

Doctoral researcher in radio astronomy Aalto University

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Posted Jul. 8, 2024, set to expire Dec. 30, 2024

Job Title Doctoral researcher in radio astronomy
Department T411 Dept. Electronics and Nanoeng
Institution Aalto University
, , Finland

Date Posted Jul. 8, 2024

Application Deadline Open until filled
Position Start Date Available immediately

Job Categories Graduate Student

Academic Field(s) Electrical and/or Electronics

Job Website https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Doctoral-researcher-in-radio-astronomy_R40261

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.

[url=https://www.aalto.fi/en/departement-of-electronics-and-nanoengineering/radio-astronomy]Radio astronomy group at the [url=https://www.aalto.fi/en/departement-of-electronics-and-nanoengineering]Department of Electronics and Nanoengineering is looking for a

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The successful candidate will join the [[url=https://www.aka.fi/en/](https://www.aka.fi/en/)]Research Council of Finland -funded JetOrigin project, which is run jointly by Aalto University and the [[url=https://sites.utu.fi/finca/en/](https://sites.utu.fi/finca/en/)]Finnish Centre for Astronomy with ESO at University of Turku. The project team at Aalto is led by [[url=https://research.aalto.fi/en/persons/tuomas-savolainen](https://research.aalto.fi/en/persons/tuomas-savolainen)]Dr. Tuomas Savolainen, who will also be the main thesis advisor.

JOB DESCRIPTION

The research concentrates on the physics of relativistic jets launched from accreting supermassive black holes in active galactic nuclei (AGN). These black hole powered jets are among the most energetic long-lived phenomena in the Universe and despite their ubiquity, many of the fundamental questions regarding their physics are still open. We do not for example understand well their launching and acceleration mechanisms. With its sub-milliarcsecond resolution, very long baseline interferometry (VLBI) with radio telescopes is the only observational method that allows us to image the jet formation region. The most remarkable example of the power of this technique are the recent images by the [[url=https://eventhorizontelescope.org/](https://eventhorizontelescope.org/)]Event Horizon Telescope.

Your task is to analyse state-of-the-art, multi-frequency VLBI observations conducted with the [[url=https://science.nrao.edu/facilities/vlba](https://science.nrao.edu/facilities/vlba)]Very Long Baseline Array as a part of the [[url=https://www.cv.nrao.edu/MOJAVE/](https://www.cv.nrao.edu/MOJAVE/)]MOJAVE monitoring survey of AGN jets. The aim is to measure the magnetic field properties of the jets in nearby AGN in order to test semi-analytical magnetic jet acceleration models. In addition to research work related to the thesis, you will have an opportunity to gain teaching experience and/or hands-on experience on observing with modern radio telescopes.

You will join a project team that includes two co-PIs (Dr. Savolainen and [[url=https://www.utu.fi/en/people/talvikki-hovatta](https://www.utu.fi/en/people/talvikki-hovatta)]Dr. Talvikki Hovatta from University of Turku) and several doctoral researchers and postdocs. The project includes many international collaborators, and you will have an excellent possibility to network, participate in international conferences, workshops, and schools, and make research visits.

RESEARCH GROUP

Together the radio astronomy group and the staff of the Aalto University [[url=https://www.aalto.fi/en/metsahovi-radio-observatory](https://www.aalto.fi/en/metsahovi-radio-observatory)]Metsähovi Radio Observatory form a vibrant research community of about 20 people that has a strong focus on radio and multi-wavelength studies of active galactic nuclei and on very long baseline interferometry. The group is active in several major international research programs, including the Event Horizon Telescope and MOJAVE survey.

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The group has an access to excellent local facilities, as Metsähovi operates a 14-meter radio telescope in Kirkkonummi, about 35 km from the main campus. The telescope is used for both single-dish observations at cm-to-mm-wavelengths and as a part of international VLBI-networks, such as the [\[url=https://www.evbi.org/home\]](https://www.evbi.org/home)European VLBI Network and [\[url=https://www3.mpifr-bonn.mpg.de/div/vlbi/globalmm/\]](https://www3.mpifr-bonn.mpg.de/div/vlbi/globalmm/)Global mm-VLBI Array.

WHAT WE OFFER

We offer a full-time, fixed-term employment contract for a period of four years (2+2). The probation period is 6 months and the employment contract includes a prerequisite to apply, receive and accept doctoral study right at Aalto University within the probation period. Please, check the admission criteria at [\[url=https://www.aalto.fi/en/study-options/aalto-doctoral-programme-in-electrical-engineering\]](https://www.aalto.fi/en/study-options/aalto-doctoral-programme-in-electrical-engineering)<https://www.aalto.fi/en/study-options/aalto-doctoral-programme-in-electrical-engineering>.

The starting salary of a doctoral researcher is 2757,19 €/month (gross) and it increases as the doctoral researcher progresses in the research and studies. The annual workload of research and teaching staff at Aalto University is currently 1612 hours. The employment contract includes occupational health care, paid annual leave and retirement benefits. Furthermore, Finland has a comprehensive social security system.

The earliest possible starting date is 1.9.2024 and the selected candidate should start in the position before 1.1.2025.

REQUIREMENTS *

MSc degree (or equivalent) in astronomy or other closely related field of science/engineering *

Excellent analytical thinking skills required for scientific research *

Ability to work both independently and in a team *

Excellent written and oral communication skills in English

Prior experience in radio astronomy, especially radio interferometry, or studies of active galactic nuclei is considered an advantage. The selected applicant must fulfill the admission requirements to the Aalto Doctoral Programme in Electrical Engineering (see above).

READY TO APPLY?

Please apply online through "Apply now!" link below and include the following attachments (in Finnish or English): *

Curriculum Vitae including a list of publications *

Letter of motivation (max 2 pages) *

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Copy of an MSc degree certificate or a statement from the supervisor regarding the status of the studies and the expected graduation date *

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

Furthermore, applicants should give in their CV the names and contact details of two academics who can provide reference letters for them. One of the two should be the supervisor of the applicant's MSc thesis. The selected applicant must hold an MSc degree by the starting date.

Please note that our recruitment system allows a maximum of five attachments, so please combine the copies of certificates and transcripts in one PDF, if necessary.

The call is open until August 18, 2024, but we will start reviewing and interviewing candidates already before that. Aalto University reserves the right for justified reasons to leave the position open, to extend the application period and/or to consider candidates who have not submitted applications during the application period.

MORE INFORMATION

For additional information, please contact Dr. Tuomas Savolainen ([url=mailto:tuomas.k.savolainen@aalto.fi]tuomas.k.savolainen (a) aalto.fi), or in recruitment process related questions [url=mailto:hr-elec@aalto.fi]hr-elec@aalto.fi.

ABOUT AALTO UNIVERSITY, CAMPUS AND FINLAND

The Department of Electronics and Nanoengineering is located at the Aalto University Otaniemi campus in the Helsinki metropolitan area, Finland. Metsähovi Radio Observatory is located in a protected radio quiet zone in Kirkkonummi, about 35 km from the Otaniemi campus. As a living and work environment, Finland consistently ranks high in quality-of-life. For more information about living in Finland please visit our [url=http://www.aalto.fi/en/careers-at-aalto/living-in-finland]information pages for international staff.

Contact Information

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

Contact

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