



Two PhD positions in “Adaptive Silicon Carbide Power Electronic Converter Technologies for Medium Voltage Direct Current Grids”

About the position

The [Department of Electric Power Engineering](#) (IEL), at the [Faculty of Information Technology and Electrical Engineering](#) (IE), NTNU, Trondheim, offers vacancies for two 100% positions as PhD Candidates.

The two PhD Candidates will work in a 10-MNOK research project entitled “Adaptive Silicon Carbide Electrical Energy Conversion Technologies for Medium Voltage Direct Current Grids (ASiCC)”, which is funded under the FRIPRO - Young Research Talents program by the Research Council of Norway.

The position reports to Head of the Department

Job description

The ever-increasing penetration of renewable energy sources along with the plethora of digital data available in the future smart grids, necessitate the design of adaptive power electronic converters enabling optimal operation under load and source variations. ASiCC research project aims at developing the next generation adaptive power electronic converter designs employing Silicon Carbide (SiC) power semiconductor devices for medium-voltage direct current (MVDC) distribution grids. Within the ASiCC project, adaptive gate driver designs for shaping the switching and conduction performance of high-voltage SiC power semiconductor switches will be designed. In addition to these, ASiCC project team will investigate the influence of electric power grid and distributed energy sources and loads operating conditions on the design and operation of medium-voltage SiC-based power electronic converters.

Currently, there are two vacant PhD positions available at NTNU within the field of “Adaptive SiC power electronic converters for MVDC distribution grids”.

We are expecting one doctoral student to work on digitally adaptive gate drivers for SiC-based power semiconductor switches employed in MVDC converters, while the second doctoral student will focus on the impact of source and load variations on the switching performance of high-voltage SiC switches. The two PhD students are expected to cooperate closely as a team, as well as be part of the existing power electronics groups. They are also expected to actively participate in preparing scientific publications and engaged with laboratory and prototyping work. The two PhD students will have the opportunity for 3-month research stays at three European universities, namely KTH Stockholm, DTU Denmark and Aalborg University.

Qualification requirements

The PhD-position's main objective is to qualify for work in research positions. Applicants must hold a M.Sc. degree (or equivalent) within electrical engineering with a specialization in Power Electronics. Applicants with a laboratory experience on power electronics (design of power electronic converters prototypes, programming of FPGAs and DSPs etc.) will be preferred. Scientific publications in international journals and conferences are merited.

Applicants are required to submit a one-page research proposal within the described research area.

Applicants must provide evidence of good English language skills, written and spoken. If your first language is not English, the following tests can be used as documentation: TOEFL, IELTS and Cambridge Certificate in Advanced English (CAE) or Cambridge Certificate of Proficiency in English (CPE). Minimum scores are:

- TOEFL: 600 (paper-based test), 92 (Internet-based test)
- IELTS: 6.5, with no section lower than 5.5 (only Academic IELTS test accepted)
- CAE/CPE: grade B or A.

The appointment is to be made in accordance with the regulations in force concerning State Employees and Civil Servants and [national guidelines for appointment as PhD, postdoctoral and research assistant](#).

Personal characteristics

The ability to work in a team and good communication skills will be emphasized in the employment process.

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal suitability, in terms of the qualification requirements specified in the advertisement.

We offer

- exciting and stimulating tasks in a strong international academic environment
- an open and [inclusive work environment](#) with dedicated colleagues
- favourable terms in the [Norwegian Public Service Pension Fund](#)

Salary and conditions

PhD Candidates are remunerated in code 1017, and are normally remunerated at gross from NOK 449 400 per annum. From the salary, 2% is deducted as a contribution to the Norwegian Public Service Pension Fund.

The period of employment is 3 years without teaching assistance or 4 years including 25% teaching assistance.

Appointment to a PhD position requires admission to the PhD programme in Electrical Power Engineering. Applicants must be qualified for admission as PhD students at NTNU. See <https://www.ntnu.edu/ie/research/phd> for information about PhD studies at NTNU.

As a PhD Candidate, you will have to successfully complete the PhD academic training programme; the training includes mandatory course work and other obligatory activities. Within the first three months of your employment, you must formally qualify for admission to the PhD programme at the Faculty of Information Technology and Electrical Engineering.

Appointment takes place on the terms that apply to State employees at any time, and after the appointment you must assume that there may be changes in the area of work.

General information

A good work environment is characterized by diversity. We encourage qualified candidates to apply, regardless of their gender, functional capacity or cultural background. Under the Freedom of Information Act (offentleglova), information about the applicant may be made public even if the applicant has requested not to have their name entered on the list of applicants.

Questions about the position can be directed to **Associate Professor Dimosthenis Pefitsis**, dimosthenis.pefitsis@ntnu.no

About the application:

Please submit your application through this page (<http://www.jobbnorge.no>). Please refer to the application number **2019/9461** when applying.

The application must contain (all in one combined PDF file):

- A one-page research proposal within the proposed research area.
- CV.
- Certified copies of academic diplomas and certificates.
- Applicants from universities outside Norway are kindly requested to send a diploma supplement or a similar document, which describes in detail the study and grading system and the rights for further studies associated with the obtained degree.
- List of scientific publications.
- Publications relevant to the research scope and any other work which the applicant wishes to be taken into account should clearly state the applicant's contribution. A short summary should be attached outlining the applicant's input to joint work.

The PhD positions are expected to start in August 2019.

Incomplete applications will not be taken into consideration.

Application deadline: 30.04.2019.

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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.

Department of Electric Power Engineering

Our department is Norway's leading university environment in the field, and our vision is to be at the centre of the digital green shift. We have excellent collaboration with business and industry as well as other academic environments internationally. This gives us outstanding opportunities for interdisciplinary research with high relevance to society, while we meet industrial needs and address global challenges at the same time. [The Department of Electric Power Engineering](#) is one of seven departments in the [Faculty of Information Technology and Electrical Engineering](#).

Jobbnorge-ID: 167510, Søknadsfrist: Søknadsfristen er gått ut