Norwegian University of Life Sciences

Jobbnorge ID: 252305
Deadline: 11/20/2023
Website: http://www.nmbu.no
Scope: Fulltime
Duration: Fixed Term

Are you interested in innovative wastewater management technologies?

PhD or Postdoc within bioelectrochemical systems for wastewater treatment and resource recovery

About the position

The Faculty of Science and Technology at the Norwegian University of Life Sciences (NMBU) has a vacant PhD or Postdoc -position related to bioelectrochemical systems (BES) for wastewater treatment and resource recovery. The position covers a period of 3 years for a PhD or 2 years for a postdoc, with the potential for a one-year extension for both positions if teaching and other work duties are agreed.

The project will investigate innovative wastewater management technologies for a circular economy approach by combining energy and nutrient recovery for wastewater treatment applying bioelectrochemical systems.

Waste biorefinery concept allows for converting waste and wastewater into energy and materials and is gaining more importance with increasing need for substituting finite resources for achieving a circular economy. Biogas can be produced from organic wastes through anaerobic digestion, which converts biodegradable components into biogas. However, the methane concentration in biogas is often around 60%, and the upgrading process for purification of methane is energy- and cost-intensive. Bioelectrochemical system using microorganisms as bio-catalysts is an emerging biogas upgrading technology, in which carbon dioxide is converted into methane.

During the process, simultaneous biogas upgrading, and biofertilizer production from nutrients present in wastewaters can be achieved. Biobased fertilizers, as a result of nutrient recovery from waste streams, can substitute synthetic fertilizers, which is crucial for a transition from a fossil-based to a bio-based economy.

The project will investigate bioelectrochemical approaches aiming at 1) biogas upgrading 2) nutrient recovery in the form of a biobased fertilizer.

The university fully funds the PhD/Postdoc position. The candidate will work as a part of Resource Recovery research group. The research activities in this project will be carried out in collaboration with the research center Bio4Fuels, a national center of excellence focusing on research on biofuels and value- added products from biomass. For further information, see: https://www.nmbu.no/bio4fuels.

An application for a PhD position at NMBU is at the same time an application for admission to a PhD programme at the institution. The documentation that is necessary to ensure that the admission requirements are met must be uploaded as an attachment.

Main tasks

- Review of the scientific literature and state-of-the-art on bioelectrochemical methods for wastewater treatment
- Design of experiments on nutrient recovery and biogas upgrading applying bioelectrochemical methods
- Design, assembling and running lab scale experimental setups
- Data collection: laboratory observation of basic principles; formulation of the technology concept; experimental proof of concept and validation in lab
- Analysis of wastewater samples
- Advanced statistical analysis and other data sciences techniques for the handling of the collected data
- At least 3 publications in internationally scientifically indexed journals
- 2-3 presentations at international scientific conferences

The successful candidate is expected to enter a plan for the progress of the work towards a PhD degree during the first months of the appointment, with a view to completing a doctorate within the PhD position period.
The main purpose of the post-doctoral position is to qualify for work in high-level scientific positions. A PhD degree is then required.

Competence

The successful applicant must meet the conditions defined for admission to a PhD programme at NMBU. The applicant must have an academically relevant education corresponding to a five-year master's degree with a learning outcome corresponding to the descriptions in the Norwegian Qualification Framework, second cycle. Candidates submitting MSs thesis within 30 November 2023 may be considered. The applicant must have a documented strong academic background from previous studies and be able to document proficiency in both written and oral English. For more detailed information on the admission criteria please see the PhD Regulations and the relevant PhD programme description.

The applicant must document expertise and interest in the research subject.

Required qualifications

- Internationally recognised Master's/PhD degree with high academic standing in Environmental Engineering, Chemical/Process/Bioprocess Engineering, Biochemistry, Environmental Science or related discipline
- Experimental experience, preferably in bioelectrochemical systems
- Fluency in written and spoken English
- Promising publication record (for the postdoc position)

The following experiences and skills will be emphasized:

- Previous experience with bioelectrochemical systems including microbial fuel cells or microbial electrolysis cells
- Design of experiments
- Experience with water and wastewater quality analysis or related analytical techniques
- Statistics for environmental engineers or similar
- General knowledge and experience within water and wastewater treatment technology and engineering
- Experiences in scientific writing and publications in international scientific journals and conferences

You need to:

- Have interest in applied scientific research
- Be a team player
- Be a self-motivated and well-organised candidate with excellent communication skills

Remuneration and further information

The position is placed in government pay scale position code 1017.

PhD fellows are normally placed in pay grade 54 (NOK 532.200,-) and Postdoc fellows in pay grade 62 (NOK 604.900,-) on the Norwegian Government salary scale upon employment and follow ordinary meriting regulations.

Formal regulations

The appointment is to be made in accordance with Regulations on terms of employment for positions such as postdoctoral fellow, Phd candidate, research assistant and specialist candidate and Regulations concerning the degrees of Philosophiae Doctor (PhD) at the Norwegian University of Life Science (NMBU)

The engagement is to be made in accordance with the regulations in force concerning State Employees and Civil Servants, and the acts relating to Control of the Export of Strategic Goods, Services and Technology. Candidates who by assessment of the application and attachment are seen to conflict with the criteria in the latter law will be prohibited from recruitment to NMBU.

For further information, please contact Prof. John Morken, E-mail: john.morken@nmbu.no; phone +47 67 23 15 89

Information for PhD applicants and general Information to applicants

Application

To apply online for this vacancy, please click on the 'Apply for this job' button above. This will route you to the University's Web Recruitment System, where you will need to register an account (if you have not already) and log in before completing the online application form.

Application deadline: 20.11.2023

In the application, the candidate must confirm that information and documentation (in the form of attachments) submitted via the job application can also be used by NMBU in a possible admission process.

Applicants invited for an interview are expected to present original diplomas and certificates.

The following documents must be attached to the application:

- A letter of intent that includes a personal statement and a research proposal outline (max. 2 pages)
- Complete CV
- 'Abstract' or 'summary' of the Master/PhD thesis
- Certified copies of academic diplomas and certificates. (i.e. Di-ploma, transcript. Diploma supplement for both bachelor and master). Diplomas, transcripts and diploma supplements that are not in Norwegian or English must be uploaded in the original language. An English translation of these documents must also be attached.
- Applicants from universities outside Norway are kindly requested to send a diploma supplement, or a similar document, which describes in detail the study program and grading system.
- Documentation of proficiency in written and oral English in accordance with NMBU PhD regulation section 5-2 (3).
- Names and contact details for two references
- Additional relevant documentation of professional knowledge (for example, list of scientific works). If it is difficult to judge the applicant's contribution for publications with multiple authors, a short description of the applicant's contribution must be included.
- Confirmation that information and documentation submitted via the job application can also be used by NMBU in a possible admission process

About The Faculty of Science and Technology

The Faculty of Science and Technology (REALTEK) develops research-based knowledge and educates civil engineers and lecturers needed to reach the UN's sustainability goals. We have approximately 150 employees, 70 PhD students and soon 1500 students. The education and research at REALTEK cover a broad spectrum of disciplines.

This includes data science, mechanics and process engineering, robotics, construction and architecture, industrial economics, environmental physics and renewable energy, geomatics, water and environmental engineering, applied mathematics as well as secondary school teacher education in natural sciences and use of natural resources such as in agriculture, forestry and aquaculture. The workplace is in Ås, 30 km from Oslo.

What is it really like to work at the Faculty of Science and Technology (REALTEK) at NMBU?

- Guided tour of the Faculty of Science and Technology on Vimeo

The Norwegian University of Life Sciences (NMBU)

NMBU will contribute to securing the future of life through outstanding research, education, communication and innovation. We have the country's most satisfied university students, who receive research-based education in a unique student environment. Our graduates gain a high level of competence in interdisciplinary collaboration and are popular in the labor market. NMBU has internationally leading research environments in several subjects. Together with our partners in society and business, we contribute to solving some of the biggest societal challenges of our time.

We focus on innovation, communication and entrepreneurship because we believe these challenges are best solved with joint efforts. We believe that a good working environment is characterized by diversity.If necessary, workplace adaptations will be made for persons with disabilities. More information about NMBU is available at www.nmbu.no/en

Additional information

Place of service:

Universitetstunet 3 1430 Ås (Ås Municipality)