

Vacancy title: Associate Professor in theoretical or computational quantum technology

A permanent position as Associate Professor in theoretical or computational quantum technology is available at the Department of Physics, under the Faculty of Mathematics and Natural Sciences.

The Faculty of Mathematics and Natural Sciences and the Department of Physics have a strategic goal of strengthening their research and educational activities in quantum science and -technology (QST). The successful applicant is expected to take a leading role in realizing this vision.

QST activities at the department are growing and presently span both experimental and theoretical research, as well as (quantum) physics education research. On the experimental side, our main focus is presently on semiconductor materials for quantum sensing, and fundamental studies of quantum material properties. Theoretical activities include research on quantum information theory, quantum algorithms, quantum engineering, many-body theories for quantum technologies, quantum machine learning and fundamental quantum science. There are ties to related activities in the Department of Mathematics and at the Hylleraas Center for quantum chemistry. Two newly established research centers in quantum technology, Centre for Defects in Semiconductors for Quantum Sensing ([link](#)) and Centre for Quantum Computing and Applications ([link](#)), are important catalysts for increasing collaboration across departments and with the institute sector and industry. There is also growing national, Nordic and international collaboration in both quantum research and -education.

This position is focused on strengthening research and education within theoretical and/or computational QST at the department.

Job description

The successful candidate is expected to strengthen the department's strategic effort in quantum science and -technology, with particular focus on theoretical and computational expertise within quantum technology. Possible relevant research background includes variational quantum algorithms, quantum optimization, quantum simulations, quantum engineering, theoretical and computational many-body physics, quantum sensing, fundamental quantum science aspects relevant for quantum technology and more.

The candidate's expertise should align with and complement our existing research, with potential to strengthen interaction across research sections and departments at the faculty. It is particularly beneficial if the candidate's research activities are aligned with strategic initiatives at UiO, such as the new research centers in quantum technology, Centre for Defects in Semiconductors for Quantum Sensing ([link](#)) and Centre for Quantum Computing and Applications ([link](#)), and the Hylleraas Centre of Excellence.

The successful candidate is expected to conduct an outstanding independent research program, direct and participate in collaborative networks and projects, supervise students and post-doctoral researchers, to make use of national and international research funding

Commented [MB1]: This is already quite broad; do we want to target quantum computing, or even sensing, in particular?

Commented [MB2]: Master heter jo QS&T, så jeg tenker det gir mening å utlyse et professorat ved FI innen QS&T, ikke bare QT

opportunities, participate in education at all levels at the Department, and promote the interaction between academia and society.

The appointed person is expected to play an important role in strengthening the new Bachelor program in quantum technology, and the new Master program in quantum science and - technology. This includes teaching relevant courses and supervising students for their master and PhD degrees. Moreover, the candidate should be able to teach general physics bachelor level courses.

The position will also involve administrative duties according to current regulations by the Department or Faculty.

Qualification requirements

Required qualifications:

- Master's degree in physics and PhD in physics or a related field central for the position
- Post-doctoral experience
- Documented high quality research in a relevant field, demonstrating ability for independent and significant scientific production after the PhD. **The main emphasis will be on the candidate's scientific production from the last five years.**
- Experience with attracting external research funding and leading scientific research projects
- Documented pedagogical qualifications and ability to take active part in teaching and supervising students at all levels. The applicant should describe her/his qualifications in view of the Scholarship of Teaching and Learning (SoTL) framework which includes:
 - Focus on student learning
 - A clear development over time
 - A researching approach
 - A collegial attitude and practice

The successful candidate who at the time of appointment cannot document sufficient teaching qualifications (minimum formal requirement is a 200 hrs pedagogical programme) will be required to obtain such qualifications within a two-year period.

- Good language skills, in particular a good command of both written and spoken English. The person appointed to the position must be able to teach in Norwegian (or another Scandinavian language) within two years of the appointment.
- Experience with scientific programming and the use of numerical methods in research and education

The following desired qualifications will be prioritized in the assessment:

- Potential to align with existing strategic initiatives in QST and to promote collaboration between sections and departments.
- Ability to teach courses on quantum computing, computational physics, many-body physics, quantum machine learning or similar, in addition to basic physics courses.

- Proven track record of attracting external funding from the most competitive funding schemes (ERC or similar)
- Experience in the development and redesign of courses and teaching methods, and motivation to take part in developing and improving study programs
- Experience with communicating university level research and education to a wider (non-scientific) audience.

Personal qualities:

- Ability to create and contribute to a well-functioning, inclusive and productive research environment
- Organizational and networking skills, ability to collaborate and conduct scientific leadership
- Positive and enthusiastic attitude

The successful candidate should have an international profile with respect to the above criteria. The candidate for this position will be selected based on excellence and fit with the section's research profile.

We offer:

- Salary NOK XXX – NOK XXX per annum depending on qualifications in a position as Associate Professor (position code 1011).
- A professionally stimulating work environment.
- Attractive welfare benefits and a generous pension agreement, in addition to Oslo's family-friendly environment with its rich opportunities for culture and outdoor activities.
- The opportunity to apply for promotion to full professorship at a later stage only pertains to employment as Associate Professor.

How to apply:

The application must include:

- Application letter with a statement of motivation and research interests
- A detailed CV, including a complete list of education, positions, pedagogical experience, administrative experience, project acquisition and coordination experience, and other qualifying activities.
- Copies of educational certificates, PhD diploma, transcript of records and letters of recommendation.
- A research plan (max. 5 pages) including possible synergies with relevant research sections at the Department of Physics and other departments at the University of Oslo.
- A complete list of publications and academic merits and awards (if not included in the CV).
- Summary of up to three selected scientific publications the applicant wishes to include in the evaluation describing their significance and impact. A copy of these publications (or an open access link to these) must be provided
- Educational portfolio of 3–6 pages documenting educational competence and experience, including a reflection note in which your own teaching practice and view

of learning is anchored in the SoTL framework (focus on student learning, development over time, a researching approach and a collegial attitude and practice)

- List of reference persons: 2–3 references (name, relation to candidate, e-mail and phone number)

The application with attachments must be submitted in our electronic recruiting system; please follow the link “apply for this job”. Please note that **all** documents should be in English (or a Scandinavian language).

Formal regulations:

An interview will be used in the appointment process, supplemented with a trial teaching session. In ranking the competent applicants, the full range of qualifications mentioned above will be considered and explicitly assessed.

Rules for appointments to associate professorships.

<https://www.uio.no/english/about/regulations/personnel/academic/rules-appointment-professor.html>

Field Code Changed

Rules for the assessment and weighting of pedagogical competence for appointments to permanent academic posts which include teaching duties:

<https://www.uio.no/english/about/regulations/personnel/academic/rules-basic-pedagogical-competence.html>

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According to the Norwegian Freedom and Information Act (Offentleglova), information about the applicant may be included in the public applicant list, also in cases where the applicant has requested non-disclosure.

The University of Oslo aims to achieve a balanced gender composition in the workforce and to recruit people with ethnic minority backgrounds. Women are encouraged to apply.

The University of Oslo has an agreement for all employees, aiming to secure rights to research results, see: <http://www.uio.no/english/for-employees/employment/work-results/>

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In addition, the University of Oslo aims for its employees to reflect the diversity of the population to the greatest degree possible. We therefore encourage qualified applicants with disabilities or gaps in their CV to apply for the position. The University of Oslo will adapt the workplace to suit employees with disabilities. Applicants who indicate that they have disabilities or gaps in their CV are made aware that this information may be used for statistical purposes.

Contact persons:

Head of Department Susanne F. Viefers, phone: +47 22855004 / + 47 92668887, e-mail: s.f.viefers@fys.uio.no

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Head of administration Lars Bernhardsen, XXXXXXXXXX

[Application deadline:](#)

