- The average grade point for courses included in the Master’s degree must be B or better in the Norwegian educational system
- The Master’s thesis must have the grade B or better in the Norwegian educational system

The purpose of the fellowship is research training leading to the successful completion of a PhD degree.

All candidates and projects will have to undergo a check versus national export, sanctions and security regulations. Candidates may be excluded based on these checks. Primary checkpoints are the Export Control regulation, the Sanctions regulation, and the national security regulation.

What are we looking for in you?

Personal skills:

- Ability to work both independently and as part of a team
- Ability to work precise in a structured manner and swiftly adapts to new tasks
- Good communication and collaboration skills
- Positive attitude and the ability to handle hectic periods

Employment in the position is based on a comprehensive assessment of all qualification requirements applicable to the position, including personal qualifications.

We can offer you

- A pleasant and stimulating work environment
- Good welfare schemes
- Opportunity of up to 1.5 hours a week of exercise during working hours
- A workplace with good development and career opportunities
- Career development programmes
- Membership in the Statens Pensjonskasse, which is one of Norway's best pension schemes with beneficial mortgages and good insurance schemes
- Oslo’s family-friendly surroundings with their rich opportunities for culture and outdoor activities
- Salary in position as PhD Research Fellow, position code 1017 in salary range NOK from 550 800 - 595 000, depending on competence and experience. From the salary, 2 percent is deducted in statutory contributions to the State Pension Fund

We need different perspectives in our work

UiO is an open and internationally oriented comprehensive university that strives to be an inclusive and diverse workplace and academic environment. You can read more about UiO’s work on equality, inclusion, and diversity at uio.no.

We fulfill our mission most effectively when we draw upon our variety of experiences, backgrounds, and perspectives. We are looking for great colleagues, could you be the next one?

We will do our best to accommodate your needs. Relevant adjustments may include modifications to working hours, task adaptations, digital, technical, or physical adjustments, or other practical measures.

If you have an immigrant background, a disability, or CV gaps (Norwegian), we encourage you to indicate this in the job application portal. We always invite at least one qualified candidate from each group for an interview. In this context, disability is defined as an applicant who identifies as having a disability that requires workplace or employment-related accommodations. For more details about the requirements, please refer to the Employer portal (Norwegian).

The selections made in the job application portal are used for anonymized statistics that all state employers include in their annual reports. More information about gender equality initiatives at UiO can be found here.

We hope you will apply for the position with us.

How to apply

The application must include:

- Cover letter - statement of motivation and research interests
- CV (summarizing education, positions and academic work - scientific publications)
- Copies of the original Bachelor and Master's degree diploma and transcripts of records
- Letters of recommendation
- Documentation of English proficiency if applicable
- List of publications and academic work that the applicant wishes to be considered by the evaluation committee
- Names and contact details of 2-3 references (name, relation to candidate, e-mail and telephone number)

Application with attachments must be submitted via our recruitment system Jobbnorge, click "Apply for this job".
Foreign applicants should attach an official explanation of their University's grading system.

When applying for the position, we ask you to retrieve your education results from Vitnemålsportalen.no. If your education results are not available through Vitnemålsportalen, we ask you to upload copies of your transcripts or grades. Please note that all documentation must be in English or a Scandinavian language.

General information

The best qualified candidates will invited for interviews.

Applicant lists can be published in accordance with Norwegian Freedom of Information Act § 25. When you apply for a position with us, your name will appear on the public applicant list. It is possible to request to be excluded from this list. You must justify why you want an exemption from publication and we will then decide whether we can grant your request. If we can't, you will hear from us.

Please refer to Regulations for the Act on universities and colleges chapter 3 (Norwegian), Guidelines concerning appointment to post doctoral and research posts at UiO (Norwegian) and Regulations for the degree of Philosophiae Doctor (PhD) at the University of Oslo.

The University of Oslo has a transfer agreement with all employees that is intended to secure the rights to all research results etc.

About the University of Oslo

The University of Oslo is Norway's oldest and highest rated institution of research and education with 26 500 students and 7 200 employees. Its broad range of academic disciplines and internationally esteemed research communities make UiO an important contributor to society.

Centre for Materials Science and Nanotechnology (SMN) is an interdisciplinary focus field for material and energy research at the University of Oslo. SMN has focused on basic research in renewable energy and environmentally friendly use of fossil energy sources. The center consists of research groups from the Department of Physics and the Department of Chemistry, has about 100 employees from around the world and manages more than 80 projects funded by EU, RCN and others.

Additional information

Contact persons:

- Contact person; Justin Wells, Professor
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- For questions reagrdin Jobbnorge, Elin Thoresen, Senior HR Adviser
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Place of service:

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