Postdocs for new European research project at the Department of Electrical and Computer Engineering, Aarhus University

Postdocs for new European research project at the Department of Electrical and Computer Engineering, Aarhus University. The Section for Electrical Energy Technology under the Department of Electrical and Computer Engineering (ECE) at Aarhus University invites applicants for a two-year postdoctoral position, offering applicants an exciting opportunity to join a research project with a focus on the development of the next generation of energy storage systems, microgrid applications etc.

Start date and duration of employment
The duration of the employment is 24 months, and the start date is 15 April 2024 or as soon as possible hereafter.

The research project
You will be part of an European-funded project focusing on technology development for the next generation of power converter systems for PtX systems, electrochemical storage, micro and macro grid applications to the decarbonize the energy and transportation sectors.

We design technologies that cover a wide range of applications, such as smart cities and residential self-consumption, backup power systems in isolated areas, energy management, and grid balancing in renewable power production.
We perform research in projects that aim to develop and integrate technologies and processes to create a new concept of an intelligent, modular, and scalable battery pack for a wide range of electric cars used in urban electromobility services, from mid-size electric vehicles to electric buses

Other focus areas are the development of disruptive topologies for power converters using new semiconductor materials as well as cutting-edge digital technologies to improve architecture efficiency, power density, reliability, cost, and sustainability.

Similarly, we work on microgrid applications to help developing countries meet their climate neutrality goals by combining photovoltaic systems with biomass combined heat and power technologies coupled with electrical energy storage systems optimized for specific applications.

We work in an international and multi-disciplinary setting in projects that integrate the expertise of different European partners in electrochemistry, electrochemical energy storage, electronics, process engineering, smart sensors, IoT, and solar power industries, aiming to decarbonize the energy and transportation sectors.

For more information, visit:

- Article: Researchers aim to store wind energy in rivers flowing uphill
- Article: Electric car of the future to be developed in Denmark
- Article: Heavy trucks to run on electricity
- Article: New copper batteries to store solar energy

Your qualifications
For this project, we are looking for a highly qualified person with an electrical engineering background with a focus on power electronics for electrical energy storage systems, design of battery management systems or microgrid design, optimization, and implementation. The ideal candidate should be familiar with state-of-the-art standards and customized converter technologies for energy storage applications and have experience designing such systems, including component selection based on reliability, cost, simulations and testing. A background in the design of advanced battery management systems, controls and balance of plant is a plus.

You should think out of the box, seek development opportunities, and love to be at the cutting edge of new technologies. Translating your knowledge and good craftsmanship into robust solutions is essential.

The ideal candidate should hold a Ph.D. in electrical engineering (or equivalent),

Application Deadline:
28 February 2025

Faculty:
Faculty of Technical Sciences

Institute/Faculty:
Department of Electrical and Computer Engineering

Academic contact person:
Corneliu Barbu
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+4593521325

Vacant positions:
1

Hours per week:
37

Number of months:
24

Expected date of accession:
15/04/2025

preferably with a specialization in the field of high power engineering or similar.

Required qualifications:

- Experience in power electronics
- Knowledge of control of power electronics (particularly DC/DC converters)
- Knowledge of battery storage technologies and battery management systems
- Sound experience with scientific publication
- Excellent English skills, both oral and written

Who we are

The Section for Electrical Energy Technology focuses on energy system integration and energy transition towards a more efficient, circular, and reliable energy system in the future. This includes coordinated planning and operation across multiple energy systems and renewable energy production, infrastructure, and consumption.

The section is undergoing rapid expansion concerning educational and research activities, including seven large projects. In recent years, it has become the most important place of study in Denmark for the electrical power engineering area at the Bachelor's level.
The section has established the RESCUE laboratory – http://www.rescuelab.au.dk/ – which researchers, students and companies use alike. The main goal of the laboratory is for researchers to gain practical experience with future energy systems based on the full integration of renewable energy sources such as solar, wind, biogas, and storage systems.
In addition, the group has expanded its activities to Aarhus University's campus in Herning, where it has established the first "online" electrical energy technology degree programme, including a large energy technology laboratory.

Place of work

The place of work is at Finlandsgade 22, 8200 Aarhus N, Denmark.

Additional information

Further information about the position may be obtained from the project leader, Associate Professor Corneliu Barbu (phone no.: +45 9352 1325/email: coba@ece.au.dk)

Application deadline

The application deadline is 28 February 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.

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/