

# Postdoc: Operando on chip investigation of failure in optical phase change materials using ultrafast X ray

Aarhus University, Department of Chemistry, Denmark, invites applications for a fully funded 2 year postdoctoral position starting September 1, 2026 or thereafter (to be negotiated).

## Project overview

The goal of this project is to advance the understanding of failure mechanisms in optical phase change materials used in photonic devices, using synchrotron X rays and X ray free electron lasers (XFEL). Optical phase change materials can be reversibly switched between amorphous and crystalline states on fast timescales and are enabling materials for emerging photonic computing technologies.

The postdoctoral researcher will perform operando and time resolved structural characterization of materials and devices during switching, combining methods such as laser pump and X ray probe total scattering, WAXS and SAXS, imaging, and femtosecond X ray diffraction to probe structure and dynamics in real time under device relevant conditions.

Target facilities include DESY, MAX IV, European XFEL, ESRF, APS, and LCLS, depending on awarded beamtime. The project is supported by the Independent Research Fund Denmark.

More information about the research group is available here: <https://chem.au.dk/AmorphousMatLab>

## What you will do

- The postdoc will co-lead beamtime proposals and campaigns, and will work with existing on-chip photonic device platforms in collaboration with project partners. Design and execute operando experiments to probe structural dynamics and degradation during repeated switching. Analyze large scattering and diffraction datasets and connect structural signatures to device level failure. Contribute to beamtime proposals, experimental campaigns, and dissemination of results
- Publish in leading journals and present at international conferences

## What we offer

- A fully funded 2 year postdoctoral position at Aarhus University. Denmark has an excellent working environment for developing an academic career, competitive salary, and funding opportunities.
- Strong access to international large scale facility collaborations and experimental campaigns
- A project with substantial ownership, including first author publication opportunities
- Structured mentorship aimed at developing your independent research profile, including support for proposal writing and leadership in experimental planning. The postdoc will have freedom to develop a related side project aligned with their interests.
- Support for international conference participation and possible research stays
- A collaborative environment across the Department of Chemistry, CENSEMAT Centre for Energy Materials, and the iMAT Center for Integrated Materials Research

## Qualifications

- PhD in chemistry, physics, materials science, or a related field
- Experience with synchrotron X ray scattering and/or XFEL experiments. Strong

**Application Deadline:**  
17 June 2026

**Institute/Faculty:**  
Department of  
Chemistry

**Faculty:**  
Faculty of Natural  
Sciences

**Academic contact  
person:**  
Shuai Wei  
Lektor  
[shuai.wei@chem.au.dk](mailto:shuai.wei@chem.au.dk)

**Vacant positions:**  
1

**Number of months:**  
24

**Hours per week:**  
37

**Expected date of  
accession:**  
01/09/2026

skills in crystallographic and scattering data analysis, including handling large datasets. Solid understanding of crystallography, powder X ray diffraction, diffuse scattering, phase transitions, and background modeling. Experience of Xray imaging is a bonus. Programming skills, for example Python or similar. Experience with operando or time resolved experiments, and X ray instrumentation.

- Ability to work independently with strong motivation, and to collaborate in a team environment
- Fluent written and spoken English

**Place of employment and work location:** Aarhus University, Department of Chemistry, Langelandsgade 140, DK 8000 Aarhus C, Denmark

**Further information on the position:** please contact Associate Prof. Shuai Wei at [shuai.wei@chem.au.dk](mailto:shuai.wei@chem.au.dk)

### 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.

### 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](mailto: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 37,000 students (FTEs) and 8.700 employees and has an annual revenue of EUR 1.106 billion. Learn more at [www.international.au.dk/](http://www.international.au.dk/)*