Postdoctoral Fellow: Photonic Integrated Sensors for Climate Research

The position

The Department of Physics and Technology announces a 3-year 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.

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 is able to 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 project and Ultrasound, Microwaves and Optics group

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 Jägerská, 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 2 PhD-students 1 Post-Doctoral Fellow and 1 Researcher.

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), VTT (Finland), and Norwegian industrial partners SINTEF and NEO Monitors.

The position's field of research

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 of results in peer-reviewed journals and conferences. Short-term overseas research stays during the appointment period will be encouraged and financed from existing funding.

The preferred starting date for the appointment is summer 2020.

Contact

Further information about the position and UiT is available by contacting Assoc. Prof. Jana Jägerská by email Further information about the position and UiT is available by contacting Assoc. Prof. Jana Jägerská by email jana.jagerska@uit.no or telephone +47 776 45166.or telephone +47 776 45166.

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

During the assessment emphasis is also given on the candidates potential for research, motivation, independence and personal suitability for the position.

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 evaluation within the application deadline. You must submit the thesis with your application and attach a statement from your supervisor concerning termination of your PhD studies. You should have dissertated before the preferred start-up date of the position.

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).

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

We offer

We offer

• An interesting project
• Scientific independence
• Good remuneration
• A fantastic work environment
• Good welfare arrangements for employees
• Good arrangements for pension, insurance and loans in the Norwegian Public Service Pension Fund

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 afterwards and are now permanently employed in the group.

Application

The application must be submitted electronically via www.jobnorge.no and shall 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.
• Diplomas and transcripts
• 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 sent via www.jobnorge.no.

We look forward to receiving your application!

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

The remuneration for Postdoctoral research fellow is in accordance with the State salary scale code 1352. A compulsory contribution of 2 % to the Norwegian Public Service Pension Fund will be deducted.

A good work environment is characterized by diversity. We encourage qualified candidates to apply, regardless of their gender, functional capacity or cultural background. UiT and will emphasize making the necessary adaptations to the working conditions for employees with reduced functional ability

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.

More practical information for working and living in Norway can be found here: Welcome to UiT!
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.

Jobbnorge-ID: 185160, Søknadsfrist: 3. mai 2020