Postdoctoral Researcher in GaAs Photonic Integrated Circuits
Aalto University

Job Title	Postdoctoral Researcher in GaAs Photonic Integrated Circuits
Department	T411 Dept. Electronics and Nanoeng
Institution	Aalto University , , Finland
Date Posted	Sep. 4, 2025
Application Deadline	Open until filled
Position Start Date	Available immediately
Job Categories	Post-Doc
Academic Field(s)	Electrical and/or Electronics
Job Website	https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Postdoctoral-Researcher-in-GaAs-Photonic-Integrated-Circuits_R44134
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.

The Department of Electronics and Nanoengineering at Aalto University is now looking for a

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Are you passionate about semiconductor lasers and photonic integrated circuits (PICs), and are you also excited by the prospect of putting them on satellites? In other words, do you want to build space lasers?

We are now looking for a highly motivated Postdoctoral Researcher to join our team in a project to develop GaAs-based PIC lidar for space applications through the EIC project SPIDAR. In this position you will have a chance to make an impact by contributing to satellite-based PIC LIDAR technology with direct applications in space debris detection.
This is an exciting opportunity to work on developing GaAs PICs in a project that includes everything from III-V laser epitaxy design and simulations, and fabrication, to system level PIC lidar tests and space qualification.

Your role and goals
You will take a leading role in developing GaAs PICs for satellite-based Lidar, combining both theoretical and experimental work. Your responsibilities would include some combination of the following, with flexibility depending on interests and experience: * Design and simulation of III-V lasers and PIC architectures * III-V (mainly GaAs) fabrication process development in the cleanroom * Assemble and use custom test setups for testing fabricated devices * Conduct independent research, analyze data, and publish results * Present findings at local and international conferences * Mentor graduate students and provide laboratory training * Collaborate with space technology researchers on system integration and testing

Your network and team
You will work in the Integrated Photonics research group and collaborate closely with Aalto's Space Technology group on space qualification testing of semiconductor lasers and PICs. You will report to Professor Paul Verrinder and be part of a dynamic, international research environment.

Your experience and ambitions

Required Qualifications * PhD in Electrical Engineering, Physics, Photonics, Materials Science, or related field * Strong theoretical and practical background in semiconductor device physics and optoelectronics * Demonstrated experience with design, fabrication, and/or characterization of III-V photonic devices, especially lasers * Excellent written and verbal communication skills in English * Ability to work independently and collaboratively in a research team

Preferred Qualifications * III-V laser epitaxy design and simulation experience * Experience with III-V semiconductor processing and cleanroom fabrication techniques * Proficiency with photonic simulation tools (PhotonDesign, Lumerical, COMSOL, or similar) * Experience with optical characterization

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techniques (spectrum analysis, power measurements, linewidth analysis) * Knowledge of semiconductor laser physics (thermal effects, carrier dynamics) * Experience with mask layout design * Knowledge of LIDAR systems, especially FMCW LIDAR architectures * Programming experience in MATLAB or Python for data analysis * Hands-on experience building and optimizing test setups for photonic devices

We are looking for someone who is passionate about photonic technologies and excited about contributing to space applications research.

What we offer * Research: Participate in development of GaAs PICs for satellite-based LIDAR with direct space applications through the EIC project SPIDAR * World-Class Facilities: Access to state-of-the-art cleanroom facilities and characterization equipment in Micronova ([url=https://www.aalto.fi/en/otanano/micronova]https://www.aalto.fi/en/otanano/micronova) * Interdisciplinary Collaboration: Collaborate with Aalto's Space Technology group on space qualification testing of semiconductor lasers and PICs * Professional Growth: Conference attendance, international partnerships, and mentoring opportunities * Work Environment: Competitive salary, beautiful Espoo campus, and outstanding work-life balance in Finland.

Starting date as soon as possible, or as mutually agreed upon with the supervisor. The duration of the contract is for 24 months from the starting date. Salary is approx. 4100€/Month.

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. We value work-life balance and well-being in all aspects of life. We work in a hybrid model, with the primary workplace located at the Otaniemi Campus in Espoo. 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 the following application materials (as PDFs) with us through our recruitment site ("Apply now!”). Please note that our recruitment system allows max 5 attachments, so please combine the copies of certificates and transcripts in one PDF, if necessary. * CV * Motivation letter * Doctoral degree certificate (or information about defence, if defending soon)

Please apply as soon as possible, at the latest October 31st, 2025. We’ll review applications as they arrive and will hire the right candidate as soon as we find them, possibly already during the application period.

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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).

For more information about the role, please contact Professor Paul Verrinder by email at [url=mailto:paul.verrinder@aalto.fi]paul.verrinder@aalto.fi. Additional information in recruitment process related questions, please contact HR Advisor Monika Mäkinen, [url=mailto:hr-elec@aalto.fi]hr-elec@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