



# PhD candidate in numerical simulation in fluid mechanics

## About the position

We have a vacancy for a PhD candidate at Department of Energy and Process Engineering

One PhD research fellowship position is vacant within the research project "Mechanisms controlling droplet growth dynamics during condensation on micro-patterned surfaces", funded by The Research Council of Norway. The candidate will work on fundamental research, using numerical simulations and theory to better understand the condensation phenomenon. The work will be carried out at the Thermal Two-Phase Flow Laboratory. The research group has vast experience in numerical simulations of two-phase flows and counts with state-of-the-art laboratory facilities to provide the necessary experimental data for model development and validation.

The position's day-to-day project management is by Professor Maria Fernandino

## Main duties and responsibilities

Dropwise condensation is the preferred mode of vapor condensation due to its higher heat transfer rates when compared to filmwise condensation. Numerical simulations of such phenomena are challenging due to the multiscale and multiphysics characteristics of the problem.

This project will focus on the numerical simulation of individual droplets lying on a solid surface under condensation conditions from a mesoscale and continuum approach. The project includes the development and implementation of numerical models to be able to reproduce the physics and interaction between a liquid and a solid surface, based on an existing numerical code we already have at our group. Development of phase change heat transfer models will also be a part of this project.

## Qualification requirements

The PhD-position's main objective is to qualify for work in research positions. The qualification requirement is completion of a master's degree or second degree (equivalent to 120 credits) with a strong academic background in numerical simulation in fluid mechanics, or equivalent education with a grade of B or better in terms of [NTNU's grading scale](#). Applicants with no letter grades from previous studies must have an equally good academic foundation. Applicants who are unable to meet these criteria may be considered only if they can document that they are particularly suitable candidates for education leading to a PhD degree.

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, postdoctor and research assistant](#)

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

### Other qualifications

- Excellent programming skills in MATLAB are required
- Good background in finite element method and/or spectral methods is required
- Experience with parallel computing will be beneficial
- General engineering CFD experience based on commercial software is not sufficient, unless good background in the above requirements can be documented in addition.
- Good written and oral English language skills

## Personal characteristics

- Self-motivated, ambitious and goal oriented
- Ability to solve complex tasks independently
- Positive attitude and interested in teamwork
- Excellent communication skills

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal suitability, as well as motivation, 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](#)
- [employee benefits](#)

## Salary and conditions

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

The period of employment is 3 years without required duties. Appointment to a PhD position requires admission to the PhD programme in Engineering. Please see <https://www.ntnu.edu/studies/phiv> for more information.

As a PhD candidate, you undertake to participate in an organized PhD programme during the employment period. A condition of appointment is that you are in fact qualified for admission to the PhD programme within three months.

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 criterias 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.

## 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 Professor Maria Fernandino, e-mail [maria.fernandino@ntnu.no](mailto:maria.fernandino@ntnu.no).

About the application:

Publications and other academic works that the applicant would like to be considered in the evaluation must accompany the application. Joint works will be considered. If it is difficult to identify the individual applicant's contribution to joint works, the applicant must include a brief description of his or her contribution.

Please submit your application electronically via [jobbno.no](http://jobbno.no) with your CV, diplomas and certificates. Applicants invited for interview must include certified copies of transcripts and reference letters. Please refer to the application number IV-204/19 when applying.

**Application deadline: 21.08.19**

## NTNU - knowledge for a better world

**NTNU - knowledge for a better world**

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](#).

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