

Post-doc on experimental characterization of bubbles in flow

Are you interested in conducting cutting edge experimental research contributing to green energy transition? Then the Department of Mechanical & Production Engineering at Aarhus University invites you to apply for a 2-year experimental post-doc position aimed at understanding of bubbly flows in water electrolyzers.

Expected start date and duration of employment

This is a 2-year position from 1 October 2024 or as soon possible.

Job description

Understanding the interaction of gas bubbles and electrode surfaces is a key to design and improve gas-evolving electrochemical systems such as water electrolyzers. The project aims to characterize gas bubbles produced on the surface of electrodes with complex (e.g. porous) geometries and to provide much needed validation data for numerical and theoretical models.

To this end, a microfluidic test set-up is to be designed and constructed. Optical methods such as shadowgraphy and particle tracking can be utilized to characterize the bubbles and measure the velocity field in the liquid. You will be responsible for designing the experiment, developing the test set-up, performing the experiments, data processing, and disseminating the results in form of articles and presentation in scientific forums.

Your profile

Applicants should hold a PhD in Mechanical Engineering or other relevant subjects focused on experimental fluid mechanics. Specifically, hand-on experience with optical techniques and/or experimental microfluidics is sought.

The successful candidate is also expected to have:

- strong research and publication track record,
- deep knowledge of fluid dynamics,
- good English communication skills and enthusiasm for collaborative research.

Applicants are expected to enclose their CV (incl. list of publications) and a cover letter elaborating on their experience in experimental fluid dynamics.

Who we are

You will be a member of the Fluids and Energy Section at Dept. Mech. & Prod. Engineering, where research on experimental and numerical fluid mechanics with strong focus on green energy transition is carried out. A focus area in the group is modeling of multiphase flows with application in green hydrogen; what will give you a chance to be a part of a collaborative research environment and boost your research productivity.

What we offer

Moreover, the department offers:

- access to lab and all necessary equipment,
- an exciting interdisciplinary environment with many national, international and industrial collaborators
- a research climate encouraging lively, open and critical discussion within and across different fields of research
- a workplace characterised by professionalism, equality and a healthy work-life balance.

Place of work and area of employment

The place of work is Katrinebjergvej 89F, 8200 Aarhus N, and the area of employment is Aarhus University with related departments.

Application Deadline:
01 August 2024

Faculty:
Faculty of Technical
Sciences

Institute/Faculty:
Department of
Mechanical and
Production Engineering

**Academic contact
person:**
Pourya Forooghi
Lektor
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+4593522303

Vacant positions:
1

Hours per week:
37

Number of months:
24

**Expected date of
accession:**
01/02/2025

Contact information

For further information, please contact: Associate Professor Pourya Forooghi, +45 93 52 23 03, forooghi@mpe.au.dk or Assistant Professor Ulrich Doll ud@mpe.au.dk.

Deadline

Applications must be received no later than 1 August 2024

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.

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 38,000 students (FTEs) and 8,300 employees, and has an annual revenues of EUR 935 million. Learn more at www.international.au.dk/