



UNIVERSITETET
I OSLO

Jobbnorge ID: 275210

Deadline: 3/4/2025

Website: <http://www.uio.no/>

Scope: Fulltime

Duration: Engagement

Postdoctoral Research Fellow in Theoretical Physics

About the position

A three-year position as Postdoctoral Research Fellow in Theoretical Physics is available at the Department of Physics, University of Oslo.

A fourth year may be considered with a workload of 25 % that normally consists of teaching. This is dependent upon the qualification of the applicant and the current needs of the department.

Within the framework of the position, duties may be assigned.

Starting date no later than October 1, 2025.

Note that it is not possible to be appointed for more than one fixed-term postdoc position at the same institution.

Job description

The successful applicant will join the research project "A truncated particle", financed by the Research Council of Norway (2025-2029), at the Section for Theoretical Physics, Department of Physics. It is a project in fundamental physics at the intersection of quantum field theory, quantum optics, and quantum information, focusing on the effects of localized, causal interactions on particle states.

At the heart of this research project is the following question. What happens if you truncate a photon? If the leading tail of a single photon is removed using an optical shutter, what is the resulting state? This question, despite being banal at first sight, has not been asked before in the literature. The problem is not at all simple, as the localized effect of the shutter interacts nontrivially with the quantum vacuum and creates new photons. The answer must be complicated, and the treatment has several important applications in quantum field theory and quantum optics.

The candidate will consider this question, and more generally, locally equivalent states in quantum field theory. The candidate will work towards a framework for describing experiments (for example, scattering) where the information transfer is manifestly causal. In addition to fundamental, new understanding, the work is expected to have applications in quantum information science.

The main purpose of a postdoctoral fellowship is to provide the candidates with enhanced skills to pursue a scientific top position within or beyond academia. To promote a strategic career path, all postdoctoral research fellows are required to submit a [professional development plan](#) no later than one month after commencement of the postdoctoral period.

It is expected that the successful candidate will be able to complete the project in the course of the period of employment.

Qualifications

The Faculty of Mathematics and Natural Sciences has a strategic ambition to be among Europe's leading communities for research, education and innovation. Candidates for these fellowships will be selected in accordance with this, and expected to be in the upper segment of their class with respect to academic credentials.

- The successful candidate must have a strong research background in quantum electro-dynamics and quantum optics, including locality in quantum field theory. Research experience from causality, local measurements and localized states in quantum optics and quantum field theory constitutes a significant advantage. Quality, depth and understanding in the research are weighted more than the total number of publications.
- A doctoral dissertation must be submitted for evaluation by the closing date. Appointment depends on the public defense of the doctoral thesis being approved.
- A good command of English is required.
- The work will mostly involve pen-and-paper derivations and analysis; however it is an advantage if the candidate has experience from Mathematica and Python.

Personal skills

- The candidate will interact closely with local master and PhD-students. Thus, collaborative abilities and communication skills are very important.

We offer

- Professionally stimulating working environment
- Vibrant international academic environment
- [Postdoctoral development programmes](#)
- Good [welfare schemes](#).
- Opportunity of up to 1.5 hours a week of [exercise during working hours](#).
- A workplace with good development and career opportunities
- Membership in the [Statens Pensjonskasse](#), which is one of Norway's best pension schemes with beneficial mortgages and good insurance schemes
- Salary in position as Postdoctoral Fellow, position code 1352 in salary range NOK from 579 700 to 657 300, depending on competence and experience. From the salary, 2 percent is deducted in statutory contributions to the State Pension Fund

Inclusive worklife and diversity at UiO

Inclusion and diversity are a strength. The University of Oslo has a personnel policy objective of achieving a balanced gender composition. Furthermore, we want employees with diverse professional expertise, life experience and perspectives.

If there are qualified applicants with disabilities, employment gaps or immigrant background, we will invite at least one applicant from each of these categories to an interview.

We hope that you will apply for the position.

More information about gender equality initiatives at UiO can be found [here](#).

Application

Your application should include:

- A short application letter
- CV (summarizing education, positions, scientific awards and achievements, and other qualifying activity)
- A complete list of publications
- Copies of educational certificates and transcript of records
- Names and contact details of 2-3 references (name, relation to candidate, e-mail and telephone number)

Application with attachments must be submitted via our recruitment system Jobbnorge, click "Apply for the position".

When applying for the position, we ask you to retrieve your education results from [Vitnemålsportalen.no](#). If your education results are not available through Vitnemålsportalen, we ask you to upload copies of your transcripts or grades. Please note that all documentation must be in English or a Scandinavian language.

General information

The best qualified candidates will be invited for interviews.

If an applicant has applied for and been granted funding for a fulltime research stay abroad while being employed as a Postdoctoral Research Fellow, the employment will be prolonged with the equivalent time as the research stay, but for no longer than of twelve months (thus extending the employment to a maximum of four years).

No one can be appointed twice as a Postdoctoral fellow financed with funds from The Research Council of Norway (NFR).

Applicant lists can be published in accordance with [Norwegian Freedom of Information Act](#) § 25. When you apply for a position with us, your name will appear on the public applicant list. It is possible to request to be excluded from this list. You must justify why you want an exemption from publication and we will then decide whether we can grant your request. If we can't, you will hear from us.

Please refer to [Regulations for the Act on universities and colleges chapter 3](#) (Norwegian) and [Guidelines concerning appointment to post doctoral and research posts at UiO](#) (Norwegian).

The University of Oslo has a [transfer agreement](#) with all employees that is intended to secure the rights to all research results etc.

University of Oslo

The University of Oslo is Norway's oldest and highest rated institution of research and education with 28 000 students and 7000 employees. Its broad range of academic disciplines and internationally esteemed research communities make UiO an important contributor to society.

The research at the Department covers a broad range of subfields within physics and technology: From space research to medical physics. A good proportion of the research is interdisciplinary, and conducted in close cooperation with collaborators in Norway and abroad. Education and teaching are other essential activities. We offer a broad range of courses, and the Department is involved in several study programmes at bachelor's and master's level. Some of the best lecturers in Norway are amongst our employees, and we are proud of our prizewinning teaching and learning environment. The Department has 200 employees, of which 50 are permanent scientific positions. On a yearly basis 20 students complete their Ph.D. and 50 finish their M.Sc. degree.

Additional information

Contact persons:

- Johannes Skaar, Professor
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- For questions regarding the recruitment system: Karoline Hanssen , HR Consultant

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Place of service:

Problemveien 7 0313 Oslo (Oslo Municipality)