Jobbnorge ID: 257316
Deadline: 2/27/2024
Website: http://www.ntnu.no
Scope: Fulltime
Duration: Fixed Term

The Department of Energy and Process Engineering has a vacancy for a

PhD Candidate in Molecular Dynamic Simulations for Thermo-chemical Plastic Recycling

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

Plastic pollution is a significant concern and drives the development of new recycling technologies. Food packaging is a main contributor to plastic waste due to its short lifespan. These package materials often consist of multilayer polymer films and composites. Once discarded, multipolymer materials cannot be sorted into the homogeneity needed for classical plastic recycling and hence are, as of today, not recyclable on a large scale. High-temperature gasification is a promising method for recycling these mixed wastes. By subjecting the plastics to temperatures of 800°C, the organic structure of the plastic is broken down. The resulting product gas can be reacted into new mono- and polymers of the same quality as fossil-based plastics, a prerequisite for creating a circular plastic economy.

The Ph.D. position is part of the HighRec project that aims to accelerate the technical, industry-scale implementation of high-temperature. The main research topic for this position is to investigate the thermal break-up of pure polymers and composites under high temperatures and fast heating rates through molecular dynamic simulations.

For a position as a PhD Candidate, the goal is a completed doctoral education up to an obtained doctoral degree. Your immediate leader is Associate Professor Corinna Schulze-Netzer.

Duties of the position

- Follow the faculty's PhD program
- Plan design and carry out simulations
- Prepare research articles for peer-reviewed journals (min. 3)
- Be willing to present results at conferences
- Prepare a PhD thesis
- Collaborate with researchers involved in the project and master students

Required selection criteria

- You must have a professionally relevant background in process or chemical engineering, chemistry or similar.
- Your education must correspond to a five-year Norwegian degree program, where 120 credits are obtained at master's level.
- You must have a strong academic background from your previous studies and an average grade from the master's degree program, or equivalent education, which is equal to B or better compared with NTNU's grading scale. If you do not have letter grades from previous studies, you must have an equally good academic basis. If you have a weaker grade background, you may be assessed if you can document that you are particularly suitable for a PhD education.
- Master's students can apply, but the master's degree must be obtained and documented by the startdate of the position.
- You must meet the requirements for admission to the faculty's doctoral program (https://www.ntnu.edu/studies/phiv).
- Proficient written and oral English language skills.

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

- Experiences with Molecular Dynamic Simulation
- Good programming skills for scientific post-processing of simulations (phyton, Matlab, C, …)
- Good background in organic chemistry

Personal characteristics

- Ability to work independently and in a team
- Drive to learn new methods and applications
- Curiosity and creativity in finding problem-related solutions
- Contribute actively to a respectful, inclusive and open work 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.

Appointment to a PhD position requires that you are admitted to the PhD programme in Engineering (https://www.ntnu.edu/studies/phiv) 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 and certificates
- Transcripts and diplomas for bachelor's and master's degrees. If you have not completed the master's degree, you must submit a confirmation that the master's thesis has been submitted.
- A copy of the master's thesis. If you recently have submitted your master's thesis, you can attach a draft of the thesis. Documentation of a completed master's degree must be presented before taking up the position.
- Candidates are required to submit a one-page sketch on how they plan to use their academic background to address the research challenges of this position including methods they want to learn newly or gain proficiency in
- Name and contact information of three referees
- If you have publications or other relevant research work

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.

NTNU is working actively to increase the number of women employed in scientific positions and has a number of resources to promote equality.

EPT has established EPT Women in Science. The group is focused on supporting female PhD Candidates, Postdoctoral Fellows, Research Assistants and permanent academic employees within the Department. This support aims to help develop the careers of female PhD Candidates, Postdocs and Research Assistants, and is also made visible to our student body to encourage them to consider an academic path. As part of the EPT Women in Science initiative we are building an international network, inviting prominent female academics within and beyond the field of Engineering to speak at our events.

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 Corrina Schulze-Netzer, email: corinna.netzer@ntnu.no If you have any questions about the recruitment process, please contact Ingrid Wiggen, email: ingrid.wiggen@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: 27.02.24

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 Energy and Process Engineering

We conduct research and teaching covering the entire energy chain, from resources to the end-user. We look at how energy is produced and used by humans and machines in a sustainable way with regard to health, climate change and the resource base. The Department of Energy and Process Engineering is one of eight departments in the Faculty of Engineering.

Additional information

Contact person:

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Place of service:

Høgskoleringen 1 7491 Trondheim (Trondheim Municipality)