

**Jobbnorge ID:** 288419  
**Deadline:** 11/23/2025  
**Website:** <http://www.ntnu.no>  
**Scope:** Fulltime  
**Duration:** Temporary

We are looking for a PhD candidate for microfabrication, nanostructuring and Transmission Electron Microscopy studies at the Department of Physics

## PhD Candidate in Physics and Nanotechnology

### 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 position

This PhD position is within the field of experimental materials physics and nanotechnology, in the project «Nanoscale imaging of magnetic skyrmion dynamics in thin film devices» (NIMSKY). Magnetic skyrmions are nanoscale stable magnetic quasiparticles which move when a current is applied. This process requires very little electrical power, which makes skyrmion devices contenders for future low-power computation. However, due to their small size and magnetic nature, skyrmions are difficult to image, especially while moving due to an electric current.

The aim is to both generate and study such magnetic skyrmions, by depositing nanostructured thin film materials and then making highly customizable in-situ chips using the back etching technique at [NTNU NanoLab](#). These chips will then be used to perform in-situ magnetic nanocharacterization at the [Trondheim Node of NORTEM](#) - the national infrastructure for advanced Transmission Electron Microscopy (TEM). The ultimate goal is to perform in-operando studies in the TEM on functioning nanostructured skyrmion thin film devices.

This PhD project will include a large amount of experimental work, both with the nano- and microfabrication equipment in the clean room at NTNU NanoLab, and the NORTEM TEMs. Of special interest is the capabilities of the state-of-the-art NORTEM ARM300CF, which was installed in the summer of 2025.

The work will be done at the Trondheim node of NORTEM/TEM Gemini Center and NTNU NanoLab.

Starting date August or September 2026. Earlier or later starting date is also possible within reason, but must be stated in the application.

Your immediate leader will be the Head of Department of Physics.

### About the project

NIMSKY is a project funded by the The Research Council of Norway, and is a collaboration between NTNU and SINTEF. The aim is to better understand the properties of magnetic skyrmions and how they behave at the nanoscale when subject to an electric current.

### Duties of the position

- Complete the doctoral education until obtaining a doctorate
- Carry out research of good quality within the framework described above
- Academic publications and popular science dissemination
- Participate in the NORTEM Trondheim research group
- Participate in international activities such as conferences and/or research stays at foreign educational institutions

### Required selection criteria

- You must have a relevant Master's degree in nanotechnology, physics, material science or equivalent. Your course of study must correspond to a five-year Norwegian course, where 120 credits have been obtained at master's level. Master students can apply, but the master's degree must be obtained and documented before starting the position.
- You must have a strong academic background from your previous studies and have an average grade from your Master's degree study, or equivalent education, which is equal to B or better compared to [NTNU's grading scale](#). If you do not have letter grades from previous studies, you must have an equally good academic foundation. If you have a weaker grade background, you may be considered if you can document that you are particularly suitable for a PhD education.
- You must meet the requirements for admission to the faculty's Doctoral [Programme](#).
- Good oral and written presentation skills in English
- Experience with experimental work within physics, nanotechnology or material science.
- Basic programming skills.

PLEASE NOTE: For detailed information about what the application must contain, see paragraph "About the application".

The appointment is to be made in accordance with [NTNU's guidelines for recruitment positions](#) and [Regulations for the degrees philosophiae doctor \(ph.d.\) and philosophiae doctor \(ph.d.\) in artistic development work at the Norwegian University of Science and Technology \(NTNU\)](#) for general criteria for the position.

## Preferred selection criteria

- Experience with electron microscopy, preferably transmission electron microscopy.
- Experience with working in a clean room.
- Experience with microfabrication techniques, such as photolithography and etching.
- Experience with programming and/or data processing in Python.
- Knowledge about solid state physics.
- Knowledge about magnetic materials.

## Personal characteristics

To complete a doctoral degree (PhD), it is important that you are able to:

- Work independently
- Present and discuss your research with other professionals
- Get involved and contribute constructively with feedback
- Work constructively in the face of adversity
- Be flexible and open to adjusting the plan for the project as needed

Emphasis will be placed on personal qualities.

## We offer

- Training and access to state-of-the-art instruments at NTNU NanoLab and NORTEM Trondheim node
- Developing tasks in a strong and international professional environment
- Career guidance and [follow-up during the PhD period](#)
- Open and inclusive working environment with committed colleagues
- Favorable terms as a member of the [Norwegian Public Service Pension Fund \(SPK\)](#).

As a PhD Candidate at NTNU, you will have access to [employee benefits](#).

## Diversity

Diversity is a strength, and at NTNU we aim to be an employer that reflects the diversity in society and that makes use of the potential of the population's collective skills. Our vision is [Knowledge for a better world](#) and [our values are creative, critical, constructive and respectful](#). We believe that an organization that is equal, diverse and gender-balanced is essential for us to achieve our goals.

We strive to attract employees with different skills, life experiences and perspectives to contribute to even better problem solving of our societal mission in research and education.

If you think this position is relevant and interesting, we encourage you to apply, regardless of gender, functional ability and cultural background, or whether you have been out of work for a period of time.

## Salary and conditions

In the position of PhD Candidate, code 1017, your gross salary will normally be NOK 550 800. A 2% statutory contribution to the State Pension Fund is deducted from the salary.

The employment period is 3 years.

For employment as a PhD Candidate, it is a prerequisite that you gain admission to the PhD programme in [physics](#) within three months of your employment contract start date, and that you participate in an organized doctoral programme through out the period of employment.

The position is conditional on external funding.

As an employee at NTNU, it is important that you keep yourself up to date with academic and organizational changes and adapt to them.

For the necessary professional and social interaction, it is a prerequisite that you are physically present and available to the institution on a daily basis.

The appointment is carried out in accordance with the principles of the [State Employees Act](#), and [Export control](#) (legislation that regulates the export of knowledge, technology and services). Candidates who, after assessment of the application and attachments, are considered to be in conflict with the criteria in the latter act, will not be able to be employed.

## About the application

The attachments (including a description of your scientific work) must accompany the application as these documents form the basis of the application assessment. The documents must be in Norwegian/a Scandinavian language or English.

Please note: the application will only be assessed on the basis of the information we have received by the application deadline. Therefore, make sure that your application clearly shows how your skills and experience meet the criteria described above. The application and all attachments must be sent electronically via [Jobbnorge.no](#). If you are invited to an interview, you must bring certified copies of certificates and diplomas upon request.

The application must include:

- CV
- Transcripts and diplomas for your master's degrees. If you are currently working on a master's degree, include the preliminary transcript.
- If you have finished your master's degree, include a copy of the master's thesis.
- If you will soon submit your master's thesis, you can attach a draft of the thesis.
- If you have not started writing your master's thesis, include a copy of one other relevant work during your studies: bachelor thesis, specialization project, or other work.
- Short letter of motivation (400 words/1 page).
- Possibly publications etc. other relevant research work.
- Names and contact information of two relevant 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. If your institution uses "diploma supplement" (normal for most European institutions), you must attach this. A description of the documentation required can also be found [here](#). If you already have a statement from [Norwegian Directorate for Higher Education and Skills \(HK-dir\)](#), please attach this as well.

Joint work will be considered. If it is difficult to identify your contribution to joint work, you must attach a brief description of your participation.

When assessing the best qualified, we emphasize necessary qualifications such as education, experience and personal suitability. Motivation for the position, ambitions, and potential for research will also count when assessing the candidates.

NTNU recognizes a wide range of academic contributions and has committed itself to [The San Francisco Declaration on Research Assessment](#) and [CoARA](#) (responsible assessment of research and recognition of a greater breadth of academic contributions in accordance with NTNU's social mission).

## General information

A public list of applicants with name, age, job title and municipality of residence is prepared after the application deadline. If you wish to be exempt 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 exemption is not granted.

If you think this position looks interesting and in line with your qualifications, you are welcome to apply.

If you have any questions about the position, please contact Associate Professor Magnus Nord, telephone +47 73 59 34 19, email [magnus.nord@ntnu.no](mailto:magnus.nord@ntnu.no). If you have any questions about the recruitment process, please contact Magnus Gautvik HR, e-mail: [magnus.gautvik@ntnu.no](mailto:magnus.gautvik@ntnu.no).

**Application deadline: 23.11.2025**

For practical information about [working at NTNU](#), please visit [this webpage](#).

[The city of Trondheim](#) is a modern European city with a rich cultural scene. [Trondheim is the tech 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.

## 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 Physics

Our research and teaching are both experimental and theoretical, covering a wide range of disciplines. Our activities contribute to development of new medical technology and to finding solutions for the next generation's communication technology, energy utilization and development of materials. [The Department of Physics](#) is one of eight departments in the [Faculty of Natural Sciences](#).

## **Additional information**

### **Place of service:**

Høgskoleringen 1 7491 Trondheim (Trondheim Municipality)