



UiT Norges arktiske universitet
Fakultet for naturvitenskap og teknologi - Institutt for fysikk og teknologi

ERC-Funded Postdoctoral Position in interferometric microscopy and optical instrumentation

The position

The Department of Physics and Technology is pleased to announce a vacant position of a Postdoctoral Research Fellow in the optics group in connection with the recently announced ERC starting grant project 'Label-free 3D morphological nanoscopy for studying sub-cellular dynamics in live cancer cells with high spatio-temporal resolution (3D-nanoMorph)'. The appointment is for a duration of 2 years.

The postdoctoral research fellow will be a part of [3d-nanoscopy](#) team, led by Assoc. Prof. Krishna Agarwal, who works on super-resolution microscopy, also referred to as nanoscopy. She is also the principal investigator of the aforementioned ERC project.

We offer an interesting project funded from the prestigious ERC Starting Grant, scientific independence, great potential of growth, and fantastic work environment within the stunning landscape of Tromsø.

The project

The goal of the ERC project is to develop a new label-free nanoscope comprising of a novel innovative instrument and a novel innovative computational solver, which together provide nanoscopic resolution.

The novel optical microscope is a key component of the project and the postdoctoral research fellow will work on it with the following goals:

- development and characterization of this microscope,
- performing measurements and benchmarking, and
- collaborating with photonic chip experts, computational team members and biologists to make the instrument amenable for optical waveguide (photonic chip) based illumination, computational solver, and biological experiments
- dissemination of the work through scientific journal publications and conference participation
- Participate in student activity and projects at master and PhD level.

The design of the microscope is related to quantitative phase imaging, interferometric, and holographic microscopes. Coherence, polarization sensitivity, and alignment sensitivity of the instrument make it a challenging project. The instrument also requires automation for acquiring single set of measurement as well as long duration continuous measurements. A patent is being applied for the instrument and the project is likely to lead to commercialization research grants or technopreneurial start-up in the future.

Opportunities

The nature of the project and the job scope is that it allows an all rounded development of the fellow. The fellow will be encouraged and supported to build his/her resume towards their ambition in academic, technopreneurial, or main stream industrial career. The fellowship also offers opportunity of mentoring PhD students in the team and involvement in teaching, if it is of interest to the fellow. There is an opportunity for the fellow to build his/her research network through inheriting the collaborations of the group.

Major collaborators, beyond UiT and directly relevant to the project, include USoton (UK), NTNU (Norway), UiO (Norway), IIT (Italy), IFOM (Italy), University of Campagna (Italy), EMBL (Germany), NUS (Singapore), ASTAR (Singapore), BIT (China), Sun Yat Sen University (China), and IIT (India). The fellow will also be encouraged to become a member of [Digital Life Norway](#) (DLN), a national platform for multi-disciplinary research with life sciences as a focus. DLN offers several courses and career development programs, which the fellow can participate in as a student or an instructor.

Contact

For further information about the position and UiT contact Associate Professor Krishna Agarwal:

- phone: +47 776 45157
- email: krishna.agarwal@uit.no

Qualifications

The position requires a Norwegian doctoral degree in Engineering/Physics/Bio-technology with strong focus on optical microscopy and optical instrumentation, or a corresponding foreign doctoral degree recognised as equivalent to a Norwegian doctoral degree

The main qualifications and compulsory requirements include:

- Prior experience in developing interferometric optical microscopes, such as quantitative phase microscopy, or coherent microscopes from scratch
- Publication record illustrating first author publications of experimental research in journals of optics, instrumentation, or application
- Solid experimental background in optics and microscopy
- Basic knowledge of electromagnetics or computational techniques in microscopy

It is expected that the candidate demonstrates:

- Self-motivation and independence
- Good written and verbal communication skills in English.
- Excellent work ethic and commitment to the job

It is desirable that the candidate demonstrates some of the following traits:

- Creativity, ability to think outside the box, problem solving orientation are extremely desirable
- Prior experience in adaptive optics, live cell imaging or other bioimaging
- Prior experience or skills in designing custom optical assemblies in CAD software(s) for 3D printing or CNC machining
- Prior experience in synchronization of electronic equipment and customized automation of processes
- Prior exposure on integrated optics, optical waveguides and optical fibres
- Experience in mentorship, leadership, multi-disciplinary research, and international collaborations are desirable
- International experience and cultural awareness

The assessment will emphasize motivation and personal suitability for the position. The candidate must be willing to engage in the ongoing development of label-free nanoscopy and the university as a whole.

Application

Your application must include:

- Application letter describing
 - why the candidate considers oneself suitable for the position
 - what motivates the candidate to apply for the position
 - what the candidate expects from this position
- CV, including list of previous projects
- Full list of publications. Also indicate which two publications the candidate considers the best output and why.
- Academic works, up to ten. The doctoral thesis is regarded as one work.
- Diplomas and transcripts
- List of at least 2 academic references

Having a PhD degree is required before commencement in the position. If you are in the process of completing your PhD, you must document that you have submitted your PhD thesis by the application deadline. You should also attach a statement from your supervisor.

Documentation has to be in English or a Scandinavian language. We only accept applications through Jobbnorge.

We offer

- Exciting research possibilities, international exposure, opportunity to shape and pursue career ambition, opportunity to build extensive research network, and great potential of growth
- Exposure of working in highly prestigious EU funded project
- Fantastic work environment and good remuneration within the stunning landscape of Tromsø
- Good welfare arrangements for employees
- Good arrangements for pension, insurance and loans in the Norwegian Public Service Pension Fund

Terms of employment

Remuneration of Postdoctoral positions are in State salary code 1352. In addition to taxes, a further 2% is deducted for the Norwegian Public Service Pension Fund.

More information about moving to Tromsø: uit.no/mobility

The working hours will be utilised for research, research-related activities and research administration.

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 objective of the appointment as a Postdoctoral Fellow is to qualify for work in senior academic positions, and no one may be appointed to more than one fixed term period at the same institution.

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.

About UiT The Arctic University of Norway

UiT - Developing the High North

[UiT The Arctic University of Norway](#) is a multi-campus research university 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.

Revolutionizing Nanoscopy

The Department of Physics and Technology houses the [optics group](#) at the main campus of UiT. The optics group has experienced a great surge in research, thanks to a constant flow of Horizon2020 funding through ERC and MSCA-IF projects and funding from research council of Norway through diverse projects. This has led to a thriving multi-national (currently representing 8 nations) and multi-disciplinary research group, currently comprising of 4 principal investigators, 7 post docs, 7 PhD candidates, several master students and a multi-million dollar research infrastructure. There is a constant flow of international visiting experts.

The group members represent various disciplines like optics, photonics, fabrication, biology, mathematics, sensing, microscopy, nanoscopy, chemistry, computer engineering, electronic instrumentation, etc. The group's core research activity targets development of cutting-edge technologies in nano-photonics, optics-based climate sensing, microscopy, and optical and computational nanoscopy. There is an emphasis on gender equality, cultural integration, conducive work environment excellence through cooperation and co-enabling, and support of growth and ambition of everyone in the group.

Jobbnorge-ID: 167727, Søknadsfrist: Avsluttet