

Doctoral Researcher in Hydrophobic Modification of Bio-Based Surfaces
Aalto University

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Posted Oct. 4, 2024, set to expire Feb. 3, 2025

Job Title	Doctoral Researcher in Hydrophobic Modification of Bio-Based Surfaces
Department	T304 Dept. Applied Physics
Institution	Aalto University , , Finland
Date Posted	Oct. 4, 2024
Application Deadline	Open until filled
Position Start Date	Available immediately
Job Categories	Graduate Student
Academic Field(s)	Physics - General
Job Website	https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Doctoral-Researcher-in-Hydrophobic-Modification-of-Bio-Based-Surfaces_R41078-2

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 13 000 students, 400 professors and close to 4 500 other 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.

Circular Materials Bioeconomy Network (CIMANET) is an interdisciplinary doctoral education network to support the renewal of the bio-based industry through new sustainable materials and processes. CIMANET is part of the doctoral education pilot program established by Finland's Ministry of Education

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and Culture, providing scientific and technological competences to promote sustainable growth. It strengthens the knowledge base required to enhance the Finnish forest and bio-based industry with novel solutions unveiling the full potential of biomass. CIMANET consists of nine universities: Aalto University, Hanken School of Economics, LUT University, Tampere University, University of Helsinki, University of Jyväskylä, University of Oulu, University of Turku, and Åbo Akademi University.

CIMANET operates in close collaboration with the industry, research organizations, as well as other stakeholders to create economic and societal impact by addressing the major challenges of our century: resource sufficiency, access to clean water, and climate change. CIMANET has started in 2024 and will provide altogether 67 doctoral researchers funding for three years. Check out all the open positions at the [[url=https://www.aalto.fi/en/doctoral-education-pilot/cimanet-doctoral-education-pilot](https://www.aalto.fi/en/doctoral-education-pilot/cimanet-doctoral-education-pilot)]CIMANET pilot website.

The School of Science is one of the six schools of Aalto University. Through our internationally-acclaimed high-level research we aim to make a significant impact on society.

We are now looking for a

Doctoral Researcher to study chemical modification and micro/nanostructuring of lignocellulosic surfaces for targeted wetting applications

We are looking for an enthusiastic doctoral researcher to develop lignocellulosic materials with hydrophobic and even superhydrophobic properties, for applications ranging from water-repellency to anti-fogging and barrier coatings. We expect the ideal candidate to be passionate about exploring new frontiers in this discipline and pushing beyond the current state-of-the-art, aiming at obtaining PhD degree. Our research is interdisciplinary and curiosity-driven, and we work inclusively and collaboratively.

Scientific environment

This doctoral research will be conducted in the [[url=http://physics.aalto.fi/smw](http://physics.aalto.fi/smw)]Soft Matter and Wetting group at the [[url=https://www.aalto.fi/en/department-of-applied-physics](https://www.aalto.fi/en/department-of-applied-physics)]Department of Applied Physics, under the supervision of Prof. Robin Ras, in collaboration with Prof. Eero Kontturi and Prof. Maria Sammalkorpi. At the Department of Applied Physics, our pioneering research in materials sciences holds great technological potential for industrial applications. We educate future generations of research and development professionals, data specialists, technology experts, inventors, and scientists for industry and society.

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Your role and goals

You will work in the field of soft matter chemistry and physics. The project deals with chemical modification or micro/nanostructuring of lignocellulosic materials e.g. paperboard to develop durable coatings that are water-repellent, dirt-repellent, anti-fogging and more. Thus, the primary research activities for this position will involve materials design (microfabrication), chemical surface modification, wetting characterization, use of imaging techniques (high-speed cameras and microscopy).

The project aims to develop a scalable process, working closely with the Finnish industries that are interested in water-repellent forest products. Therefore, interpersonal skills would be a great plus to enhance your work in collaboration with colleagues from both academy and the industry. The project will involve among others concepts developed earlier in Soft Matter & Wetting group and published in Nature 2020 ([\[url=https://www.nature.com/articles/s41586-020-2331-8\]](https://www.nature.com/articles/s41586-020-2331-8)<https://www.nature.com/articles/s41586-020-2331-8>) and Nature Chemistry 2024 ([\[url=https://doi.org/10.1038/s41557-023-01346-3\]](https://doi.org/10.1038/s41557-023-01346-3)<https://doi.org/10.1038/s41557-023-01346-3>).

Your experience and ambitions * Master's degree in physics, chemistry, materials science (or engineering) or a closely related field. * Keen interest in surface chemistry and surface characterization * Experience in programming languages (e.g. MATLAB, Python) is beneficial.

A successful candidate should demonstrate capability and willingness to learn new methods, work independently and in a team, and have good written and oral communication skills in English. Finnish is not required. Additionally, the applicant is expected to have good interpersonal skills and to be self-motivated.

Formal requirements

Applicants must fulfill the admission criteria of the Aalto Doctoral Programme and, if chosen for a position, apply for, obtain and accept the right to pursue doctoral studies at Aalto University. For more information on the general requirements and the application process for doctoral studies, please visit [\[url=https://www.aalto.fi/en/doctoral-education/how-to-apply-for-doctoral-studies\]](https://www.aalto.fi/en/doctoral-education/how-to-apply-for-doctoral-studies)How to apply for doctoral studies? | Aalto University * Completed master's degree by the day before the start date of the employment. For example, by 31 December 2024 or preferably earlier (to start employment on 1 January 2025). * Proficiency in English (typically demonstrated during the admission to the doctoral programme with an official certificate, e.g., IELTS/TOEFL)

What we offer * Opportunity to work in a dynamic community of world-class researchers and professionals where students are rigorously selected and highly motivated. This leads to an

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exceptionally interactive and intellectually challenging atmosphere at Aalto. * We have a flexible modern work culture. We value the balance and well-being of work and leisure in all aspects of life. * We offer you an interesting job in an inspiring work environment. You will be able to work in a community where we promote socially significant goals in science and education. We will familiarize you with your tasks and you will be part of a nice and competent team that will provide you with support for your work tasks also in the future. We encourage and offer opportunities for continuous development of your own expertise. * The expected starting date in the position is on 1st January 2025 at the latest. Presence in Finland for the duration of the contract is compulsory. * The positions are fully funded for three years with the funding from the Finnish Ministry of Education and Culture. Contract includes a prerequisite to apply, receive and accept doctoral study right within the probation period of the first 6 months. * The annual workload of research and teaching staff at Aalto University is 1612 hours. * Aalto University follows the salary system of Finnish universities. The starting salary is approximately 2700 €/month (gross), and it increases as the Doctoral Researcher progresses in the research and studies. * The contract includes Aalto University occupational healthcare. Aalto University provides excellent learning and development opportunities, and a commuter ticket benefit. Unisport offers versatile sports facilities and exercise services with a staff discount. * We work in a hybrid way, and the primary workplace is Otaniemi, Espoo. The Otaniemi campus is a thriving and connected community of 100 nationalities. Life at the transformed campus is vibrant and filled with amazing architecture, calming nature, and a variety of cafes, restaurants, services and good connections along the metro and city train lines. See how the campus looks like on our virtual tour: [\[url=https://virtualtour.aalto.fi/\]](https://virtualtour.aalto.fi/)Aalto University - virtual campus tour

Join us!

To apply, please submit the following application materials through our aalto.fi recruitment site by Thursday 24 October 2024. Click "Apply now".

Please note: Aalto University's employees should apply for the position via 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.

All material should be submitted in English and in a pdf-file. Application material should include:

1. Letter of motivation (max. one page).
2. Please describe your background and future plans, and in particular the reasons for selecting the project.
3. A curriculum vitae with complete study and employment history, and possible list of publications,

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contact details of referees from 2 senior academic people. We will contact your referees, if recommendation letters are required. (please see CV example

[url=https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Ftenk.fi%2Fsites%2Fdefault%2F06%2FTENK_CV_template_2020.docx&wdOrigin=BROWSELINK]TENK_CV_template_2020.docx (live.com))

4. A study transcript provided by the applicant's university that lists studies completed and grades achieved. A copy of the M.Sc. degree certificate or equivalent. (for doctoral study application it will need to be officially translated into Finnish, English or Swedish). If the degree is still pending, then a plan for its completion must be provided.

We will go through applications, and we may invite suitable candidates to interview already during the application period. The position will be filled as soon as a suitable candidate is identified. Chosen candidates should apply for doctoral study right immediately after accepting the position.

Any questions?

For additional information, kindly contact Prof. Robin Ras (firstname.lastname(at)aalto.fi). Aalto University reserves the right to leave the position open, extend the application period, reopen the application process, and consider candidates who have not submitted applications during the application period.

For questions about applying, please contact HR Advisor Hanna Multisilta, who can be reached by e-mail at firstname.lastname(at)aalto.fi .

Want to know more about us and your future colleagues?

You can watch these videos: [url=https://www.youtube.com/watch?v=5k_og_6zUJQ]Aalto University - Towards a better world, [url=https://www.youtube.com/watch?v=dUfEGVM-ZP8&feature=youtu.be]Aalto People, and [url=https://www.youtube.com/watch?v=ZK6pDWm1_CE]Shaping a Sustainable Future.

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

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

About Finland

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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: [[url=https://worldhappiness.report/news/its-a-three-peat-finland-keeps-top-spot-as-happiest-country-in-world/](https://worldhappiness.report/news/its-a-three-peat-finland-keeps-top-spot-as-happiest-country-in-world/)]It's a Three-Peat, Finland Keeps Top Spot as Happiest Country in World | The World Happiness Report. For more information about living in Finland: [[url=https://www.aalto.fi/en/careers-at-aalto/living-in-finland](https://www.aalto.fi/en/careers-at-aalto/living-in-finland)]Living in Finland | Aalto University.

Contact Information

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

Contact

Finland