



UNIVERSITETET I BERGEN

**University of  
Bergen**  
Department of  
Physics and  
Technology

*The University of Bergen (UiB) is an internationally recognised research university with more than 14,000 students and close to 3,500 employees at six faculties. The university is located in the heart of Bergen. Our main contribution to society is excellent basic research and education across a wide range of disciplines.*

# PhD position in space Physics at the Birkeland Centre for Space Science (BCSS)

There is a vacancy for a PhD position in space physics at the [Department of Physics and Technology](#) of the University of Bergen. The position is for a fixed-term period of 4 years and is associated with the [Birkeland Centre for Space Science \(BCSS\)](#).

## About the project/work tasks:

**The Birkeland Centre for Space Science (BCSS)** is organized in two instrumentation groups, one education and public outreach group, and four research groups that will address the following questions:

- 1) When and why is the aurora in the two hemispheres asymmetric?
- 2) How do we get beyond the static large-scale picture of the ionosphere?
- 3) What are the effects of particle precipitation on the atmospheric system?
- 4) What is the role of energetic particles from thunderstorms in geospace?

The successful candidate will work within the research group focusing on question 3. The group explores how energetic particle precipitation can affect the chemistry and dynamics of the neutral atmosphere in the polar region. Energetic electrons and protons, trapped in the Earth's magnetic field, can collide with gases in the atmosphere. How deep they penetrate into the atmosphere depends on their initial energy. Most particles will be stopped above 100 km. Other times, associated with eruptions on the Sun or periods of high speed solar wind, the particles will reach as low as 50 km altitude. The collisions initiate a number of chemical reactions leading to the production of NO<sub>x</sub> and HO<sub>x</sub> gasses, which in turn can reduce the ozone concentration. Ozone is important in the energy budget at these altitudes. Hence changing the concentration of ozone at 50 km might also impact temperature and winds.

We use the TED and MEPED detectors on board the NOAA/POES and EUMESAT/MetOP satellites to study the behavior of the precipitating electrons with energy 1-750 keV. The PhD work will focus on the nature of particle precipitation with the aim to develop a parameterization. The PhD work will also implement a state of the art estimate of the energy deposition for the particles impacting the atmosphere to be applied in observation analysis and atmospheric models.

## Qualifications and personal qualities:

- The applicant must hold a master's degree in space physics or a related field, or must have submitted his/her master's thesis for assessment prior to the application deadline. It is a condition of employment that the master's degree has been awarded.
- The applicant must be able to work independently and in a structured manner, and have the ability to cooperate with others.
- The applicant must be proficient in both written and oral English.

Personal and relational qualities will be emphasized. Ambitions and potential will also count when evaluating the candidates.

## Special requirements for the position:

- The applicant must be able to document knowledge of and experience working with at least one of the following fields:
  - 1) the physics related to particle precipitation into the atmosphere
  - 2) chemical effects produced by energetic particle precipitation in the polar middle atmosphere (50-100 km)
- The applicant must have experience in one or more high-level programming languages. Experience with MATLAB is considered an advantage.
- Experience working with large data sets and statistical analysis is considered an advantage

## About the PhD position

The duration of the PhD position is 4 years, of which 25 per cent of the time each year comprises required duties associated with research, teaching and dissemination of results.

The employment period may be reduced if you have previously been employed in a qualifying post (e.g. research fellow, research assistant).

## About the research training

As a PhD candidate, you must participate in an approved educational programme for a PhD degree within a period of 3 years. A final plan for the implementation of the research training must be approved by the faculty within three months after you have commenced in the position. It is a condition that you satisfy [the enrolment requirements for the PhD programme](#) at the University of Bergen.

**We can offer:**

- a good and professionally challenging working environment
- salary at pay grade 50 (Code 1017/Pay range 20, alternative 8) in the state salary scale. This constitutes a gross annual salary of NOK 436 900,-. The salary in the public sector is currently being reviewed. Further promotions are made according to length of service in the position.
- enrolment in the Norwegian Public Service Pension Fund
- a position in an inclusive workplace (IA enterprise)
- good welfare benefits

**Your application must include:**

- a brief account of the applicant's research interests and motivation for applying for the position
- the names and contact information for two referees. One of these should be the main advisor for the master's thesis or equivalent thesis
- CV
- transcripts and diplomas showing completion of the bachelor's and master's degrees, or official confirmation that the master's thesis has been submitted
- relevant certificates/references
- a list of any works of a scientific nature (publication list)
- any publications in your name

The application and appendices with certified translations into English or a Scandinavian language must be uploaded at Jobbnorge.

**General information:**

Detailed information about the position can be obtained by contacting Hilde Nesse Tyssøy (email: [hilde.nesse@uib.no](mailto:hilde.nesse@uib.no)) at the Department of Physics and Technology of the University of Bergen.

The state labour force shall reflect the diversity of Norwegian society to the greatest extent possible. Age and gender balance among employees is therefore a goal. It is also a goal to recruit people with immigrant backgrounds. People with immigrant backgrounds and people with disabilities are encouraged to apply for the position.

We encourage women to apply. If multiple applicants have approximately equivalent qualifications, the rules pertaining to moderate gender quotas shall apply.

The University of Bergen applies the principle of public access to information when recruiting staff for academic positions.

Information about applicants may be made public even if the applicant has asked not to be named on the list of persons who have applied. The applicant must be notified if the request to be omitted is not met.

Further information about the employment process can be found [here](#).

Jobbnorge ID: 154291, Deadline: Closed