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The Norwegian University of Science and Technology (NTNU) creates knowledge for a better world and solutions that can change everyday life.

Faculty of Engineering

Department of Energy and Process Engineering

PhD position - HydroCen Task 2.3: Pump turbines in existing power plants (IV-101/17)

Description

A PhD position is available at the Department of Energy and Process Engineering, NTNU. The PhD position will be conducted as a part of the Norwegian Centre for Hydropower Technology (HydroCen), which is a Centre for Environment-friendly Energy Research (FME) established by the Research Council of Norway. Its main objective is to enable the Norwegian hydropower sector to meet complex challenges and exploit new opportunities through innovative technological solutions. The research areas include hydropower structures, turbine and generator, market and services and environmental design. The Norwegian University of Science and Technology (NTNU) is the host institution and is the main research partner together with SINTEF Energy Research and Norwegian Institute for Nature Research (NINA). HydroCen include almost 60 national and international partners from industry, R&D institutes and universities.

The candidate will work on numerical and experimental investigations of technical solutions for enabling retrofitting of pumped storage capabilities into existing power plants, focusing on mechanical components and fluid flows.

There are technical and physical challenges related to successfully integrating pumping capabilities into existing hydropower plants. The biggest challenge is because of the phenomena known as cavitation, which can destroy mechanical components. To avoid cavitation occurring, a hydraulic machine must be positioned a certain distance below the tail water level. For turbines, this level is less than what is required for pumps. This means that power house caverns in existing power plants are not suited for installation of pumping capabilities, and cannot be used. New power house caverns must be made, along with access tunnels, etc. This represent a huge investment cost, which make the installation of pumping capabilities not economically feasible. The current project which this PhD position is related to will work with technical solutions that will overcome this problem, making pumping capabilities an economically feasible expansion.

Qualifications

The position requires a Master's degree in technical sciences within mechanical engineering, energy and environmental engineering, or other relevant area. Excellent English Skills, spoken and written, are required. Applicants from non-English-speaking countries outside Europe must document English skills by an approved test. Approved tests are TOEFL, IELTS, Cambridge Certificate in Advanced English (CAE) or Cambridge Certificate of Proficiency in English (CPE). Knowledge of Scandinavian language is beneficial for the application. The successful candidate must also fulfill the requirement for admission to a doctoral program.

Conditions

PhD Candidates are remunerated in code 1017, and are normally remunerated at gross NOK 432,300 before tax. There will be a 2 % deduction to the Norwegian Public Service Pension Fund from gross wage.

Engagement as a PhD Candidate is done in accordance with "Regulation concerning terms and conditions of employment for the posts of post-doctoral research fellow, research fellow, research assistant and resident", given by the Ministry of Education and Research of 19.07.2010. The goal of the positions is to obtain a PhD degree. Applicants will engage in an organized PhD training program, and appointment requires approval of the applicants plan for a PhD study within three months from the date of commencement.

The position is for 3 years, with the possibility of one additional year for distributed duty work for a candidate the department finds suitable.

For more detailed information regarding this specific position, associate professor Pål-Tore Storli (pal-tore.storli@ntnu.no) or Ole Gunnar Dahlhaug (ole.gunnar.dahlhaug@ntnu.no), can be contacted.

See <http://www.ntnu.edu/ivt/phd> for more information.

The engagement is to be made in accordance with the regulations in force concerning State Employees and Civil Servants. The positions adhere to the Norwegian Government's policy of balanced ethnicity, age and gender. Women are encouraged to apply.

The application

The application must contain information of educational background and work experience. Certified copies of transcripts and reference letters should be enclosed. Applications with CV, grade transcripts and other enclosures should be submitted via this webpage. **Mark the application with IV-101/17.**

Start-up date may be discussed, but tentatively during August 2017.

Application deadline is 23st May 2017

According to the new Freedom of Information Act, information concerning the applicant may be made public even if the applicant has requested not to be included in the list of applicants.

Jobbnorge-ID: 136414, Søknadsfrist: Avsluttet