Doctoral Researcher in Multi-Perspectives Analysis of Catalytic Hydrogenation of Carbon Oxides to Oxygenates as Green Energy Carriers
Aalto University

Job Title	Doctoral Researcher in Multi-Perspectives Analysis of Catalytic Hydrogenation of Carbon Oxides to Oxygenates as Green Energy Carriers
Department	T212 Department of Energy and Mechanical Engineering
Institution	Aalto University , , Finland
Date Posted	Sep. 10, 2025
Application Deadline	Open until filled
Position Start Date	Available immediately
Job Categories	Graduate Student
Academic Field(s)	Chemistry - General
Job Website	https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Doctoral-Researcher-in-Multi-Perspectives-Analysis-of-Catalytic-Hydrogenation-of-Carbon-Oxides-to-Oxygenates-as-Green-Energy-Carriers_R44091-2
Apply By Email	

Job Description

Aalto University is where science and art meet technology and business. We shape a sustainable future by sparking the game changers of tomorrow and by creating novel solutions to major global challenges. Our community is made up of 13,000 students, 400 professors and close to 4 500 other staff members working on our vibrant campus in Espoo, Greater Helsinki, Finland. 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.

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We are now looking for one talented and highly motivated Doctoral Researcher in catalytic conversion technologies to be working at the Department of Energy and Mechanical Engineering and Department of Chemical and Metallurgical Engineering

We are working on alternative catalytic (homogenously and heterogeneously catalyzed) hydrogenation technologies targeting valorization of carbon oxides for green oxygenates production. In this project, we particularly aim green methanol production in the context of circular economy.

The research activities in this doctoral thesis are planned with the view of developing a comprehensive multi-perspectives analysis approach, essential to track the impacts of the characteristics in different scales of the investigated processes on their overall techno-economic-environmental-energy efficiency. This is an interdisciplinary project requiring expertise in both homogenous and heterogenous catalytic conversion, including the handling, testing and characterizing the catalysts as well as the reactor and process simulation and analysis. Details will be adjusted collaboratively as the project progresses. The project has access to two experimental reactor setups, common equipment as well as characterization techniques at university scale.

This is a joint effort between School of Engineering and School of Chemical Engineering at Aalto University supported by our industrial partners. The PhD student to be jointly supervised by two supervisors; Prof. [url=https://www.aalto.fi/fi/ihmiset/hamid-reza-godini]Hamid Reza Godini and Prof. [url=https://research.aalto.fi/en/persons/riikka-puurunen%280f3f725a-42ee-4d7e-b4fd-29d1a9f53088%29.html]Riikka Puurunen, will contribute to a high-impact collaborative research environment. This position is part of the Aalto Hydrogen Innovation Centre Doctoral School ([url=https://www.aalto.fi/en/aalto-university-hydrogen-innovation-centre/hydrogen-innovation-centre-doctoral-school]https://www.aalto.fi/en/aalto-university-hydrogen-innovation-centre/hydrogen-innovation-centre-doctoral-school), which is an active community supporting the realization of the Hydrogen Economy. The Doctoral School organizes seminars, workshops, and summer schools that will help the PhD students grow their network and skills.

[url=https://www.aalto.fi/en/school-of-engineering]School of Engineering and [url=https://www.aalto.fi/en/school-of-chemical-engineering]School of Chemical Engineering are two of the six schools of Aalto University and are located in the [url=https://www.aalto.fi/en/campus/campus-maps-addresses-and-getting-to-otaniemi]Otaniemi Campus (Espoo, Finland). In the [url=https://www.aalto.fi/en/department-of-energy-and-mechanical-engineering?check_logged_in=1]Department of Energy and Mechanical Engineering, the [url=https://www.aalto.fi/en/department-of-energy-and-mechanical-engineering/energy-conversion-and-systems]Energy Conversion and Systems, Prof. [url=https://www.aalto.fi/fi/ihmiset/hamid-reza-godini]Hamid Reza Godini develops catalytic technologies for production and utilization of energy

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carriers to facilitate green energy transition and empower circular economy. The group aims for analyzing the technologies within this context through experimental and systematic model-based analyses. Scientific publications by the group can be viewed in [url=https://research.aalto.fi/en/organisations/energy-conversion-and-systems/publications/]Publications and artistic outputs. In the [url=https://www.aalto.fi/en/department-of-chemical-and-metallurgical-engineering]Department of Chemical and Metallurgical Engineering, the [url=https://www.aalto.fi/en/department-of-chemical-and-metallurgical-engineering/catalysis-research-group]Catalysis Research Group lead by Prof. [url=https://research.aalto.fi/en/persons/riikka-puurunen%280f3f725a-42ee-4d7e-b4fd-29d1a9f53088%29.html]Riikka Puurunen develops heterogeneous catalysts and evaluates their performance in test reactions relevant to the sustainable use of natural resources. The group aims for fundamental understanding of structure-activity relationships and strives towards more openness in science & teaching. Scientific publications by the group can be viewed in [url=https://research.aalto.fi/en/organisations/catalysis%28244f95f0-d281-483e-beba-ded8ed80a265%29/publications.html]research.aalto.fi.

Requirements
The successful candidates should preferably have a master’s degree in chemistry, or chemical-, process-, energy- engineering or related fields. Fluent written and verbal communication skills in English are required, as well as ability to work independently as part of a group in an international environment. The candidates should possess most of the appreciated skills/requirements: *
General knowledge of heterogeneous catalysis *
General knowledge of homogenous catalysis *
Experience in reactor operations for homogenous and/or heterogenous catalytic systems *
Experience in solvent handling and gas and liquid analytical systems (e.g., GC) *
Experience in synthesis and characterization of heterogeneous catalysts *
Hands-on experience with (pressurized) chemical reactors *
Experience with modelling and simulation software (e.g. Aspen) *
Good organization and data management skills

We expect the candidates to be able to start preferably earliest in October 2025, in any case within Autumn 2025. The applicants for the doctoral candidate position must fulfil the requirements for doctoral students at Aalto University, School of Engineering. For more details, see: [url=https://www.aalto.fi/en/programmes/aalto-doctoral-programme-in-engineering]Aalto Doctoral Programme in Engineering

What we offer
We are pleased to offer the candidate *
an inspiring interdisciplinary research atmosphere, where collaboration between the School of

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Engineering, School of Chemical Engineering and Hydrogen Innovation Center at Aalto University, and industrial partners opens up unique opportunities for academic growth and innovation towards a sustainable future. *
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.

Salary will be defined according to the salary system of Finnish Universities. The starting salary for a doctoral reseacher in School of Engineering is 2960 €/month and the contract includes occupational health benefits.
We value work-life balance and well-being in all aspects of life. 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!

How to apply
To apply for these positions, please submit the following documents as a single pdf file using the link “Apply Now”. Application materials should be submitted in English.
*
Motivation letter (max 2 pages: describe your motivation, scientific interests and career goals, and mention your earliest possible starting date) *
Curriculum Vitae (CV), including previous experience, relevant skills for the position, and list of publications (if any). You may, if you wish, follow the CV guidelines by the Finnish National Board on Research Integrity ([url=https://www.tenk.fi/en/template-researchers-curriculum-vitae]TENK) *
Highest degree certificate and transcripts of studies (with clear explanation on the grading scale) *
Contact details (affiliation, email, telephone) of two references. (Optionally, two reference letters can be sent directly to Prof. [url=https://www.aalto.fi/fi/ihmiset/hamid-reza-godini]Hamid Reza Godini (hamid.godini@aalto.fi) and Prof. [url=https://research.aalto.fi/en/persons/riikka-puurunen%280f3f725a-42ee-4d7e-b4fd-29d1a9f53088%29.html]Riikka Puurunen (riikka.puurunen@aalto.fi) by the writer of the recommendation.)

If you wish to provide additional materials (not obligatory), please send them in a separate file.

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

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address (not aalto.fi) via [url=https://www.aalto.fi/en/careers-at-aalto]Aalto University open positions

The call is open until September 30th, but we will start reviewing the applications immediately and the position may be filled before the end of the call. 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.

For more information on the position, please contact principal investigators; Prof. [url=https://www.aalto.fi/fi/ihmiset/hamid-reza-godini]Hamid Reza Godini and Prof. [url=https://research.aalto.fi/en/persons/riikka-puurunen%280f3f725a-42ee-4d7e-b4fd-29d1a9f53088%29.html]Riikka Puurunen. For more information on the process, please contact HR Team (email: hr-eng@aalto.fi).

Want to know more about us and your future colleagues? You can watch these videos: [url=https://www.youtube.com/watch?v=i8zawpNMVG8]This is Aalto University! [url=https://www.youtube.com/watch?v=5k_og_6zUJQ]Aalto University - Towards a better world and [url=https://www.youtube.com/watch?v=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.
More about Aalto University:
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[url=http://www.aalto.fi/en/services/workday-recruiting-system-accessibility-interaction-overview]here.
Please see more of our Open Positions [url=http://www.aalto.fi/en/open-positions]here.

Contact Information

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

Contact

Finland