

Doctoral Researcher (PhD student) in Machine Learning  
and Molecular Modelling of Aerosol Chemistry  
Aalto University

Direct Link: <https://www.AcademicKeys.com/r?job=209160>

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Posted Apr. 17, 2023, set to expire Dec. 30, 2023

<b>Job Title</b>	Doctoral Researcher (PhD student) in Machine Learning and Molecular Modelling of Aerosol Chemistry
<b>Department</b>	T304 Dept. Applied Physics
<b>Institution</b>	Aalto University , , Finland
<b>Date Posted</b>	Apr. 17, 2023
<b>Application Deadline</b>	Open until filled
<b>Position Start Date</b>	Available immediately
<b>Job Categories</b>	Graduate Student
<b>Academic Field(s)</b>	Physics - General
<b>Job Website</b>	<a href="https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Doctoral-Researcher--PhD-student--in-Machine-Learning-and-Molecular-Modelling-of-Aerosol-Chemistry_R36163">https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Doctoral-Researcher--PhD-student--in-Machine-Learning-and-Molecular-Modelling-of-Aerosol-Chemistry_R36163</a>

**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.

The Department of Applied Physics is now looking for a

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### Doctoral Researcher (PhD student) in Machine Learning and Molecular Modelling of Aerosol Chemistry

We are looking for a PhD student to join the [[url=https://www.aalto.fi/en/department-of-applied-physics/computational-electronic-structure-theory-cest](https://www.aalto.fi/en/department-of-applied-physics/computational-electronic-structure-theory-cest)]Computational Electronic Structure Theory (CEST) group at the Department of Applied Physics at Aalto University. In this position, you will have a chance to make an impact in atmospheric science by applying tools from quantum chemistry and artificial intelligence to molecular modelling of aerosol chemistry. Your project will be a part of the recently founded Center of Excellence in Research on Atmospheric Science, [[url=https://www.helsinki.fi/en/researchgroups/vilma](https://www.helsinki.fi/en/researchgroups/vilma)]VILMA (funded by the Academy of Finland in the period 2022-2029). Our long-term objective is to understand molecular aggregation processes in the atmosphere and how they affect air quality and climate change.

#### Your role and goals

You will develop and implement machine learning approaches to predict molecular clustering behavior of atmospheric compounds. As a member of VILMA, you will collaborate with experimentalists, theoreticians and computer scientists. You will run quantum chemistry codes (e.g., density-functional theory), analyze molecular processes, devise molecular descriptors, analyze computational and experimental data, develop active learning workflows alongside data analytics tools and run artificial intelligence algorithms in high-performance computing environments.

#### Your experience and ambitions

We welcome candidates with a master's degree in chemistry, physics or computer science who are curious about applied machine learning in the natural sciences. We seek colleagues who enjoy coding, scripting and analytics, and who are keen to push the boundaries of computational chemistry, machine learning and artificial intelligence. This project requires creative thinking and programming. Candidates benefit from a broad understanding of computational science and atmospheric chemistry. Prior machine learning experience is a merit but not a requirement. We further appreciate willingness to travel, collaborate and communicate science.

We require the candidates to have excellent skills in English. Finnish language is not required.

#### What we offer

In the Computational Electronic Structure Theory (CEST) group, led by Prof. Patrick Rinke, we advance electronic structure theory and machine learning to pursue innovative applications towards future technologies and sustainability. We are a multi-cultural and cross-disciplinary team, with

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complementary subgroups and talents. You will train in quantum chemistry and machine learning applications with experienced developers, meet our global network of collaborators, join us at scientific meetings, help us organize research workshops and get involved in academic and diversity outreach. In combination with the academic development courses at Aalto University, we will help you grow a competitive and international career profile. You will also be part of the [\[url=https://www.helsinki.fi/en/researchgroups/vilma\]](https://www.helsinki.fi/en/researchgroups/vilma)VILMA Center of Excellence in Atmospheric Science and the [\[url=https://fcai.fi/\]](https://fcai.fi/)Finnish Center for Artificial Intelligence (FCAI) and join a vibrant community at the crossroads of artificial intelligence, physics, chemistry and atmospheric science research.

Following the standard practice in the Department of Applied Physics, the contract will be made initially for two years, then extended to another two years after a successful mid-term progress review. The total duration of Ph.D. studies is four years. The annual workload of research and teaching staff at Aalto University is currently 1612 hours. Aalto University follows the salary system of Finnish universities. The starting salary of a PhD student is approximately 2600 €/month (gross), and it increases as you progress in your research and studies. The contract includes Aalto University occupational healthcare.

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. There is great freedom in your role, and we have a flexible modern working culture. We value work-life balance and well-being in all aspects of life.

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, 13,000 students and 4,500 employees. 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 recently opened metro line.

Ready to apply?

To apply for the position, please submit your application including the attachments mentioned below as one single PDF document in English through our online recruitment system by using the link on Aalto University's web page ("[Apply Now](#)").

- (1) Letter of motivation
- (2) CV including list of publications
- (3) Degree certificates and academic transcripts
- (4) Contact details of at least two referees (or letters of recommendation, if already available)

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The deadline for applications is May 12, 2023. 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. For additional information, kindly contact Prof. Patrick Rinke ([patrick.rinke@aalto.fi](mailto:patrick.rinke@aalto.fi)). Aalto University reserves the right for justified reasons to leave the position open, to extend the application period, reopen the application process, and to consider candidates who have not submitted applications during the application period.

Please note: Aalto University's employees should apply for the position via our internal system Workday -> find jobs (not external [aalto.fi](http://aalto.fi) webpage on open positions) by using their existing Workday user account.

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  
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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)]  
<https://www.aalto.fi/en/services/welcome-to-aalto-university-and-finland-info-package>

#### 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/services/about-finland](https://www.aalto.fi/services/about-finland)]  
<https://www.aalto.fi/services/about-finland>

More about Aalto University:

[[url=http://www.aalto.fi](http://www.aalto.fi)]Aalto.fi

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#### Contact Information

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

**Contact**

Finland