

**Jobbnorge ID:** 244865  
**Deadline:** 5/31/2023  
**Website:** <http://www.ntnu.no>  
**Scope:** Fulltime  
**Duration:** Temporary

The Department of physics has a vacancy for a

## PhD position in hybrid stars and multi-messenger astrophysics

### 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

We welcome applications for one PhD position at the Department of Physics of the Norwegian University of Science and Technology (NTNU). We especially encourage women to apply for this position.

The selected candidate will join the Astrophysics and Particle Physics group at the department of physics, which is growing and multifaceted. The group has four main lines of research: Quantum chromodynamic in extreme conditions, theoretical high-energy astrophysics, particle physics beyond the standard mode, and observational astrophysics.

The position has a duration of three years, with a possible extension for six months contingent upon availability and optional teaching duties. The start date is decided by mutual agreement, expected around October 2023.

The position is based in Trondheim: a vibrant multicultural city with by beautiful surroundings, and the third largest municipality in Norway (renowned as its technological capital). NTNU is the largest University in the country and provides excellent working conditions.

### About the group

The Astrophysics and Particle Physics (APP) Group carries out research in high-energy astrophysics, astroparticle physics and multi-wavelength astronomy, as well as particle physics. Its current scientific interests include compact objects, cosmic ray production, transport and detection, astrophysical neutrinos, active galactic nuclei, and quantum chromodynamics.

The APP Group is part of the Department of Physics, which currently employs about 160 people. On average some 2000 NTNU students follow courses given by the Department of Physics every year.

### Duties of the position

The PhD candidate will be working on the modelling of neutron and hybrid stars. This involves the calculation of equations of state, tidal deformabilities, and gravitational-wave signals. The work is a combination of analytical and numerical work.

### Required selection criteria

- A MSc in theoretical physics or astrophysics (by the start date of the position).
- 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.
- You must meet the requirements for admission to the [faculty's doctoral program](#).
- A strong background in quantum field theory, gravitation, and nuclear many-body physics.
- Excellent analytical and numerical skills.
- Fluent English, written and oral.

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 Philosodphiae Doctor \(PhD\) in artistic research national guidelines for appointment as PhD, post doctor and research assistant](#)

## Preferred selection criteria

- Proven experience on gravitational wave astrophysics
- Published work in peer-reviewed journals on compact stars or QCD phase diagram

## Personal characteristics

- Social and collaborative skills (ability to work in a team and contribute to its success).
- Enthusiasm for science.
- Independent.
- Systematic.

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](#)
- Ample budget for travel, computing equipment and other research expenses
- Access to the computer cluster at the Department of Physics

## Salary and conditions

As a PhD candidate (code 1017) you are normally paid from gross NOK 501 200 per annum before tax. 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 possible extension for six months contingent upon availability and optional teaching duties.

Appointment to a PhD position requires that you are admitted to the PhD programme in [physics](#) 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 follow 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 :

- Cover letter (summarize your background and motivation to apply; max. 1p)
- CV (max. 4p; and the most important certificates/diplomas, with English translation when necessary)
- List of publications (briefly describe your contribution in the case of large collaborations; max. 4p)
- Two reference letters sent directly by the academic references to [jens.andersen@ntnu.no](mailto:jens.andersen@ntnu.no)

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](#).

**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 Jens Oluf Andersen (jensoa@ntnu.no) or professor Manuel Linares (manuel.linares@ntnu.no).

If you have any questions about the application, please contact Magnus Gautvik (magnus.gautvik@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: 31.05.23**

## **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 5 7034 Trondheim (Trondheim Municipality)