



UNIVERSITY OF BERGEN

PhD Research Fellow in theoretical physics and machine learning

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(<https://www.jobbnorge.no/jobseeker/#!/application/apply/199042>)

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UiB - Knowledge that shapes society

Through robust and close interaction with the world around us – globally, nationally and locally – we shall be instrumental in building a society based on knowledge, skills and attitudes.

Do you want to take part in shaping the future?

PhD Research Fellow in theoretical physics and machine learning

There is a vacancy for a PhD Research Fellow in theoretical physics and machine learning at the Department of Physics and Technology (<https://www.uib.no/en/ift>). The position is for a fixed-term period of 3 years with the possibility of a 4th year with compulsory other work (e.g. teaching duties at the Department). The position is a joint venture of the Department of Physics and Technology and the Department of Informatics at the University of Bergen.

About the project/work tasks:

There is a wide range of applications in contemporary physics where new statistical and analysis tools based on machine learning and AI are becoming increasingly important. This makes it important to understand the possibilities and challenges at the intersection of physics and AI.

The project will be firmly based within high-energy nuclear and particle physics with the goal of developing novel applications of machine learning. To this aim, the PhD candidate will be assigned two mentors, one on the physics side and one on machine learning and AI aspects.

The successful candidate will be expected to work on topics within jet physics and heavy-ion physics (for instance jet reconstruction in experimental environment, jet substructure and searches for new physics, rare probes of the quark-gluon plasma, thermalization etc.), and related subjects.

The work will comprise developing novel theoretical insights within quantum field theory, using numerical large-scale simulations with Monte Carlo event generators and constructing physics-driven ML studies. Special attention will also be devoted to developing phenomenological comparisons with experimental data from present and future particle colliders, such as the CERN LHC accelerator.

Qualifications and personal qualities:

- Applicants must hold a master's degree or the equivalent education in theoretical physics. Master students can apply provided they complete their final master exam before 31.08.2021. It is a condition of employment that the master's degree has been awarded.
- Experience from theoretical particle and/or nuclear physics is a requirement, including knowledge of quantum field theory.
- Basic knowledge of programming is a requirement.
- Experience from machine learning and/or other artificial intelligence methods is an advantage.
- Applicants must be able to work independently and in a structured manner and demonstrate good collaborative skills.

- A good command of the Norwegian language is an advantage.
- Applicants 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.

About the PhD position (applies to university PhD positions):

The fellowship will be for a period of 3 years, with the possibility for a 4th year, consisting of 25 % compulsory work (e.g. teaching responsibilities at the department) distributed over the employment period. The 4th year is contingent on the qualifications of the candidate and the teaching needs of the department and will be decided by the head of department upon appointment.

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

About the research training

As a PhD Research Fellow, you must participate in an approved educational programme for a PhD degree within a period of 3 years. The deadline for applying for admission to the PhD programme at The Faculty of Mathematics and Natural Sciences is 2 months after you start your position or after the start of the research project that will lead to the PhD degree. It is a condition that you satisfy the enrolment requirements for the PhD programme (<http://www.uib.no/en/matnat/52899/admission-doctoral-education-faculty-mathematics-and-natural-sciences>) at the University of Bergen.

We can offer:

- a good and professionally stimulating working environment.
- salary at pay grade 54 (Code 1017/Pay range 20, alternative 10) in the state salary scale. This constitutes a gross annual salary of NOK 479 600. Further promotions are made according to length of service in the position.
- enrolment in the Norwegian Public Service Pension Fund
- good welfare benefits (<https://www.uib.no/en/foremployees/30808/welfare>).

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.
- If you have not yet completed your master's degree, please submit a statement from your institution confirming the expected date of award of your master's degree. Your master's degree must be documented with transcripts and/or diploma, alternatively a confirmation from your institution on completed degree and your grade, by 31.08.2021.)
- relevant certificates/references
- approved documentation of proficiency in English (if required, cf. English language requirements for PhD admission (<https://www.uib.no/en/matnat/52899/admission-doctoral-education-faculty-mathematics-and-natural-sciences>))

natural-sciences))

- 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:

For further details about the position, please contact researcher Konrad Tywoniuk at the Department of Physics and Technology (konrad.tywoniuk@uib.no (<http://mailto:konrad.tywoniuk@uib.no>)).

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](#).

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The successful applicant must comply with the guidelines that apply to the position at all times.

For further information about the recruitment process, click [here](https://www.uib.no/en/hr/74459/appointment-process) (<https://www.uib.no/en/hr/74459/appointment-process>).



Life as a PhD candidate at UiB

Marion Claireaux tells about life and work as a PhD candidate at UiB.



About The University of Bergen

The University of Bergen is a renowned educational and research institution, organised into seven faculties and approximately 54 institutes and academic centres. Campus is located in the centre of Bergen with university areas at Nygårdshøyden, Haukeland, Marineholmen, Møllendalsveien and Årstad.

There are seven departments and several centres at Faculty of Mathematics and Natural Sciences. [Read more about the faculty](https://www.uib.no/en/matnat) (<https://www.uib.no/en/matnat>) and [departments](https://www.uib.no/en/matnat/52334/departments-and-divisions). (<https://www.uib.no/en/matnat/52334/departments-and-divisions>).

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Deadline

15th February 2021

Employer

University of Bergen (<https://www.uib.no/om/84775/ledige-stillinger-ved-uib>)

Municipality

Bergen

Scope

Fulltime

Duration

Fixed Term

Place of service

Vacant positions - University of Bergen (<https://www.jobbnorge.no/search/en?OrderBy=Published&Period=All&employer=724>).

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