

Senior research staff member in superconducting qubits  
with millikelvin feedback  
Aalto University

Direct Link: <https://www.AcademicKeys.com/r?job=258821>

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Posted Jun. 27, 2025, set to expire Dec. 31, 2025

**Job Title** Senior research staff member in superconducting  
qubits with millikelvin feedback  
**Department** T304 Dept. Applied Physics  
**Institution** Aalto University  
, , Finland

**Date Posted** Jun. 27, 2025

**Application Deadline** Open until filled  
**Position Start Date** Available immediately

**Job Categories** Research Scientist/Associate

**Academic Field(s)** Physics - General

**Job Website** [https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Senior-research-staff-member-in-superconducting-qubits-with-millikelvin-feedback\\_R43672](https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Senior-research-staff-member-in-superconducting-qubits-with-millikelvin-feedback_R43672)

**Apply By Email**

**Job Description**

Aalto University is where science and art meet technology and business. We shape a sustainable future by making research breakthroughs in and across our disciplines, sparking the game changers of tomorrow and creating novel solutions to major global challenges. Our community is made up of 120 nationalities, 14 000 students, 400 professors and close to 5000 faculty and staff working on our dynamic campus in Espoo, Greater Helsinki, Finland. Diversity is part of who we are, and we actively work to ensure our community's diversity and inclusiveness. This is why we warmly encourage qualified candidates from all backgrounds to join our community.

At the Department of Applied Physics, our pioneering research in physical sciences creates important industrial applications that hold great technological potential. Our research focuses on Materials

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physics, Quantum technology, Soft & living matter, and Advanced energy solutions. Topics extend from fundamental research to important applications. We educate future generations of research and development professionals, data specialists, technology experts, inventors, and scientists for industry and society.

We are now looking for a

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Did you have a stellar postdoc in circuit quantum electrodynamics (cQED) and are now looking into a step up in your career while breaking records in science?

We are now looking for a senior researcher for a Research Fellow position to co-lead our development of an autonomous superconducting quantum processor at Aalto University's Quantum Computing and Devices (QCD) group at the Department of Applied Physics. In this position you have a chance to make history by demonstrating some of the first experiments of the future quantum-computer technology that is orders of magnitude more efficient than existing quantum processors. QCD group is also recruiting 2 postdocs, please see the job ad [[url=http://www.aalto.fi/en/open-positions/two-postdoctoral-researchers-in-superconducting-qubits-and-millikelvin-electronics](http://www.aalto.fi/en/open-positions/two-postdoctoral-researchers-in-superconducting-qubits-and-millikelvin-electronics)]here. Join us in shaping the future!

As a result of five ERC grants, at QCD Labs, we have recently developed the [[url=https://arxiv.org/abs/2407.18778](https://arxiv.org/abs/2407.18778)]most coherent transmon qubits, the [[url=https://www.nature.com/articles/s41586-020-2753-3](https://www.nature.com/articles/s41586-020-2753-3)]lowest-noise bolometers and highest-resolution calorimeters and shown that they can be used to [[url=https://www.nature.com/articles/s41928-024-01147-7](https://www.nature.com/articles/s41928-024-01147-7)]read out the state of a transmon qubit at millikelvin temperatures. In addition, we have demonstrated [[url=https://www.nature.com/articles/s41928-021-00680-z](https://www.nature.com/articles/s41928-021-00680-z)]millikelvin components for generating coherent microwave drive pulses and [[url=https://www.nature.com/articles/ncomms15189](https://www.nature.com/articles/ncomms15189)]reset of qubits. Thus as a deep professional in cQED you have an ideal opportunity to utilize your existing skills and learn new physics on these components and put them together for millikelvin feedback. This new research direction initiated by Prof. Mikko Möttönen is currently funded by Jane and Aatos Erkkö Foundation.

Your role and goals

You are expected to coordinate the development of the autonomous quantum processing unit (AQPU) and carry out your own research to the extent possible as follows: \* Plan together with Prof. Möttönen the detailed implementation leading to the realization of the AQPU \* Help your peers in

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solving their challenges in reaching the milestones including the supervision of PhD, MSc, and BSc theses \* Collect and archive reporting data from your peers to keep track on the progress \* Coordinate our local efforts with our national and international collaborators \* Possibly carry out design, experiments, and/or data analysis on a specific research topic that you wish to personally pursue

#### Your network and team

You will work in the QCD group as a Research Fellow with Prof. Mikko Möttönen being your direct superior. The QCD group (<https://www.aalto.fi/en/departement-of-applied-physics/quantum-computing-and-devices-qcd>) is one of the leading groups working on superconducting-quantum-computer science and the birth place of one of the world-leading companies building quantum computers, IQM Quantum Computers, along several other companies. You will work together with 20-40 other current group members that form a diverse and exceptionally high-quality team. With hundreds of QCD alumni, including six professors and five chief executives, and a wide range of national and international collaborators, we have an ideal network we can utilize in building the AQPU. Importantly, VTT is integrated in the project.

#### Your experience and ambitions

We are looking for exceptional scientists with the following experience and skills: \* PhD and more than 2.5 years of postdoc experience in the field cQED including \* Quantum-mechanical model of microwave circuits \* Electromagnetic modeling of microwave circuits \* CAD design of microwave circuits \* Room temperature and cryogenic measurement setups for microwave circuits \* Execution and data acquisition from measurements of quantum microwave circuits \* Data analysis \* Writing scientific manuscript on quantum microwaves \* Sample fabrication skills are not required but considered as an advantage \* Excellent publication record showing high potential for progressing in the academic career \* Fluency in English (Finnish language is not needed) \* Good team working and thesis instruction skills are highly important for the position \* Ambition for high-impact scientific results \* Ability to successfully finish major scientific works, knowing when to act and when to think \* Team spirit to make the team succeed as a whole

With this experience and skills and with our great team and initial plans, you are able to set the phase of how quantum computers will be build in the 2030's!

What we offer \* Full-time position for a five-year fixed-term period \* World-leading laboratory. We have five modern dilution refrigerators, measurement electronics and software, and fabrication processes all in place to achieve top scientific results without the need to build tools for years. \* Responsible and meaningful role with great impact in the development of quantum computers, and hence, in the wellbeing and development of our society. \* Ideal starting point and team. We have already secured major long-term funding for this effort and have many talented researchers pursuing these goals to

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make you succeed. \* Inspiring environment. We are proud of our purpose to shape the future. We spark the gamechangers of tomorrow, and renew the society with research-based knowledge, creativity and an entrepreneurial mindset. \* Inclusive culture fostering equality. All our work is guided by our Aalto and Nordic values such as inclusiveness, responsibility, courage, collaboration, and equality as a way of life. The people create QCD, now and in the future. We are an open diverse community where equality and inclusion enable curiosity, innovation, collaboration and wellbeing. \* Support, coaching and sparring when you feel you need it. \* Great possibilities for competence development and learning. We constantly keep learning to find the most impactful ways to empower—and invest in—our people.

Our vast array of professional development opportunities means you will grow and learn, having the chance to participate actively in staff trainings and development projects based on your interests and needs. The salary range for this position is approximately 4600-5000 €/month. We value results with work-life balance and well-being in all aspects of life. The primary workplace is located at the Otaniemi Campus in Espoo, Finland, while remote work is possible when it serves the purpose. Life on the revitalized campus is vibrant, featuring stunning architecture, tranquil nature, and a variety of cafes, restaurants, and services, all complemented by excellent public transportation connections.

Join us!

To apply, please share your CV and motivation letter with us through our recruitment site (click the "Apply" button) as soon as possible but latest at 23.59pm (EET) 28th July 2025.

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). If you are a student or visitor at Aalto University, please apply with your personal email address (not aalto.fi) via [\[url=https://www.aalto.fi/en/careers-at-aalto\]](https://www.aalto.fi/en/careers-at-aalto)Aalto University open positions

For more information about the role, please contact Prof. Mikko Möttönen +358 505 940 950 on 3rd July 2025 at 14:00 (EET). For questions related to the application process, please contact HR Advisor Minni Forss minni.forss(at)aalto.fi (out of office 11.7.-3.8.2025)

We will go through applications, and we may invite suitable candidates to interview already during the application period. You should hear from us at the latest on the second week of August. We aim to have a transparent and equal recruitment process, so feel free to ask us for feedback.

Want to know more about us and your future colleagues? You can visit the [\[url=https://www.aalto.fi/en/departments/applied-physics/qcd-cinema\]](https://www.aalto.fi/en/departments/applied-physics/qcd-cinema)QCD Cinema and watch these videos:

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[url=https://www.youtube.com/watch?v=&#61;i8zawpNMVG8]This is Aalto University!

[url=https://www.youtube.com/watch?v=&#61;5k\_og\_6zUJQ]Aalto University - Towards a better world  
and [url=https://www.youtube.com/watch?v=&#61;ZK6pDWm1\_CE]Shaping a Sustainable Future.

Read more about working at Aalto: [url=https://www.aalto.fi/en/careers-at-aalto]https://www.aalto.fi/en/careers-at-aalto

Check out our new virtual campus experience: [url=https://virtualtour.aalto.fi]https://virtualtour.aalto.fi

#### 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 listed again as the happiest country in the world: [url=https://worldhappiness.report/news/world-happiness-report-2025-people-are-much-kinder-than-we-expect-research-shows/]World Happiness Report 2025

For more information about living in Finland: [url=https://www.aalto.fi/en/careers-at-aalto/for-international-staff]Aalto Careers for International Staff.

#### Contact Information

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

#### Contact

Finland