



UNIVERSITETET
I OSLO

Jobbnorge ID: 257229
Deadline: 2/29/2024
Website: <http://www.uio.no/>
Scope: Fulltime
Duration: Temporary

PhD Research Fellow in Mechanics/Biophysics on the modelling of intracellular membrane dynamics

About the position

Position as PhD Research Fellow in **Mechanics/Biophysics** is available at the section for Mechanics at the Department of Mathematics, University of Oslo.

No one can be appointed for more than one PhD Research Fellowship period at the University of Oslo.

Starting date no later than October 1, 2024.

The fellowship period is three years. A fourth year may be considered with a workload of 25 % that may consist of teaching, supervision duties, and/or research assistance. This is dependent upon the qualification of the applicant and the current needs of the department.

Knowledge development in a changing world - Science and technology towards 2030.

The Faculty of Mathematics and Natural Sciences

Video: <https://www.youtube.com/watch?v=t4wyWQEHdEs>

Job description

A PhD Research Fellowship is available at the Department of Mathematics, Mechanics Division at the University of Oslo (UiO). The position is parts of large interdisciplinary projects which focuses on the development of mathematical models and numerical simulations of sequestration of material on intracellular membranes. More specifically, it will address the basic mechanochemical processes that regulate one of the most fundamental communication pathways in cell biology - the "self-eating" process of autophagy. Autophagy protects us from infections, cancer and neurodegenerative diseases and has been shown to promote longevity in model organisms. The PhD work will involve theoretical modelling, in combination with numerical simulations to develop a digital twin of the cell experiments. It is planned that an active phase field model will be developed and solved numerically to advance our understanding of these membrane wetting dynamics. The PhD research fellowship will be part of the group of Prof. Andreas Carlson (<https://acarlson-uio.github.io>), where the work will be conducted in close collaboration with experimental cell biologists at Oslo University Hospital in the group of Prof. Harald Stenmark. The project will also involve international collaborations and is a unique opportunity to work in an interdisciplinary environment.

The PhD student will:

- Develop theoretical models for cell membrane dynamics, coupling elastic effects, fluid flow and the biological membrane composition.
- Implement and solve numerically the theoretical membrane model.
- Collaborate with experimentalists.
- Develop independence and be self-driven to advance with their research project.
- Work in an interdisciplinary team with expertise in mechanics, biology, physics and biophysics.
- Follow our PhD program that include an educational component.

Qualification requirements

The Faculty of Mathematics and Natural Sciences has a strategic ambition to be among Europe's leading communities for research, education and innovation. Candidates for these fellowships will be selected in accordance with this, and expected to be in the upper segment of their class with respect to academic credentials.

- Master's degree or equivalent in mechanics, fluid mechanics, biophysics, physics or applied mathematics.
- Foreign completed degree (M.Sc.-level) corresponding to a minimum of four years in the Norwegian educational system.
- Excellent oral and written communication skills in English.

Other desired qualifications include:

- Earlier involvement in interdisciplinary research projects or/and a strong background in biophysics or interfacial fluid mechanics will also be considered positively, as well as experience with programming.
- A strong theoretical educational background in mathematics and continuum mechanics.

Candidates without a Master's degree have until **June 30, 2024** to complete the final exam.

Personal skills:

- Good social and collaboration skills and ability to work independently and in an interdisciplinary scientific environment.

Grade requirements:

The norm is as follows:

- The average grade point for courses included in the Bachelor's degree must be C or better in the Norwegian educational system
- The average grade point for courses included in the Master's degree must be B or better in the Norwegian educational system
- The Master's thesis must have the grade B or better in the Norwegian educational system
- English requirements for applicants from outside of EU/ EEA countries and exemptions from the requirements:

<https://www.mn.uio.no/english/research/phd/regulations/regulations.html#toc8>

The purpose of the fellowship is research training leading to the successful completion of a PhD degree.

The fellowship requires admission to the PhD programme at the Faculty of Mathematics and Natural Sciences. The application to the PhD programme must be submitted to the department no later than two months after taking up the position.

For more information see:

- <http://www.uio.no/english/research/phd/>
- <http://www.mn.uio.no/english/research/phd/>

We offer

- Salary NOK 532 200 - 575 400 per annum depending on qualifications and seniority as PhD Research Fellow (position code 1017)
- Attractive [welfare benefits](#) and a generous pension agreement
- Vibrant international academic environment
- [Career development programmes](#)
- Oslo's family-friendly surroundings with their rich opportunities for culture and outdoor activities

How to apply

The application must include:

- Cover letter - statement of motivation and research interests
- CV (summarizing education, positions and academic work - scientific publications)
- Copies of the original Bachelor and Master's degree diploma and transcripts of records
- Documentation of English proficiency if applicable
- List of publications and academic work that the applicant wishes to be considered by the evaluation committee
- Names and contact details of 2-3 references (name, relation to candidate, e-mail and telephone number)

The application with attachments must be delivered in our electronic recruiting system (please follow the link "Apply for this job"). Foreign applicants are advised to attach an explanation of their University's grading system. Please note that **all** documents should be in English or a Scandinavian language.

Interviews with the best qualified candidates will be arranged.

Formal regulations

Please see the [guidelines](#) and [regulations](#) for appointments to Research Fellowships at the University of Oslo.

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.

UiO has an [agreement for all employees](#), aiming to secure rights to research results a.o.

Inclusion and diversity are a strength. The University of Oslo has a personnel policy objective of achieving a balanced gender composition. Furthermore, we want employees with diverse professional expertise, life experience and perspectives.

If there are qualified applicants with disabilities, employment gaps or immigrant background, we will invite at least one applicant from each of these categories to an interview.

Contact information

For further information about the position please contact: Professor Andreas Carlson, phone: +47 22 85 72 23, web: <https://acarlson-uio.github.io>, e-mail : acarlson@math.uio.no

For questions regarding Jobbnorge, please contact HR Adviser Ole Rustad, phone: +47 22 85 13 87, e-mail: ole.rustad@mn.uio.no

About the University of Oslo

The University of Oslo is Norway's oldest and highest rated institution of research and education with 28 000 students and 7000 employees. Its broad range of academic disciplines and internationally esteemed research communities make UiO an important contributor to society.

The Department of Mathematics is part of the Faculty of Mathematics and Natural Sciences at the University of Oslo. The Department is engaged in teaching and research covering a wide spectrum of subjects within mathematics, mechanics and statistics. The research is on theory, methods and applications. The areas represented include: fluid mechanics, biomechanics, statistics and data science, computational mathematics, combinatorics, partial differential equations, stochastics and risk, algebra, geometry, topology, operator algebras, complex analysis and logic.

We have almost 50 persons in permanent academic positions and a large number of post docs and Ph.D. students. We also have an administrative and technical staff. The department represents a leading research environment in mathematical areas in Norway, and has a highly international profile.

Additional information

Place of service:

Moltke Moes vei 35 0851 Oslo (Oslo Municipality)