



NTNU
Norwegian University of
Science and Technology

Faculty of Engineering Science and Technology

PhD position on Optimization of Operation of Maritime Fuel Cell Systems

At the Department of Engineering Cybernetics there is a vacant position as PhD candidate on the topic of experimental validation of fuel cell systems for ships. The PhD will be performed in close collaboration with the Hydrogen Systems group at Institute for Energy Technology (IFE), Kjeller.

Significant reduction of the emissions can be achieved by introducing alternative, environmentally friendly fuels in operation of the maritime fleet. Hydrogen produced with zero emissions can be an alternative solution for several maritime applications. The PhD-position will be an integral part of the MoZEES (www.mozees.no), which is hosted by IFE (www.ife.no) and funded by the Research Council of Norway and several Partners. The PhD-project will focus on research and development of competence, methods, and technology for the use of hydrogen and fuel cells in the maritime.

The PhD-study will include both theoretical studies on new key hydrogen and fuel cell technologies, experiments on fuel cell systems, analysis of operation data provided by maritime industry partners, and fuel cell system modeling. A key objective with the planned research will be to adapt advanced digital models to operation of actual systems to enable testing and verification of various fuel cell systems. The development of new methods for monitoring of fuel cell degradation based on variations in load profiles will also be part of the work. In summary, the work will be both theoretical and experimental, and a large part of the PhD will be performed in a national fuel cell and hydrogen system laboratory located at IFE Kjeller.

The candidates applying for this position should have a formal background in power management, power electronics, and/or system controls. In addition, it will be important to have basic programming and modeling skills. Candidates with some knowledge and experience with testing of electrochemical systems (e.g. batteries and fuel cells) will be preferred.

High motivation and good analytical and communication skills (oral and written) will be emphasized in the employment process. The applicants must have a background corresponding to a Master of Science or equivalent, in the relevant field.

NTNU's PhD-rules require a Master's degree or equivalent with at least 5 years of studies and an average grade of A or B within a scale of A-E for passing grades (A best). Candidates from universities outside Norway are kindly requested to send a Diploma Supplement or a similar document, which describes in detail the study and grade system and the rights for further studies associated with the obtained degree: http://ec.europa.eu/education/policies/rec_qual/recognition/diploma_en.html

For further information about the position please contact Professor Ingrid Schjøllberg (ingrid.schjolberg@ntnu.no)