Jobbnorge ID: 252061
Deadline: 11/19/2023
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Temporary

The Department of Chemical Engineering has a vacancy for a

PhD Candidate within Systematic methods for smart management of CO2 transport and injection systems

This is NTNU

NTNU is a broad-based university with a technical-scientific profile and a focus in professional education. The university is located in three cities with headquarters in Trondheim.

At NTNU, 9,000 employees and 43,000 students work to create knowledge for a better world.

You will find more information about working at NTNU and the application process here.

Video: https://youtu.be/Xt-yHCN5QS0

About the job

For a position as a PhD Candidate, the goal is a completed doctoral education up to an obtained doctoral degree.

The PhD candidate will work in “Systematic methods for smart management of CO2 transport and injection systems”. The objective of this PhD is to study and develop systematic methods for operating networks of CO2 transport networks that include several injection points as well as sources. The goal is to develop simple and consistent control approaches, that lead to optimal operation with minimum pumping cost and that are flexible to varying operation conditions.

This project is part of the fully industry funded center SUBPRO-Zero (SUstainable Bridge PROgram towards Zero emissions), a research center that funds 12 PhD students and postdocs in the next 3-years. Its mission is to conduct fundamental and applied research to contribute to net-zero emissions in the offshore industry.

SUBPRO Zero is fully funded by Industry and NTNU. Today, consortium consists of 5 Operator companies (Equinor, Aker BP, Neptune Energy, Total Energies, Vår Energi) and 2 Supplier companies (Aker Solutions, Kongsberg Digital).

You will report to your PhD supervisor.

Duties of the position

- Perform research control structure design and optimization of CO2 flow networks.
- Develop CO2 network system models of varying complexity ranging from very simple control-oriented models to models with complex phase behaviour.
- Apply and further develop algorithms optimizing the flow in these gas networks,
- Test the methods on industrial case studies.
- Co-supervise Master Students.
- Take part in teaching activities in accordance with department needs.

Required selection criteria

- Background in Process Systems Engineering, Chemical Engineering or Petroleum engineering
- Experience with at least two of the following: Process Control, process modelling, numerical optimization.
- Solid programming skills in scientific computing (e.g. Python, Julia, Matlab, etc)
- Good written and oral English language skills

The PhD-position's main objective is to qualify for work in research positions. The qualification requirement is that you have completed a master’s degree or second degree (equivalent to 120 credits) with a strong academic background in Chemical Engineering/Process Systems Engineering/Petroleum Engineering, or equivalent education with a grade of B or better in terms of NTNU’s grading scale. If you do not have letter grades from previous studies, you must have an equally good academic foundation. If you are unable to meet these criteria you may be considered only if you can document that you are particularly suitable for education leading to a PhD degree.

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) and Philosodophiae Doctor (PhD) in artistic research national guidelines for appointment as PhD, post doctor and research assistant

Preferred selection criteria

- Process Systems Engineering background
- Experience with general process modelling and control
- Experience with flow modelling

Personal characteristics

- Curious
- Goal oriented and structured, prefers to finish tasks ahead of time
- Independent and reliable
- Willing to contribute to a nice research group atmosphere
- Emphasis will be placed on personal and interpersonal qualities.

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
- employee benefits

Salary and conditions

As a PhD candidate (code 1017) you are normally paid from gross NOK 532 200 per annum before tax, depending on qualifications and seniority. From the salary, 2% is deducted as a contribution to the Norwegian Public Service Pension Fund.

The period of employment is 3 years, with a possibility to extend it up to 4 years with teaching activities in the department.

Appointment to a PhD position requires that you are admitted to the PhD programme in Chemical Engineering within three months of employment, and that you participate in an organized PhD programme during the employment period.

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 NTNU. After the appointment you must assume that there may be changes in the area of work.

The position is subject to external funding

It is a prerequisite you can be present at and accessible to the institution daily.

About the application

The application and supporting documentation to be used as the basis for the assessment must be in English

Publications and other scientific work must be attached to the application. Please note that your application will be considered based solely on information submitted by the application deadline. You must therefore ensure that your application clearly demonstrates how your skills and experience fulfil the criteria specified above.

The application must include:

- CV, certificates and diplomas
- Academic works - published or unpublished - that you would like to be considered in the assessment (up to 3 works)
- Name and address of three referees

If all, or parts, of your education has been taken abroad, we also ask you to attach documentation of the scope and quality of your entire education, both bachelor's and master's education, in addition to other higher education. Description of the documentation required can be found here. If you already have a statement from NOKUT, please attach this as well.

We will take joint work into account. If it is difficult to identify your efforts in the joint work, you must enclose a short description of your participation.

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal and interpersonal qualities. Motivation, ambitions, and potential will also count in the assessment of the candidates.

NTNU is committed to following evaluation criteria for research quality according to The San Francisco Declaration on Research Assessment - DORA.

General information

Working at NTNU

NTNU believes that inclusion and diversity is our strength. We want to recruit people with different competencies, educational backgrounds, life experiences and perspectives to contribute to solving our social responsibilities within education and research. We will facilitate for our employees' needs.

The city of Trondheim is a modern European city with a rich cultural scene. Trondheim is the innovation capital of Norway with a population of 200,000. The Norwegian welfare state, including healthcare, schools, kindergartens and overall equality, is probably the best of its kind in the world. Professional subsidized day-care for children is easily available. Furthermore, Trondheim offers great opportunities for education (including international schools) and possibilities to enjoy nature, culture and family life and has low crime rates and clean air quality.

As an employee at NTNU, you must at all times adhere to the changes that the development in the subject entails and the organizational changes that are adopted.

A public list of applicants with name, age, job title and municipality of residence is prepared after the application deadline. If you want to reserve yourself from entry on the public applicant list, this must be justified. Assessment will be made in accordance with current legislation. You will be notified if the reservation is not accepted.

If you have any questions about the position, please contact Professor Johannes Jäschke, email johannes.jaschke@ntnu.no. If you have any questions about the recruitment process, please contact Unni M.Myhre, e-mail: unni.m.myhre@ntnu.no

If you think this looks interesting and in line with your qualifications, please submit your application electronically via jobbnorge.no with your CV, diplomas and certificates attached. Applications submitted elsewhere will not be considered. Upon request, you must be able to obtain certified copies of your documentation.

Application deadline: 19.11.2023

NTNU - knowledge for a better world

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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 Chemical Engineering

We take chemistry from laboratory scale to industrial production. This demands a wide range of knowledge, from molecular processes and nanotechnology to building and operation of large processing plants. We educate graduates for some of Norway's most important industries. The Department of Chemical Engineering is one of eight departments in the Faculty of Natural Sciences.

Additional information

Place of service:

Sem Sælands vei 4 7491 Trondheim (Trondheim Municipality)