UiT The Arctic University of Norway
Department of Physics and Technology

Jobbnorge ID: 274606
Deadline: 3/12/2025
Website: https://uit.no/startsida
Scope: Fulltime
Duration: Fixed Term

Faculty of Science and Technology

Exciting PhD Fellowship in applied microscopy/nanoscopy

The position

The Department of Physics and Technology is pleased to announce a vacant position of PhD Research Fellow in the optics group in connection with the microscopy/nanoscopy projects at UiT. The project is related to bio-imaging assays for motile cell. The appointment is for a duration of 4 years. The nominal length of the PhD programme is three years. The fourth year is distributed as 25 % each year and will consist of teaching and other duties. The objective of the position is to complete research training to the level of a doctoral degree. Admission to the PhD programme is a prerequisite for employment, and the programme period starts on commencement of the position.

The doctoral research fellows will be a part of 3d-nanoscopy team, led by Prof. Krishna Agarwal, who works on computational microscopy and label-free nanoscopy. Please see 3dnanoscopy.com for more information. The goal of the project is to develop microscopy and nanoscopy technologies for applications in biological problems such as autophagy, cardiovascular biology, molecular cell biology etc.

The workplace is at UiT in Tromsø. You must be able to start in the position within a reasonable time after receiving the offer. Preferably by 1st July 2025.

Place of work

UiT the Arctic University of Norway with its main campus located in the quaint little city of Tromsø is the northernmost university in the world. It houses the optics group in the Department of Physics and Technology, Faculty of Science and Technology, 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 the Research Council of Norway (RCN) through diverse projects. This has led to a thriving multi-national (currently representing 10 nations) and multi-disciplinary research group, currently comprising of 5 principal investigators, 11 post docs, 11 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, optical and computational nanoscopy, and bioapplications. 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.

The position's field of research

- Implementing and customizing microscopy/nanoscopy instruments towards making them compatible for bio-imaging assays for motile cells.
- Design imaging experiments that support superior resolution and/or optical sectioning and/or artefact correction
- Develop suitable sample preparation, microscope calibration, imaging protocols and benchmarks for generating biologically meaningful data
- Perform extensive imaging experiments in the lab to ensure quality, repeatability, and sufficiency of data
- Modeling the motility behaviour of the moving cells including cellular and sub-cellular behaviour.
- Perform data analysis of acquired images by implementing and adapting tools from signal processing and artificial intelligence.

Other common requirements include:

- Identify and/or develop data post-processing pipelines to facilitate data analysis/interpretation
- Collaborate with biology, microscopy, and artificial intelligence teams for prospecting, developing, trouble shooting, and results generation
- Curate data and codes for publications, public release, dissemination, etc.
- Write scientific manuscripts, make scientific presentations, and disseminate the results

The project lies at the intersection of applied physics, engineering, and biology, computational techniques, image processing, etc. It requires a highly motivated, determined, enthusiastic, goal-oriented, perseverant and diversely talented candidate with people skills. In turn, it provides an opportunity for doing a very interesting cutting-edge and heavily multi-disciplinary research in early stage of research career.

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. 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), IIT (Italy), University of Campagnia (Italy), University of Barcelona (UB), 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-discplinary research with life sciences as a focus. DLN offers several PhD courses and career development programs, which the fellow can participate in.

Qualifications

The position requires a Norwegian master degree (or equivalent) in physics (or subsets and specializations in it), optics, photonics, biology, biotechnology, biophysics biomedical engineering, medical imaging, life sciences, electrical or computer engineering, bioimaging and related overlapping fields.
The **mandatory qualifications and requirements** include:

- Postgraduate coursework or mater thesis strongly related to at least 2 of the following topics:
  - Microscopy
  - Bioimaging
  - Cell biology
  - Machine learning
  - Optics related courses (such as Fourier, Statistical)
  - Computational imaging/modelling
  - Digital image processing/analysis
- Experience in multi-disciplinary research
- Basic programming skills in Matlab, Python or Java
- Applicants must document fluency of in English. Nordic applicants can document their English capabilities by attaching their high school diploma. Applicants must document proficiency in Norwegian, Swedish or Danish at a minimum of level A2. If the candidate does not document proficiency in Norwegian, Swedish or Danish at level A2, then the doctoral fellow must complete a language course equal to 15 ECTS before the end of the fixed-term period. UiT will facilitate this

It is **expected** that the candidate demonstrates:

- Good written and verbal communication skills and be able to work in an international environment
- Self-motivation, independence, enthusiasm
- Excellent work ethic and commitment to the job

Experience of the following is **desirable**:

- Collaboration on scientific projects across disciplines
- Working in multi-national multi-cultural environment or international mobility for research/education
- Using microscopy/biological image processing toolkits such as imageJ, Fiji, Cell Explorer, etc. and/or automation and synchronization software such as Micromanager, LabView
- Publication record (academic or non-academic scientific), if any, including journal articles, patents, conference articles, software or source code releases, news articles, video or text blogs are welcome (order of examples indicates roughly the order of preference).
- Creativity, ability to think outside the box, problem solving and go-getter characteristics

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. The project idea will also be considered. In the event that two candidates of different genders have equal qualifications in all the respects above, priority will be decided so that the gender balance in the team can be improved. As many people as possible should have the opportunity to undertake organized research training. If you already hold a PhD or have equivalent competence, we will not appoint you to this position.

Admission to the PhD programme

For employment in the PhD position, you must be qualified for admission to the PhD programme at the Faculty of Science and Technology and participate in organized doctoral studies within the employment period.

Admission normally requires:

- A bachelor's degree of 180 ECTS and a master's degree of 120 ECTS, or an integrated master's degree of 300 ECTS.

In order to gain admission to the programme, the candidate must document sufficient potential for research. The applicant must have a grade point average of C (strong 3.0) or better for the master’s degree, which must contain an independent work. A more detailed description of admission requirements can be found here.

If you are employed in the position, you will be provisionally admitted to the PhD programme. Application for final admission must be submitted no later than two months after taking up the position.

Applicants with a foreign education will be subjected to an evaluation of whether the educational background is equal to Norwegian higher education, following national guidelines from Norwegian Directorate for Higher Education and Skills. Depending on which country the education is from, one or two additional years of university education may be required to fulfil admission requirements, e.g. a 4-year bachelor's degree and a 2-year master's degree. UiT normally accepts higher education from countries that are part of the Lisbon Recognition Convention.

Inclusion and diversity

UiT The Arctic University of 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 are 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 at 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 PhD project related to microscopy/nanoscopy, and providing scope for scientific independence, good remuneration, great potential of growth, and fantastic work environment within the stunning landscape of Tromsø.
- Flexible working hours and a state collective pay agreement
- Pension scheme through the state pension fund
- PhD Fellows are normally given a salary of 536 200 NOK/year with a 3% yearly increase
- If you have to relocate to Tromsø then the Faculty of Science and Technology may reimburse your moving costs. Further details regarding this matter will be made available if you receive an offer from us.

Norwegian health policy aims to ensure that everyone, irrespective of their personal finances and where they live, has access to good health and care services of equal standard. As an employee you will become member of the National Insurance Scheme which also include health care services.

More practical information about working and living in Norway can be found here: https://uit.no/staffmobility

Application

Your application must include:

- **Cover letter explaining**:
  - why the candidate considers oneself suitable for the position
  - what motivates the candidate to apply for the position and what the candidate expects from this position
- **CV**
- **Diploma** for bachelor's and master's degree
- **Transcript** of grades/academic record for bachelor's and master's degree
- **Explanation** of the grading system for foreign education (Diploma Supplement if available)
- **Documentation** of English proficiency
- **Documentation** of proficiency in Norwegian or a Scandinavian language (if available)
- **At least 2 references** with contact information
- **Master's thesis**, and any other academic works (English or English translation)
- **Project idea** - 1-2 page document proposing one project idea and discussing the research question/hypothesis, the motivation, the proposed methodology, the expected outcome, impact, and a timeline. The research hypothesis should be within the scope of the job description provided above.

Qualification with a master's degree is required before commencement in the position. If you are near completion of your master's degree, you may still apply and submit a draft version of the thesis and a statement from your supervisor or institution indicating when the degree will be obtained. You must still submit your transcript of grades for the master's degree with your application.

All documentation to be considered must be in a Scandinavian language or English. Diplomas and transcripts must also be submitted in the original language, if not in English or Scandinavian. If English proficiency is not documented in the application, it must be documented before starting in the position. 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. A copy of the assessment report will be sent to all applicants.

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.

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 engagement is to be made in accordance with the acts relating to Control of the Export of Strategic Goods, Services and Technology. Candidates who by assessment of the application and attachment are seen to conflict with the criteria in the latter law will be prohibited from recruitment.

After the appointment you must assume that there may be changes in the area of work.

Remuneration for the position of PhD Fellow is in accordance with the State salary scale code 1017. A compulsory contribution of 2 % to the Norwegian Public Service Pension Fund will be deducted. You will become a member of the Norwegian Public Service Pension Fund, which gives you many benefits in addition to a lifelong pension: You may be entitled to financial support if you become ill or disabled, your family may

be entitled to financial support when you die, you become insured against occupational injury or occupational disease, and you can get good terms on a mortgage. Read more about your employee benefits at: spk.no.

A shorter period of appointment may be decided when the PhD Fellow has already completed parts of their research training programme or when the appointment is based on a previous qualifying position PhD Fellow, research assistant, or the like in such a way that the total time used for research training amounts to three years.

UiT wishes to promote gender equality. If two or more applicants are found to be equally qualified, the university will rank applicants from the underrepresented gender ahead of others.

We process personal data given in an application or CV in accordance with the Personal Data Act (Offentleglova). According to the Personal Data Act information about the applicant may be included in the public applicant list, also in cases where the applicant has requested non-disclosure. You will receive advance notification in the event of such publication, if you have requested non-disclosure.

Eallju - Developing the High North

UiT The Arctic University of Norway is a multi-campus comprehensive university at the international forefront. Our vision is to be a driving force for developing the High North. The Northern Sami notion eallju, which means eagerness to work, sets the tone for this motive power at UiT. Along with students, staff and the wider community, we aim to utilise our location in Northern Norway and Sápmi, our broad and diverse research and study portfolio and interdisciplinary advantage to shape the future.

Our social mission is to provide research-based education of high quality, perform artistic development and carry out research of the highest international quality standards in the entire range from basic to applied. We will convey knowledge about disciplines and contribute to innovation. Our social mission unites UiT across various studies, research fields and large geographical distances. This demands good cooperation with trade and industry and civil society as well as with international partners. We will strengthen knowledge-based and sustainable development at a regional, national and international level.

Academic freedom and scientific and ethical principles form the basis for all UiT's activities. Participation, co-determination, transparency and good processes will provide the decision-making basis we need to make wise and far-sighted priorities. Our students and staff will have the opportunity to develop their abilities and potential. Founded on academic integrity, we will be courageous, committed and generous in close contact with disciplines, people and contemporary developments.

We will demonstrate adaptability and seek good and purposeful utilisation of resources, so we are ready to meet the expectations and opportunities of the future. We will strengthen the quality and impact of our disciplines and core tasks through the following three strategic priority areas.

Additional information

Contact person:

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Place of service:

Hansine Hansens veg18 9019 Tromsø (Tromsø - Romsa Municipality)