Postdoctoral Researcher in Super-Resolution Microscopy of Bacteria
Aalto University

Job Title	Postdoctoral Researcher in Super-Resolution Microscopy of Bacteria
Department	T314 Dept. Neuroscience and Biomedical Engineering
Institution	Aalto University , , Finland
Date Posted	Mar. 26, 2025
Application Deadline	Open until filled
Position Start Date	Available immediately
Job Categories	Post-Doc
Academic Field(s)	Biology - Microbiology Biology - Biochemistry Biology - General
Job Website	https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/A-Postdoctoral-Researcher-in-Super-Resolution-Microscopy-of-Bacteria_R42758
Apply By Email	

Job Description

Aalto University is a community of bold thinkers where science and art meet technology and business. We are committed to identifying and solving grand societal challenges and building an innovative future. Aalto has six schools with nearly 11 000 students and a staff of more than 4000, of which 400 are professors. Our main campus is located in Espoo, Finland. Diversity is part of who we are, and we actively work to ensure our community’s diversity and inclusiveness in the future as well. This is why we warmly encourage qualified candidates from all backgrounds to join our community.

The [url=https://www.aalto.fi/en/department-of-neuroscience-and-biomedical-engineering/single-molecule-dynamics-in-cells]Single-Molecule Dynamics in Cells group at the

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[url=https://www.aalto.fi/en/department-of-neuroscience-and-biomedical-engineering]Department of Neuroscience and Biomedical Engineering at Aalto University School of Science is looking for

A Postdoctoral Researcher in Super-Resolution Microscopy of Bacteria

The project will investigate the biophysical mechanisms of cellular adaptation to environmental stresses and develop new methods to study single molecule dynamics in live bacteria.

Many microorganisms can withstand severe environmental stresses, e.g. extreme temperatures, while maintaining cellular homeostasis and sub-cellular organization. To study this, we use state-of-the-art super-resolution microscopy and single molecule tracking to record the movement of individual molecules inside live cells. Single molecule dynamics reports on the molecular interactions in real-time, acting as a probe for changes in the intracellular environment.

The obtained knowledge will help us to understand microorganisms' adaptation to different environments and the limits of cellular life. The research will also contribute to the development of synthetic biology applications and novel assay solutions.

Your role and goals

We are looking for an enthusiastic and motivated postdoctoral researcher who is interested in applying super-resolution microscopy and single particle tracking to study temperature adaptation in thermophilic, mesophilic and psychrophilic bacteria. In addition to microscopy, the project will apply genetic engineering, biochemical assays, RNA-sequencing, machine learning, and modelling to analyze, integrate, and make sense of single-cell and molecule level data.

You will adapt existing methods and protocols and develop novel ones to collect and analyse scientific data from a variety of sources so that hypotheses can be tested, reviewed and refined. You will also carry out collaborative projects with colleagues within our group and from other institutions. You are proactive, self-directed researcher who manages your projects effectively and presents the results at internal and external meetings and seminars.

Your team

Your supervisor will be Assistant Prof. Jarno Mäkelä who is the head of the Single-Molecule Dynamics in Cells group. He has assembled a multidisciplinary team of experts in microbiology, microscopy, biophysics, engineering, and machine learning, providing a collaborative environment for researchers to gain hands-on experience in cutting-edge microscopy, experimental lab work, data analysis and modelling. The team works on multiple topics at the interface of physics, chemistry, and biology: intracellular spatial organization, macromolecular crowding, liquid-liquid phase separation, and protein dynamics. You will be embedded in a highly supportive and stimulating research environment, where

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you will have the opportunity to receive excellent academic training and develop key skills for the future as an independent researcher.
Your experience and desirable skills * Hold, or be close to completion of, a Ph.D. (or equivalent) in microbiology, biophysics, biochemistry, biotechnology or a related field * Hands-on experience with bacteria cell culture and molecular biology * Experience in genetic engineering techniques in bacteria (including cloning and chromosome modifications) * Previous experience with fluorescence microscopy techniques * Coding skills (Python/R/Matlab or similar) to process and analyze experimental data * Ability and interest to work results-oriented in an interdisciplinary team * High self-motivation and persistence in tackling challenging scientific problems * Good written and oral communication skills in English (Finnish language is not required).

What we offer
We offer you an outstanding job in an inspiring work environment. You will be able to work in a community where we promote personal growth, collaborative atmosphere, transparency in communication. We will familiarize you with your tasks and you will be part of a friendly and competent team that will provide support for you.

The position is starting from August 2025, or as agreed, for a 2-year fixed term employment contract with a possibility of continuation. The salary levels follows the salary system of Finnish universities, typically setting the salary of a post-doctoral researcher to 4200-4360 €/month (gross). The position will be full time and the annual workload is 1612 hours. The contract includes occupational healthcare.

We value work-life balance and the well-being of all team members. Aalto University offers a vast array of professional development opportunities, which means you will grow and learn, having the chance to participate actively in trainings and development projects based on your interests and needs. As a member of Aalto University, you will also receive sports services at the staff price from Unisport and lunches at numerous campus restaurants at the staff price. In addition, we offer a travel ticket discount.

The primary workplace is Otaniemi campus at Espoo, which is a thriving and connected community of 100 nationalities, 13,000 students and 4,500 employees. Life at the campus is vibrant and filled with amazing architecture, calming nature, and a variety of cafes, restaurants, services and good connections along the recently opened metro line.

Affiliated project(s):
ERC TEMPADAPT project
([url=https://cordis.europa.eu/project/id/101075984]https://cordis.europa.eu/project/id/101075984)

Ready to apply?

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To apply, please submit the following application materials in English (PDF files) through our recruitment site ("Apply now!”). The deadline for applications is 27 April 2025 (23:59 Finnish time). * Letter of motivation (clearly describing your research interests, how you would contribute to the project, and why you consider yourself a good candidate for the position) * CV (max 2 pages) * A list of publications * Degree certificates * Contact details of at least two referees

Please note:
Aalto University’s employees should apply for the position via our internal HR system Workday (Internal Jobs) by using their existing Workday user account (not via the external webpage for open positions).
Aalto University’s students and visitors should apply as external candidates with personal (not aalto) email.

The position will be filled as soon as a suitable candidate is identified.

For additional information, kindly contact Assistant Prof. Jarno Mäkelä by email (jarno.p.makela(at)aalto.fi)

Aalto University reserves the right for justified reasons to leave the position open, to extend the application period, reopen the application process, and to consider candidates who have not submitted applications during the application period.

We will go through applications, and we may invite suitable candidates to interview already during the application period. We aim to have a transparent and equal recruitment process, so feel free to ask us for feedback.
About Finland
Finland is a great place for living with or without family - it is a safe, politically stable and well-organized Nordic society. Finland is consistently ranked high in quality of life and was just listed again as the happiest country in the world. For more information about living in Finland: [url=https://www.aalto.fi/services/about-finland]https://www.aalto.fi/services/about-finland

More about Aalto University:

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Aalto University has been awarded with HR Excellence in Research quality label in European Commission, guaranteeing that we adhere to top quality HR practices in both recruitment and employment relations.

More about Aalto University:
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To view information about Workday Accessibility, please click [url=http://www.aalto.fi/en/services/workday-recruiting-system-accessibility-interaction-overview]here.

Please see more of our Open Positions [url=http://www.aalto.fi/en/open-positions]here.

Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

Contact

Finland