UNIVERSITETET I OSLO

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Nettside: http://www.uio.no/
Omfang: Heltid
Varighet: Engasjement

PhD Research Fellow in Materials Physics for Solar Energy Applications

About the position

Position as PhD Research Fellow in materials physics for solar energy applications is available at the Centre for Materials Science and Nanotechnology, Department of Physics, University of Oslo.

No one can be appointed for more than one PhD Research Fellowship period at the University of Oslo.
Starting date as soon as possible, or on agreement with SMN.

The fellowship period is 3 years.

A fourth year may be considered with a workload of 25 % that may consist of teaching, supervision duties, and/or research assistance. This is dependent upon the qualification of the applicant and the current needs of the department.

Knowledge development in a changing world - Science and technology towards 2030.

The Faculty of Mathematics and Natural Sciences

Video: https://www.youtube.com/watch?v=t4wvWQEhDEs

Job description

We are seeking a PhD Research Fellow with a genuine interest in developing the chemistry and physics needed to optimize materials for solar energy conversion applications. The fellowship is part of the SOLARIS-Initiative, one of five world leading research communities at the University of Oslo, which stimulates interdisciplinary activities and research collaborations both within the University of Oslo and on a national and international level in the field of solar energy conversion. SOLARIS is directly connected with the Centre of Materials Science and Nanotechnology (SMN). SMN consists of five research groups that value cross disciplinary research. The centre has an excellent research infrastructure covering atomistic simulations and chemical, structural, optical and electrical characterization methods as well as device fabrication. The infrastructure includes the Micro- and Nanotechnology Laboratory (MiNaLab) with a clean room area in excess of 400 m2, as well as a multitude of modern characterization facilities.

One aspect of the SOLARIS-Initiative and this position is the discovery of novel materials through combinatorial materials science and the optimization of their physical properties for solar energy conversion applications. As part of the SOLARIS-Initiative you will play a key role in a team of highly talented PhD students and researchers managed by experts within this field.

The specific objective of this PhD Research position is to improve the photo-electrocatalytic properties of the very promising photocatalyst Ta3N5, which will play a major role in future photo-electrochemical systems and the production of solar fuels. Combinatorial pulsed laser deposition will be used to investigate the stability and efficiency of Ta3N5 as function of doping and alloy composition. The deposited thin films will be experimentally investigated with respect to structural, optical and electrical properties. Further, electrochemical characterization by, e.g., linear sweep voltammetry, electrochemical impedance spectroscopy etc. will be employed. For selected compositions, functional surface coatings, e.g. NiO, will be deposited in-situ with the scope to further enhance the electrocatalytic efficiency and the long-term stability.

The project is highly interdisciplinary involving semiconductors physics, electrochemistry and catalysis and aims in the generation of fundamental knowledge for the rational design of efficient photo-electrocatalysts.

We are looking for a team player with a high level of communication skills and assertiveness who wants to work in a highly motivated team of national and international researchers. In addition, collaboration with and support and supervision of Master students is required.

Qualification requirements

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.

- Master's degree or equivalent in materials physics/chemistry or materials science, or foreign completed degree (M.Sc.-level) corresponding to a minimum of four years in the Norwegian educational system

- The position's subject area may require licensing under the Norwegian Export Control Act. In order to be considered for the position, it is a prerequisite that UiO must be able to be granted such licence. https://www.uio.no/english/studies/admission/master/export-control.html
- Profound knowledge in solid state physics, semiconductor physics, or (photo)electrochemistry
- Experience in thin film deposition by pulsed-laser deposition and magnetron sputtering
- Fluent 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

Desired qualifications:

- Experience on materials characterization and preparation for, e.g, X-ray diffraction, secondary electron microscopy and energy-dispersive X-ray spectroscopy, electrical conductivity and Hall-effect measurements, transmittance etc.
- Experience in experimental electrochemistry (cyclic voltammetry, linear sweep voltammetry, etc.).

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
- Fluent oral and written communication skills in English
- Fluent oral and written communication skills in a Scandinavian language are an advantage.
- 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

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

The fellowship requires admission to the PhD programme at the Faculty of Mathematics and Natural Sciences. The application to the PhD programme must be submitted to the department no later than two months after taking up the position.

For more information see:

http://www.uio.no/english/research/phd/

http://www.mn.uio.no/english/research/phd/

Personal skills

- Self-motivation, creativity, genuine curiosity about the subject, work discipline, professional ethics, and ambition
- Good social, communication and collaboration skills and ability to work independently and in interdisciplinary scientific environment as part of a team

We offer

- Salary NOK 536 200 - 579 700 per year depending on qualifications and seniority as PhD Research Fellow (position code 1017)
- Attractive welfare benefits and a generous pension agreement
- Vibrant international academic environment
- Career development programmes
- Oslo's family-friendly surroundings with their rich opportunities for culture and outdoor activities

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
- 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)

The application with attachments must be delivered in our electronic recruiting system (please follow the link "Apply for this job"). Foreign applicants are advised to attach an explanation of their University's grading system. Please note that **all** documents should be in English or a Scandinavian language.

Interviews with the best qualified candidates will be arranged.

Formal regulations

Please see the guidelines and regulations for appointments to Research Fellowships at the University of Oslo.

According to the Norwegian Freedom and Information Act (Offentleglova) information about the applicant may be included in the public applicant list, also in cases where the applicant has requested non-disclosure.

UiO has an agreement for all employees, aiming to secure rights to research results a.o.

Inclusion and diversity are a strength. The University of Oslo has a personnel policy objective of achieving a balanced gender composition. Furthermore, we want employees with diverse professional expertise, life experience and perspectives.

If there are qualified applicants with disabilities, employment gaps or immigrant background, we will invite at least one applicant from each of these categories to an interview.

Contact information

For further information about the position please contact: Holger von Wenckstern, e-mail: h.von.wenckstern@fys.uio.no

For questions regarding Jobbnorge, please contact HR Adviser Olga Holmlund, e-mail: olga.holmlund@mn.uio.no

About the University of Oslo

The University of Oslo is Norway's oldest and highest rated institution of research and education with 28 000 students and 7000 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. 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.

Tilleggsinformasjon

Arbeidssted:

Problemveien 7 0313 Oslo (Oslo Kommune)