

Postdoctoral Researcher for X-ray scattering analysis of
bio-based materials
Aalto University

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Posted Sep. 6, 2024, set to expire Jan. 6, 2025

Job Title	Postdoctoral Researcher for X-ray scattering analysis of bio-based materials
Department	T107 Bioproducts and Biosystems
Institution	Aalto University , , Finland
Date Posted	Sep. 6, 2024
Application Deadline	Open until filled
Position Start Date	Available immediately
Job Categories	Post-Doc
Academic Field(s)	Bioengineering (all Bio-related fields)
Job Website	https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Postdoctoral-Researcher-for-X-ray-scattering-analysis-of-bio-based-materials_R40744

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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 12 000 students, 400 professors and close to 4 000 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.

The School of Chemical Engineering is one of the six schools of Aalto University. It combines natural sciences and engineering in a unique way.

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The Department of Bioproducts and Biosystems is looking for

Postdoctoral Researcher for X-ray scattering analysis of bio-based materials

A clear understanding of the structure of plant-based materials and efficient ways to characterize it are essential for advancing sustainable applications from this abundant renewable resource. X-ray scattering provides valuable methods for examining the diverse hierarchical structures of wood and other cellulosic materials in their natural form and after various processes.

We are searching for a Postdoctoral Researcher to support us in small and wide-angle X-ray scattering (SAXS and WAXS) analysis of (ligno)cellulosic bio-based materials. Your role includes: *

Planning and conducting scattering experiments both inhouse and at synchrotron beamlines *

Analyzing large quantities of scattering data using advanced methods and reporting the results *

Writing and publishing high-quality papers *

Interacting closely with other team members and collaborators from different fields.

The position may be especially suitable to a scattering expert, who aims to specialize or gather experience in the scattering analysis of wood and cellulosic materials or to get in touch with machine-learning based analysis methods. In this position, you will learn on the applications of scattering methods in bio-based materials, produce fundamental new knowledge on lignocellulose nanostructure, and enable advances in the characterization and utilization of renewable plant resources. You will also have a chance to instruct the work of doctoral researchers and to develop towards a more independent position.

The position is based at the [[url=https://www.aalto.fi/en/department-of-bioproducts-and-biosystems](https://www.aalto.fi/en/department-of-bioproducts-and-biosystems)]Department of Bioproducts and Biosystems of Aalto University/School of Chemical Engineering (Otaniemi Campus, Espoo, Finland), in the [[url=https://www.aalto.fi/en/department-of-bioproducts-and-biosystems/biobased-materials-structure](https://www.aalto.fi/en/department-of-bioproducts-and-biosystems/biobased-materials-structure)]Biobased Materials Structure group led by Dr. Paavo Penttilä. The group's research focuses on using scattering techniques to study the nanostructure of wood and other bio-based materials, including developing data analysis methods supported by machine learning. We are actively involved in collaborations inside and outside of Aalto University and Finland, supported for instance by the [[url=http://finnceres.fi/](http://finnceres.fi/)]FinnCERES Flagship Programme of the Research Council of Finland. The inspiring and international research environment offers high-quality research equipment, including the X-ray scattering facilities of the [[url=https://www.aalto.fi/en/otanano](https://www.aalto.fi/en/otanano)]OtaNano national research infrastructure (e.g., Xenocs Xeuss 3.0 SAXS/WAXS). State-of-the-art synchrotron facilities (e.g., MAX IV) are also readily accessible in this position.

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Your research tasks can include one or more of the following: *

- SAXS/WAXS-based 3D imaging of wood samples at a synchrotron *
- Development of a SAXS analysis workflow for wood in a supercomputing environment and its utilization together with collaborators *
- SAXS/WAXS analysis of cellulosic fibers in combination with molecular modelling done by collaborators.

Your background and expertise

Required qualifications: *

- Doctoral degree in physics, chemistry, materials science, or a related field, obtained during the past 5 years (excluding possible parental leaves or similar absences) *
- Desire to understand the structure of (biological) materials *
- Solid experience in X-ray or neutron scattering or related methods *
- Experience in scientific programming (e.g., Python) *
- Demonstrated ability to produce high-quality research papers *
- Excellent written and oral communication skills in English

Desired previous experience or interests: *

- Soft matter, biological materials, cellulosic materials, wood *
- Small-angle scattering techniques (SAXS/SANS), scattering-based imaging *
- Machine learning, large amounts of data, high-performance computing *
- Working in a chemistry laboratory

We are searching for an active person with excellent collaboration skills and interdisciplinary mindset.

What we offer

The expected starting salary for a postdoctoral researcher is 3900-4100 € depending on experience. The position is initially for 1 year with a possibility of extension. The contract includes occupational health care, and Finland has a comprehensive social security system. Aalto University provides excellent learning and development opportunities, commuter ticket benefit, and versatile exercise services offered with staff discount by UniSport.

Additional information

For additional information, please contact Dr. Paavo Penttilä ([\[url=mailto:firstname.lastname@aalto.fi\]](mailto:firstname.lastname@aalto.fi)firstname.lastname@aalto.fi).

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Ready to apply?

To apply, please submit the following application materials through our aalto.fi recruitment site by October 6, 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 open positions). Aalto University’s students and visitors should apply as external candidates with personal (not Aalto) email.

To apply, please deliver the following application materials in English and in pdf format: *

Motivation letter *

Curriculum Vitae (with a list of publications) *

Doctoral degree certificate and study transcript *

Names and contact information of referees

The call for applications is open until October 6, 2024, but we may start reviewing and interviewing candidates immediately. We aim to identify the suitable candidate during October, and the employment would ideally start in December 2024 or January 2025.

Want to know more about us and your future colleagues? You can watch these videos:

[url=https://www.youtube.com/watch?v=#61;5k_og_6zUJQ]Aalto University - Towards a better world,

[url=<https://www.youtube.com/watch?v=#61;dUfEGVM-ZP8&feature=#61;youtu.be>]Aalto People , and

[url=https://www.youtube.com/watch?v=#61;ZK6pDWm1_CE]Shaping a Sustainable Future. You can

also check out our webpage about Aalto and Finland: [url=<https://www.aalto.fi/en/services/welcome-to-aalto-university-and-finland-info-package>]https://www.aalto.fi/en/services/welcome-to-aalto-university-and-finland-info-package and check out our new virtual campus experience:

[url=<https://virtualltour.aalto.fi/>]https://virtualltour.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 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/. For more information about living in Finland: [url=<https://www.aalto.fi/services/about-finland>]https://www.aalto.fi/services/about-finland

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

Contact Information

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

Contact

Finland