

Postdoctoral Position in Hydrogen Production by Plasma Electrolysis

The Department of Biological and Chemical Engineering, Aarhus University, invites applications for a Postdoctoral position on Hydrogen Production by Advanced Plasma Electrolysis, and join an international consortium to help Denmark achieve its national and European Climate Goals.

The position is based at AU Viborg and are expected to begin on 1 July 2026, or as soon as possible thereafter.

The Postdoctoral Researcher will play a central role in establishing Denmark's first demonstration of an advanced plasma-assisted electrolyser for producing hydrogen from biofuels at Aarhus University's Viborg campus. Working at the intersection of plasma engineering, catalysis, and renewable energy systems, the postdoc will lead experimental design, reactor operation, and data analysis for the integrated plasma-membrane system. The position offers a unique opportunity to collaborate closely with leading industrial and academic partners to deliver groundbreaking results in sustainable hydrogen and carbon production.

Expected start date and duration of employment

The position is full-time and expected to begin on 1 July 2026, or as soon as possible. The expected duration is up to 2.5 years.

Job description

The Postdoctoral Researcher will lead the scientific research activities related to the testing, operation, and optimization of the Advanced Plasma Reactor installed at the Aarhus University biogas plant and a smaller lab-based experimental system. The position acts as the central technical and experimental link between the project partners —plasma system provider, membrane purification systems, energy analysis, output users — to deliver validated data on hydrogen production efficiency, process stability, and carbon valorisation.

Tasks

- Plan, execute, and document experimental campaigns for biofuels reforming in the plasma reactor under various operating pressures and feed compositions.
- Develop and implement operating protocols for safe, stable, and efficient operation of the integrated plasma-membrane system at the AU Biogas facility.
- Conduct in-depth performance mapping including gas analysis, hydrogen yield, energy consumption, and carbon black morphology.
- Conduct process and plasma simulations as required.
- Collaborate with plasma system engineers to refine reactor configuration and torch parameters; and with H membrane separation scientists to optimize hydrogen separation efficiency and purity.
- Interface with energy systems modelers to supply validated process data for system-level energy and carbon footprint modeling.
- Supervise and mentor MSc and PhD students contributing to process analysis, instrumentation, and data interpretation.
- Lead the preparation of experimental reports, peer-reviewed publications, and contributions to project deliverables and milestones.
- Participate in consortium meetings, conferences, technical reviews, and dissemination events representing the Aarhus experimental platform.

The successful candidates will become part of a collaborative and international environment within the Department of Biological and Chemical Engineering (BCE) at Aarhus University. The positions are mainly based at **AU Viborg**, home to **BCE's mid-TRL experimental facilities**, which support the development and testing of sustainable technologies on pilot scale. Depending on the position, the work will involve a combination of experimental research, process simulation, reactor operation, and system-level optimization.

Application Deadline:
12 May 2026

Institute/Faculty:
Department of
Biological and
Chemical Engineering

Faculty:
Faculty of Technical
Sciences

Academic contact person:
John William Phair
Lektor
jwph@bce.au.dk
+4571347788

Vacant positions:
1

Number of months:
30

Hours per week:
37

Expected date of accession:
01/07/2026

Your profile

We are looking for candidates with strong academic backgrounds and a passion for sustainable, green energy processes and plasma process development. The positions require the ability to work both independently and collaboratively in multidisciplinary teams. Candidates are expected to demonstrate strong problem-solving skills, scientific integrity, and a proactive attitude toward research, engineering, and knowledge sharing.

Please indicate clearly in your application which position(s) you are applying for.

- A PhD in chemical engineering, plasma physics, process systems engineering, electrical engineering, energy engineering, reactor/plasma engineering, or a related field.
- Strong knowledge of plasma physics/thermodynamics, plasma and process modeling, reactor engineering and process integration principles, including mass and energy balances.
- Proficiency in Aspen Plus, COMSOL, PLASIMO, OpenFOAM or similar process and plasma simulation tools.
- Experience with techno-economic assessments (TEA) of complex chemical processes
- Familiarity with CO₂ capture and utilization technologies, Power-to-X systems or plasma processing and reactors.
- Experience in steady-state or dynamic simulation under varying operational scenarios; programming skills are considered a plus.

Who we are

The Department of Biological and Chemical Engineering was established on January 1, 2021, in connection with Aarhus University's reorganization of the engineering area. The department employs around 175 people and is responsible for research and education within the department's scientific areas. We educate both Bachelors and Master of Science in Engineering and around 825 students are enrolled in our study programs. Furthermore, we also offer an ambitious PhD program. Our PhD students have high academic ambitions and deliver high-quality results for both the private and the public sectors.

At the Department of Biological and Chemical Engineering, focus is on living systems, the biology of organisms, efficient production, and transformation of chemicals, materials and energy. We translate knowledge within biotechnology, food technology, environmental technology, chemical engineering, industrial biotechnology, medical biotechnology and electrochemical engineering, and more into new technologies and value-creating solutions that can also be used in the business community.

Many of our research and development activities are based on companies' specific innovation needs or specialist application areas. Close collaboration with the public sector and private businesses ensures that the knowledge and technology generated in the department's research environments has a clear anchoring in reality and benefits the surrounding society. We also provide research-based public sector consultancy and advice on technology in agriculture and food.

What we offer

At the Department of Biological and Chemical Engineering, Aarhus University, we offer a dynamic and supportive environment for researchers who are passionate about sustainable technologies and interdisciplinary collaboration. Specifically, we provide:

- Access to well-developed research infrastructure, including pilot-scale experimental facilities and state-of-the-art laboratories.
- An interdisciplinary research environment spanning chemical engineering, catalysis, energy conversion, process systems and Power-to-X technologies.
- Opportunities to collaborate closely with national and international academic partners, as well as industrial stakeholders involved in an international consortium.

- A research culture that encourages open dialogue, innovation, and critical thinking across fields.
- A collegial and inclusive workplace with networking activities, knowledge sharing, and a commitment to team development.
- A strong focus on professionalism, equality, and work-life balance, ensuring a healthy and productive working environment.

You will become part of a growing research initiative with real-world impact and visibility and have the chance to contribute to shaping next-generation sustainable technologies.

Place of work and area of employment

The position include the following permanent workplace addresses Burrehøjvej 43, 8830 Tjele (AU Viborg)/ Åbogade 40, 8200 Aarhus N (AU Åbogade),

The area of employment is **Aarhus University with affiliated institutions**. Attendance at each workplace is as agreed with your immediate supervisor.

Contact information

For general inquiries about the postdoc position please contact: (jwph@bce.au.dk).

Deadline

Applications must be received no later than 12 May 2026.

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

Formalities and salary range

Technical 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](#).

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/