Postdoc position in optical sensors and spectroelectrochemistry

Are you interested in optical sensors, and can you contribute to the development of the project aimed at advancing ion-selective optodes by integrating spectroelectrochemical techniques? If so, the Department of Biology at Aarhus University invites you to apply for a one-year postdoc position.

Application Deadline:
07 April 2025

Institute/Faculty:
Department of Biology

Faculty:
Faculty of Natural Sciences

Academic contact person:
Andrei Kalinichev
Postdoc, AIAS-AUFF Fellow
akalinichev@aias.au.dk

Vacant positions:
1

Number of months:
12

Hours per week:
37

Expected date of accession:
01/08/2025

Expected start date and duration of employment

This is a full-time, one–year, fixed-term position from the 1st of August 2025 or as soon as possible thereafter.

Job description

The project aims to integrate optical and electrochemical responses in ion-selective sensors to overcome long-standing limitations such as pH cross-sensitivity. The project leverages dynamic electrochemical methods to stabilize interfacial potentials and enhance sensor accuracy. You will be involved in theoretical and experimental studies, optimizing membrane compositions, and developing prototypes that combine spectroscopic and electrochemical measurements.

Key Responsibilities:

- conduct research on ion-selective sensors (electrodes and optodes), focusing on integrating optical and electrochemical responses
- optimize sensor compositions and develop experimental prototypes combining spectroscopic and electrochemical methods
- apply and validate spectroelectrochemical approaches in both artificial and real-world samples, exploring dynamic methods like chronoamperometry and impedance spectroscopy

The successful candidate is expected to carry out research of high international quality, leading to high-impact publications and presentation of the work at international scientific conferences.

Your profile

We seek a talented and motivated chemist with a documented academic research background in (optical) ion-selective sensors and/or spectroelectrochemistry.

- PhD in chemistry (analytical, physical, or related fields).
- proven experience with ion-selective sensors (electrodes and/or optodes)
- familiarity with spectroelectrochemical techniques
- basic knowledge of modeling based on electrochemical potential
- good communication skills, ability to work independently, a record of scientific publications
- proficiency in data analysis and image processing are further benefits

Who we are

The successful candidate will join a strong interdisciplinary team involving both academic and industrial partners. The candidate will mainly work in the laboratories at the Section for Microbiology at the Department of Biology, Aarhus University. The section employs 9 professors with associated junior staff and 7 laboratory technicians. It has strong ties to the Aarhus University Center for Water Technology (https://watec.au.dk) and hosts the Sensor lab — pioneering lab having essential tools to understand biological processes. Research in the section covers studies of the developments of optical sensors and microelectrodes as well as their application in real-case scenarios. The section hosts many international staff and students; English is the main spoken language at all joint meetings.

What we offer

- a collaborative and interdisciplinary research environment at the Microbiology

Section of Aarhus University to expand your skills and networking
- collaborations with technical universities (University of Southern Denmark) and scientists working in applied fields, like investigation of nature-occurred electrical gradients in sediments
- access to state-of-the-art facilities and resources for advanced analytical research (spectroelectrochemical instruments, varying microscopy, etc.)
- opportunities to contribute to a groundbreaking project at the forefront of analytical chemistry
- highly qualified laboratory technicians to assist/supervise analyses

- a workplace characterised by professionalism, equality and a healthy work-life balance
- outstanding working conditions (https://international.au.dk/research/researcher-positions/working conditions).
- relocation services for international employees (https://internationalstaff.au.dk).

Place of work and area of employment
The place of work is Ny Munkegade 116, 8000, Aarhus C, and the area of employment is Aarhus University with related departments.

Aarhus city (population 300.000) offers easy access to beautiful nature, an exciting culture and city life as well as a safe environment for children. The city of Aarhus has everything you need within a surprisingly small area: exciting national and international jobs, delightful residential areas, a rich cultural life, and beautiful surrounding landscape of forests, lakes and coastline that make Aarhus a wonderful place to live and work. For further details on the city and the university please follow this link: https://international.au.dk/life/. Aarhus University campus is located in a beautiful park close to the city center of Aarhus.

Contact information
For further information, please contact: postdoc Andrei Kalinichev, akalinichev@bio.au.dk.

Deadline
Applications must be received no later than the 7th of April 2025.

Application procedure
Shortlisting is used. This means that after the deadline for applications – and with the assistance from the assessment committee chairman, and the appointment committee if necessary, – the head of department selects the candidates to be evaluated. All applicants will be notified whether or not their applications have been sent to an expert assessment committee for evaluation. The selected applicants will be informed about the composition of the committee, and each applicant is given the opportunity to comment on the part of the assessment that concerns him/her self. Once the recruitment process is completed a final letter of rejection is sent to the deselected applicants.

Letter of reference
If you want a referee to upload a letter of reference on your behalf, please state the referee's contact information when you submit your application. We strongly recommend that you make an agreement with the person in question before you enter the referee's contact information, and that you ensure that the referee has enough time to write the letter of reference before the application deadline. Unfortunately, it is not possible to ensure that letters of reference received after the application deadline will be taken into consideration.

If you wish to add a referee **after** you have submitted your application, you must send this person's details (name, job title, place of work, and email address) as well as the name of the position you have applied for to: HR.Nattech@au.dk

Formalities and salary range

Natural Sciences refers to the Ministerial Order on the Appointment of Academic Staff at Danish Universities under the Danish Ministry of Science, Technology and Innovation.

The application must be in English and include a curriculum vitae, degree certificate, a complete list of publications, a statement of future research plans and information about research activities, teaching portfolio and verified information on previous teaching experience (if any). Guidelines for applicants can be found here.

Appointment shall be in accordance with the collective labour agreement between the Danish Ministry of Taxation and the Danish Confederation of Professional Associations. Further information on qualification requirements and job content may be found in the Memorandum on Job Structure for Academic Staff at Danish Universities.

Salary depends on seniority as agreed between the Danish Ministry of Taxation and the Confederation of Professional Associations.

Aarhus University's ambition is to be an attractive and inspiring workplace for all and to foster a culture in which each individual has opportunities to thrive, achieve and develop. We view equality and diversity as assets, and we welcome all applicants.

Research activities will be evaluated in relation to actual research time. Thus, we encourage applicants to specify periods of leave without research activities, in order to be able to subtract these periods from the span of the scientific career during the evaluation of scientific productivity.

Aarhus University offers a broad variety of services for international researchers and accompanying families, including relocation service and career counselling to expat partners. Read more here. Please find more information about entering and working in Denmark here.

Aarhus University also offers a Junior Researcher Development Programme targeted at career development for postdocs at AU. You can read more about it here.

At the Faculty of Natural Science at Aarhus University, we strive to support our scientific staff in their career development. We focus on competency development and career clarification and want to make your opportunities transparent. On our website, you can find information on all types of scientific positions, as well as the entry criteria we use when assessing candidates. You can also read more about how we can assist you in your career planning and development.

The application must be submitted via Aarhus University's recruitment system, which can be accessed under the job advertisement on Aarhus University's website.

Aarhus University

Aarhus University is an academically diverse and research-intensive university with a strong commitment to high-quality research and education and the development of society nationally and globally. The university offers an inspiring research and teaching environment to its 38,000 students (FTEs) and 8,300 employees, and has an annual revenues of EUR 935 million. Learn more at www.international.au.dk/