UiT The Arctic University of Norway
Department of Physics and Technology

Jobbnorge ID: 222463
Deadline: 5/10/2022
Website: https://uit.no/startsida
Scope: Fulltime
Duration: Fixed Term

Faculty of Science and Technology

Postdoctoral Research Fellow: Photonic Integrated Sensors for Climate Research

The position

The Department of Physics and Technology announces a Postdoctoral Fellow position attached to the project Ultra-sensitive Integrated Trace gas sensors (UiTrace) funded by the Tromsø Research Foundation. The main responsibility of the Postdoctoral Fellow is to design and develop an on-chip trace gas sensor prototype based on new nanophotonic integrated waveguides and optimize it towards practical deployment in climate and medical research.

We offer an exciting position combining basic research in photonics and spectroscopy with field applications, good remuneration, and great work environment within the stunning landscape of Tromsø.

The position is a fixed term position for a duration of 2 years. Appointment to the position of Postdoctoral Research Fellow is mainly intended to provide qualification for work in top academic positions. It is a prerequisite that the applicant can carry out the project over the full course of the employment period. No person may hold more than one fixed term position as a Postdoctoral Research Fellow at the same institution.

The workplace is at UiT in Tromsø**.** You must be able to start in the position within a reasonable time after receiving the offer.The preferred starting date for the appointment is late spring 2022.

The position's field of research

The position is formally attached to the Ultrasound, Microwaves and Optics group of the Department of Physics and Technology, which has the strongest track record in the field of integrated photonics in Norway, and currently involves around 30 people, 70 % of them from abroad. Its research is at the forefront in the areas of optical sensor technology and super-resolution imaging using nanophotonic waveguides. Within this group, the team led by assoc. prof. Jana Jágerská, focuses on the development of photonic instrumentation for trace gas sensing, to be primarily deployed for measurements of methane and carbon dioxide emissions in the Arctic. Its research is funded from three external projects, among others a prestigious ERC Starting Grant. Currently, the group counts 4 members, of it 3 PhD-students 1 Postdoctoral Fellow.

The most sensitive gas sensors that supply data for climate and space research have detection limits at ppb to ppt levels, i.e., they can detect one molecule of target gas among one billion to one trillion of other molecules. The aim of this project is to develop sensors of similar performance but orders of magnitude smaller. The optics group at UiT has recently demonstrated several novel and highly promising photonic concepts for of on-chip trace gas detection, including Mid-Infrared sensors based on ultra-thin free-standing photonic waveguides. The main task of the Postdoctoral Fellow is to build on these results, develop an on-chip trace gas sensor prototype, and conduct its first field deployment.

Project collaborators from Arctic and Marine Biology at UiT and NORCE will help to apply the sensor for (i) the study of bacteria metabolism in permafrost soils and (ii) drone-conducted quantification on methane and CO2 emissions in the Arctic. The project also includes external collaborators at NTNU Trondheim (Norway) and Norwegian industrial partners SINTEF and NEO Monitors.

The successful candidate will mainly work on the photonic chip design and fabrication, prototype assembly, optimization, and field testing. The candidate is expected to take a leading management role in the project, actively supervise other PhD and master students, coordinate collaboration with partners, and participate in dissemination and potentially commercialization of the results. Short-term overseas research stay during the appointment period will be encouraged and financed from existing funding.

Contact

For further information about the position, please contact Assoc. Prof. Jana Jágerská :

- phone: +47 776 45166
- email: jana.jagerska@uit.no

Qualifications
The position requires a Norwegian doctoral degree in photonics, experimental physics, micro-/ nanotechnology or similar, or a corresponding foreign doctoral degree recognised as equivalent to a Norwegian doctoral degree. Priority will be given to candidates who have completed their doctoral degree no more than five years before the application deadline, unless special circumstances exist.

Other requirements include:

- Solid background in optics and photonics
- Prior experience with optical waveguides
- Hands-on experience in optical or photonic laboratory and experience with relevant measurement techniques and instrument control
- Preferred experience with optical sensors and IR spectroscopy.
- Excellence in applicant’s previous work
- Excellent work ethic and commitment to the job
- Excellent command of English, both written and verbal. For non-Norwegian candidates, interest in Norwegian language and culture is welcome.

In addition, it is of advantage that the applicant has:

- Interest in both theoretical and applied research.
- Good management and organization skills.
- Strong written communication skills
- International experience and cultural awareness

Emphasis is also given on applicant's independence and personal suitability.

Qualification with a PhD is required before commencement in the position. If you’re at the final stages of your PhD, you may still apply if you have submitted your PhD thesis for doctoral degree evaluation within the application deadline. You must submit the thesis with your application. You must have dissertated before the start-up date of the position.

Emphasis is also given on applicant's independence and personal suitability.

At UiT we put emphasis on the quality, relevance and significance of the research work and not on where the work is published, in accordance with the principles of The San Francisco Declaration on Research Assessment (DORA).

Inclusion and diversity
UiT The Arctic University i Norway is working actively to promote equality, gender balance and diversity among employees and students, and to create an inclusive and safe working environment. We believe that inclusion and diversity is a strength, and we want employees with different competencies, professional experience, life experience and perspectives.

If you have a disability, a gap in your CV or immigrant background, we encourage you to tick the box for this in your application. If there are qualified applicants, we invite least one in each group for an interview. If you get the job, we will adapt the working conditions if you need it. Apart from selecting the right candidates, we will only use the information for anonymous statistics.

We offer
We offer an interesting project, scientific independence, good remuneration, and a fantastic work environment. Towards the end of the project, time can be set aside to apply for research funding. Three previous post-docs in the group got ERC Starting Grants and are now permanently employed in the group.

Practical information for working and living in Norway can be found here: https://uit.no/staffmobility

Application
Your application must include:

- Application/motivation letter (max one page)
- CV (max two pages)
- Description of your past research projects and their relevance to the current application (max one page)
- Description of your academic production - track record (max one page).
- Up to five most relevant academic works.The doctoral thesis is regarded as one work.
- Diplomas and transcripts (all degrees)
- Three references, including the PhD supervisor

Documentation has to be in English, diplomas and transcripts in English or a Scandinavian language. We only accept applications and documentation sent via Jobbnorge within the application deadline.

Assessment
The applicants will be assessed by an expert committee. The committee's mandate is to undertake an assessment of the applicants' qualifications based on the written material presented by the applicants, and the detailed description draw up for the position.

The applicants who are assessed as best qualified will be called to an interview. The interview should among other things, aim to clarify the applicant’s motivation and personal suitability for the position. A trial lecture may also be held.

General information

The appointment is made in accordance with State regulations and guidelines at UiT. At our website, you will find more information for applicants.

The remuneration for Postdoctoral research fellow is in accordance with the State salary scale code 1352. Remuneration normally starts at 553 100 NOK/year. A compulsory contribution of 2 % to the Norwegian Public Service Pension Fund will be deducted.

The successful candidate must be willing to get involved in the ongoing development of their department and the university as a whole.

UiT wishes to increase the proportion of women in academic positions. In cases where two or more applicants are found to be approximately equally qualified, women will be given priority.

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.

UiT - Developing the high north

UiT is a multi-campus research university in Norway and the northernmost university of the world. Our central location in the High North, our broad and diverse research and study portfolio, and our interdisciplinary qualities make us uniquely suited to meet the challenges of the future. At UiT you can explore global issues from a close-up perspective.

Credibility, academic freedom, closeness, creativity and commitment shall be hallmarks of the relationship between our employees, between our employees and our students and between UiT and our partners.

Additional information

Place of service:

UiT in Tromsø 9019 Tromsø (Tromsø - Romsa Municipality)