2-year Post Doc Position Experimental Physical Chemistry / Chemical Physics at Department of Chemistry, Aarhus University, Denmark

Femtosecond time-resolved imaging and control of chemical reactions using molecules in helium nanodroplets

The position is available from 1 September, 2025 (earlier or later start may be possible).

Job description/research project/research area

Research

You are expected to take a leading role in the research program, supported by a Villum Investigator Grant, in which femtosecond and picosecond laser pulses are used to study molecules and molecular complexes embedded in nanoscopic droplets of superfluid helium. A particular focus is on exploring the structural dynamics of molecules during unimolecular and bimolecular reactions.

Specific projects include, but are not limited to, time-resolved imaging of cation-molecule complex formation – including charge transfer processes, femtosecond-and-atom-resolved solvation dynamics of ions, Coulomb explosion imaging of molecules and molecular oligomers, and rotational coherence spectroscopy as a tool to explore far-from equilibrium dynamics and coupling of isolated quantum systems to a many-body environment.

The experiments will take place in our laboratories at Aarhus University.

Education

You are expected to engage in the education of students at all levels, notably masters and bachelor students, through research-based training. In practice, this means leading groups composed of a few students in different projects and includes guiding them during experiments, data analysis and in the writing of research documents. You are also expected to collaborate with the four excellent PhD students, in the group. Such collaborations offer a rich potential for very strong synergy effects in your research program.

You will be offered an opportunity for contributing to teaching in undergraduate and graduate courses. Concrete examples include the courses ‘Reaction Dynamics’ and ‘Lasers and Optics’.

Maintenance of instruments

You will be jointly responsible for making sure that various experimental apparatus in the laboratories are maintained and serviced with timely care. In particular, this includes various vacuum components such as turbopumps, foreline pumps, and pulsed molecular valves.

Outreach

You are expected to take a lead in writing research articles based on the results obtained in the various projects. Also, you are expected to contribute to the content of the group web page and possibly outreach on social media.

Your profile

Applicants should hold a PhD in physics, chemistry or a related area.

You must be able to document extensive experience with most of the following:

- Molecules in supersonic beams or in helium nanodroplets
- Ultrahigh vacuum technology
- Ion and electron detectors
- Amplified femtosecond laser systems or other laser systems.
- Writing of scientific articles

In addition we want a candidate who is:

Application Deadline:
01 May 2025

Faculty:
Faculty of Natural Sciences

Institute/Faculty:
Department of Chemistry

Academic contact person:
Henrik Stapelfeldt
Professor
henriks@chem.au.dk
+4560202770

Vacant positions:
1

Hours per week:
37

Number of months:
24

Expected date of accession:
01/09/2025

- Intellectually and technically at a high level
- Innovative
- Able to work hard when it is needed
- Motivated and enthusiastic about science, research and education

In short, we are looking for a bright, talented person that possesses the professional and technical skills needed to conduct research at a high level. Equally important, we want somebody who is very motivated, driven and passionate about science and who is able to convey that motivation and joy of working to the students in the group.

You must be fluent in the speaking and writing of English.

All applicants are encouraged to contact Henrik Stapelfeldt prior to submitting an application: phone +45 60 20 27 70, email henriks@chem.au.dk.

Who we are/ The department

The Department of Chemistry at Aarhus University is one of the leading European chemistry departments with research programs that range from medicinal chemistry to theoretical chemistry. It has a permanent staff of 35 full and associate professors, a support-staff of ~25 people, ~100 PhD-students and 50 postdocs, and about 400 students.

The place of work is Department of Chemistry, Aarhus University, Langelandsgade 140,
8000 Aarhus C.

Salary depends on seniority as agreed between the Danish Ministry of Taxation and the Confederation of Professional Associations. Researchers from abroad may under certain conditions be eligible for favorable tax rates.

Deadline

All applications must be received no later than 1 May, 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/