

Doctoral researcher to study wave-ice interaction through  
laboratory experiments  
Aalto University

Direct Link: <https://www.AcademicKeys.com/r?job=238253>

Downloaded On: Jun. 30, 2024 10:35am

Posted Jun. 27, 2024, set to expire Dec. 30, 2024

<b>Job Title</b>	Doctoral researcher to study wave-ice interaction through laboratory experiments
<b>Department</b>	T212 Mechanical Engineering
<b>Institution</b>	Aalto University , , Finland
<b>Date Posted</b>	Jun. 27, 2024
<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>	Naval Architecture & Marine Engineering Mechanical Engineering Geotechnical Engineering Physics Engineering Mechanics
<b>Job Website</b>	<a href="https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Doctoral-researcher-to-study-wave-ice-interaction-through-laboratory-experiments_R40164">https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Doctoral-researcher-to-study-wave-ice-interaction-through-laboratory-experiments_R40164</a>

**Apply By Email**

**Job Description**

Aalto University is where science and art meet technology and business. We create novel solutions to major global challenges by making research breakthroughs in and across our disciplines. 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.

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The Marine and Arctic Technology group at the Department of Mechanical Engineering studies how sea ice deforms and fractures in different scales, and how sea ice interacts with ships and offshore windfarms. We are now looking for a

Doctoral researcher to study wave-ice interaction through laboratory experiments.

Marginal ice zone (MIZ) is the transition from ice-free ocean to the pack ice, characterized by ice-ocean dynamics and discrete ice floes. In MIZ, waves have an effect on sea ice and sea ice effects the waves. We can assume that with global warming the MIZs of the oceans will grow in size, because the thinner ice of the future will break more easily than the thicker ice of yesterday. If earlier either thick ice or high waves were challenging for ships and offshore windfarms, we now need to consider also the situation where ice and waves occur at the same time. The sea ice landscape has changed: What was marginal, is now important.

The scientific interest in wave-ice interaction has recently increased spectacularly, but our knowledge on ship-wave-ice interaction is still limited. We can speculate that ice floes moving with waves are more dangerous for ships than ice floes in calm water, but as we do not understand the mechanics of ship-wave-ice interaction processes, we just do not know. While this problem is practical and related to safety of shipping, fundamental basic research is required in order to identify and understand the key physical phenomena. In addition to marine technology, wave-ice interaction is an important research question in geophysics.

Your task is to design and conduct laboratory experiments on ship-wave-ice interaction in the Aalto Ice and Wave Tank. Our ice tank is unique due to its large size (40 m × 40 m). Most ice tanks are long and narrow and most wave tanks are wide. The Aalto Ice and Wave Tank is the only wide tank where both ice and waves can be created. At the moment we are constructing a new wave maker that will allow us to study short-crested irregular waves. In addition to laboratory experiments, our international group studies ice, waves, and ice loads on ships on research vessels in Antarctic waters.

As a doctoral student in our group, you will be able to conduct novel laboratory experiments and may be able to join us in Antarctic field work.

### Your experience

If you have completed an MSc degree in marine technology, fluid mechanics, geophysics, engineering mechanics, physics, or related field, you may be the doctoral researcher we are looking for to join our group. A successful candidate will have a demonstrated interest in experimental research. Experience in ice mechanics will be considered as advantage.

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#### What we offer

Aalto University follows the salary system of Finnish universities. The starting salary of a doctoral researcher is about 2700 €/month (gross), with a possible increase based on achievements. The annual workload of research and teaching staff at Aalto University is currently 1612 hours. The employment contract includes occupational health care, and Finland has a comprehensive social security system. The employment relationship is full-time employment at Aalto University. The first contract will be made for two years.

Doctoral studies at Aalto University take four years and, in addition to a work contract, you need to apply for a doctoral student position at the Aalto Doctoral Programme in Engineering. Please check the admission criteria at <https://www.aalto.fi/en/programmes/aalto-doctoral-programme-in-engineering>. In particular, please pay attention to the required proficiency in English language.

#### Join us!

To apply for the position, please submit your application electronically through our online recruitment system and provide the following documents in English: \*

Letter of motivation, maximum one page \*

CV \*

Degree certificates and academic transcripts \*

Letters of recommendation from at least two referees, or a list of references that we may contact

The deadline for applications is the 31st of August, 2024, at 23:59 Finnish time (UTC +2) and the position will be filled as soon as possible.

Aalto University reserves the right for justified reasons to leave the position open, to extend the application period, and reopen the application process.

Please note: Aalto University's employees and visitors should apply for the position via the internal HR system Workday (Internal Jobs -& Find Jobs) by using their existing Workday user account.

#### Further information

For additional information, please contact Professor Jukka Tuhkuri (email:

[\[url=mailto:firstname.lastname@aalto.fi\]](mailto:firstname.lastname@aalto.fi)firstname.lastname@aalto.fi). In questions related to the recruitment process, please contact [\[url=mailto:hr-eng@aalto.fi\]](mailto:hr-eng@aalto.fi)hr-eng@aalto.fi

More about Aalto University:

[\[url=https://www.aalto.fi/en/open-positions/doctoral-researcher-phd-student-in-mechanical-engineering\]](https://www.aalto.fi/en/open-positions/doctoral-researcher-phd-student-in-mechanical-engineering)Aalto.fi

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Interested?

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/en/careers-at-aalto/living-in-finland]https://www.aalto.fi/en/careers-at-aalto/living-in-finland & https://www.aalto.fi/en/services/welcome-to-aalto-university-and-finland-info-package .

### Contact Information

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

### Contact

Finland