UNIVERSITETET I OSLO

Jobbnorge ID: 264996
Deadline: 8/15/2024
Website: http://www.uio.no/
Scope: Fulltime
Duration: Engagement

Postdoctoral Research Fellow Materials Science and Solid State Ionics

About the position

Position as Postdoctoral Research Fellow in Material Science and Solid State Ionics available at the Centre for Materials Science and Nanotechnology (SMN), Department of Chemistry, University of Oslo.

Preferred starting date January 1, 2025 and no later than April 1, 2025.

The fellowship period is three (3) years. A fourth year may be considered with a work-load 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.

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

Centre for Materials Science and Nanotechnology

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

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

Job description

We seek a Postdoctoral fellow with qualifications and interest in materials science and renewable energy conversion technologies. The Centre for Materials Science and Nanotechnology (SMN) comprises UiO's focus on renewable energy, materials science, and nanotechnology. The Centre is an interdisciplinary collaboration between five research groups in physics and chemistry, and spearheads the MN Faculty's efforts for sustainable energy solutions. The position is part of the interdisciplinary SOLARIS initiative which addresses solar energy harvesting and storage, including electrochemical energy conversion.

The Postdoctoral fellowship is part of the research project Combinatorial Materials Science for Protonic Electrochemical Energy Conversion (Comicon) funded by the Research Council of Norway. The project also employs a PhD research fellow which gives excellent opportunity for collaboration, in addition to working in teams across SMN and SOLARIS. The postdoctoral fellow will also be able develop experience in project participation and management, and take part in collaboration with international research partners and exchange visits.

The postdoctoral fellow will be able to leverage compositionally graded thin films prepared with combinatorial pulsed laser deposition (PLD) by the PhD research fellow dedicated to the project. This is a novel method pioneered within SOLARIS by members of the Semiconductor Physics group. The materials systems will be focused towards mixed ionic/electronic conducting oxygen/steam electrodes for proton ceramic electrochemical cells. The thin films will be characterized with a range of structural, chemical and electrical characterization techniques to study fundamental relationships between materials properties and their performance as function of composition. The postdoctoral research work will have particular emphasis on the surface kinetics of the materials, e.g., using isotope exchange techniques, electrical conductivity/optical transmission relaxation, and/or electrochemical characterization. The postdoctoral research work can be tailored according to the qualifications and academic interest of the top candidates including the possibility for combining experimental, simulation and theoretical methods.

The Postdoctoral fellow will be affiliated with the research groups Electrochemistry and Semiconductor Physics at the Departments of Chemistry and Physics, respectively. Both groups consist of around 30-40 highly dedicated professors, researchers, postdocs, PhD fellows, engineers, admin, MSc and exchange students. The groups regularly organize social events including seminars and cabin trips with outdoor activities, Oslo relay race, potluck and garden party.

The Electrochemistry group is among the world-leading in solid-state electrochemistry and the materials science of proton-conducting oxides for electrochemical energy conversion technologies such as proton ceramic fuel cells and electrolysers. These technologies are central in the transition to renewable energy and in the electrification of industrial processes.

The research groups have excellent infrastructure covering chemical, structural, optical and electrical characterization methods, device fabrication and simulations. 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.

Postdoctoral fellows who are appointed for a period of four years are expected to acquire basic pedagogical competency in the course of their fellowship period within the duty component of 25 %.

The main purpose of a postdoctoral fellowship is to provide the candidates with enhanced skills to pursue a scientific top position within or beyond academia. To promote a strategic career path, all postdoctoral research fellows are required to submit a professional development plan no later than one month after commencement of the postdoctoral period.

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.

Required qualifications:

- Applicants must hold a degree equivalent to a Norwegian doctoral degree in materials physics, materials chemistry or materials science. Doctoral dissertation must be submitted for evaluation by the closing date. Only applicants with an approved doctoral thesis and public defence are eligible for appointment.
- Fluent oral and written communication skills in English
- 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 license. https://www.uio.no/english/studies/admission/master/export-control.html

Desired qualifications:

- Experience with characterization of electrode surface kinetics, e.g., using isotope exchange, SIMS depth profiling, electrical conductivity/optical transmission relaxation, etc.
- Experience with electrochemical characterization of solid oxide cells
- Experience with advanced structural and chemical characterization using synchrotron beam-line facilities
- Experience with density functional theory (DFT) simulations of kinetic processes at oxide surfaces
- Fluent oral and written communication skills in a Scandinavian language (for fourth year involving teaching duties)

Personal skills:

- Good social, communication and collaboration skills
- Ability to work independently and in an interdisciplinary scientific environment

We offer:

- Salary NOK 575 400 - 657 300 per year depending on qualifications in position as Postdoctoral Research Fellowship (position code 1352)
- Attractive welfare benefits and a generous pension agreement
- Professionally stimulating working environment
- Vibrant international academic environment
- Postdoctoral development programmes
- Oslo's family-friendly surroundings with their rich opportunities for culture and outdoor activities

The application must include:

- Cover letter (statement of motivation, summarizing scientific work, research interest, highlighting fulfillment of desired qualifications)
- CV (summarizing education, positions, pedagogical experience, administrative experience and other qualifying activity)
- Copies of educational certificates, academic transcript of records
- Letters of recommendation
- A complete list of publications and up to 5 academic works 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).

In assessing the applications, special emphasis will be placed on the documented, academic qualifications, as well as the candidates motivation and personal suitability. Interviews with the best qualified candidates will be arranged.

It is expected that the successful candidate will be able to complete the project in the course of the period of employment.

Formal regulations:

Please see the guidelines and regulations for appointments to Postdoctoral fellowships at the University of Oslo.

If an applicant has applied for and been granted funding for a fulltime research stay abroad while being employed as a Postdoctoral Research Fellow, the employment will be prolonged with the equivalent time as the research stay, but for no longer than of twelve months (thus extending the employment to a maximum of four years)

No one can be appointed twice as a Postdoctoral fellow financed with funds from The Research Council of Norway (NFR).

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.

The University of Oslo 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 persons:

For further information about the position please contact Associate Professor Jonathan Polfus, phone: +47 228 40683, e-mail: jonathan.polfus@kjemi.uio.no

For questions regarding the recruitment system, please contact HR Adviser Olga Holmlund, e-mail: olga.holmlund@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 at the University of Oslo. SMN has focused on basic research in renewable energy and environmentally friendly use of fossil energy sources.

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Additional information

Place of service:

Problemveien 7 0313 Oslo (Oslo Municipality)