

Doctoral Researcher in Wood Extractives Group Aalto University

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Posted Sep. 16, 2024, set to expire Jan. 13, 2025

Job Title Doctoral Researcher in Wood Extractives Group
Department T107 Bioproducts and Biosystems
Institution Aalto University
, , Finland

Date Posted Sep. 16, 2024

Application Deadline Open until filled
Position Start Date Available immediately

Job Categories Graduate Student

Academic Field(s) Environmental Sciences/Ecology/Forestry

Job Website https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Doctoral-Researcher-in-Wood-Extractives-Group_R40844

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 and Culture, providing scientific and technological competences to promote sustainable growth. It

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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.

We are now looking for a

Doctoral Researcher in Wood Extractives Group

Are you interested in improving the sustainability of pulp mill operations?

Buildup of the secondary-form wood extractives decreases the pulp mill's productivity as they partly form different carry-over pitch (or scale) components at the fiberline, leading to excessive chemical consumption and even unscheduled shut down of the mill. The native-form wood extractives (prior to the fiberline) have been well researched for decades, but there is not enough scientific data to investigate the reaction mechanisms behind its secondary form (in the fiberline). In other words, chemically modified wood extractives in the fiberline (cooking and bleaching) is not widely known subject, only limited number of studies can be found. Industrial-scale separation / recovery process, however, is largely dependent on the reaction mechanisms that occur throughout the fiberline. If we want to utilize them in future biorefineries, we need to know how they react in the fiberline and where they can be recovered (in the form having their maximum commercial value) before being chemically spoiled (or reacted).

Your role and goals

The position is open in the [[url=https://www.aalto.fi/en/department-of-bioproducts-and-biosystems/wood-extractives?check_logged_in=1](https://www.aalto.fi/en/department-of-bioproducts-and-biosystems/wood-extractives?check_logged_in=1)]Wood Extractives Group headed by Academy Research Fellow Dr. Jinze Dou, as a part of the CIMANET project BE-Stilbene. The doctoral researcher will also be co-supervised by Professor Tiina Nypelö at Aalto as well as professionals (experts) from the industry. The group's research interests focus on fundamental understanding of the challenges posed by wood extractives, particularly in the areas of wood yard and fiber line of the pulp

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mills, including pre-treatment techniques for “pulping” of the bark, characterization and (bio)chemical control of pitch/stickies deposits, and functionalization of the extractives for added-value biochemicals. More information can be found on the research group website.

BE-Stilbene research is designed to find ways to gain essential knowledge of the reactions (such as degradation, oxidation or formation of newly secondary products) between the wood extractives and cooking (kraft and sulfite)/ bleaching chemicals (refer to chlorine dioxide (ClO₂), ozone (O₃) and hydrogen peroxide) through investigating how their profile be varied from the native form in raw chips (or bark), to the mimicked cooking and then the bleaching stages. The generated data will provide a fundamental understanding of the challenges posed by wood extractives for the pulp mill, which will generate knowledge on the further utilization of wood extractives as a source of biochemicals in the context of one of CIMANET’s thematic areas “Technologies for future biorefineries”. This industrially oriented doctoral project offers a possibility for pursuing highly scientific work while providing a fundamental understanding of the industrial challenges. The research will utilize multiple techniques, such as gas chromatography-mass spectrometry (GC-MS), nuclear magnetic resonance spectroscopy (NMR), liquid chromatography-mass spectrometry (LC-MS), high-resolution mass spectrometry (HRMS), as well as flash chromatography (FLASH) and other characterization techniques like single crystal X-ray diffraction (SC-XRD).

Your experience and ambitions

We are seeking a motivated candidate with a suitable master’s degree and expertise in biomass refining, organic chemistry, analytical chemistry, and have interest in wood chemistry in general. The candidate is expected to have good written and oral communication skills in English. *

A keen interest to work in the lab following written laboratory rules, learn how to build your own instruments, perform your own experiments and analyze your results independently *

Excellent student track records

An applicant must have completed by 31 December 2024 or preferably earlier *

a master’s degree awarded by a university, or *

a study programme that in the awarding country gives eligibility for doctoral level studies

Applicants must fulfill the admission criteria of the Aalto Doctoral Programme and, if chosen for the 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>].

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What we offer *

A leading global technology supplier for the pulp and paper industry is committed on co-supervising doctoral thesis, providing their expertise advice and the necessary industrial networks for the project. * 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 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 at latest on 1st January 2025. Presence in Finland for the duration of the contract is compulsory. *

The employment contract will be made for three years with the funding from the Finnish Ministry of Education and Culture. The contract includes a prerequisite to apply, receive and accept a 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 3000 €/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/

Join us!

To apply, please submit the following application materials through our aalto.fi recruitment site by Monday 7 October 2024 Finnish time. 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

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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). Please describe your background and future plans, and in particular the reasons for applying for this project.

2. A curriculum vitae and possible list of publications with complete study and employment history, 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))

3. A study transcript provided by the applicant's university that lists studies completed and grades achieved.

4. 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.

5. Plan for obtaining certificate of English/Finnish/Swedish language knowledge for doctoral study application if position is offered (in order to have it on time for application, see more from

[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)

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. The chosen candidate should apply for doctoral study right immediately after accepting the position.

Any questions?

For additional information, kindly contact D.Sc. Jinze Dou (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 Partner Noora Katisko, who can be reached by e-mail at [firstname.lastname\(at\)aalto.fi](mailto:firstname.lastname(at)aalto.fi) .

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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](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](https://www.youtube.com/watch?v==dUfEGVM-ZP8&feature==youtu.be)]Aalto People , and [[url=https://www.youtube.com/watch?v==ZK6pDWm1_CE](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](https://www.aalto.fi/en/careers-at-aalto/for-international-staff)]<https://www.aalto.fi/en/careers-at-aalto/for-international-staff>

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

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: [[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/)]<https://worldhappiness.report/news/its-a-three-peat-finland-keeps-top-spot-as-happiest-country-in-world/> . 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)]<https://www.aalto.fi/en/careers-at-aalto/living-in-finland>

Contact Information

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

Contact

Finland