



Press Release

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AIT and KTH launch joint doctoral programme for new heat pump technology

- AIT Austrian Institute of Technology (AIT) and KTH Royal Institute of Technology (KTH) in Sweden join forces to develop efficient, safe and intelligent heat pump technologies for densely populated residential areas.

The two research institutes are launching a joint doctoral programme (PhD programme) on 1 July 2024 for the development of heat pump technologies in urban areas. As part of the programme, the optimum design for heat pumps will be identified from both a technical and economic perspective at various system levels. A strong focus is on the development of innovative methods of providing digital services for heat pump systems.

Andreas Kugi, AIT Scientific Director: “This international cooperation gives doctoral students exclusive access to leading experts and institutions in the field of heat pump technology, thermal energy systems and digitalisation. In collaboration with KTH as a renowned academic partner, we can fulfil the programme’s claim of achieving excellence in all areas”.

Hatef Madani, Associate Professor and Head of Division of Applied Thermodynamics, Department of Energy Technology at KTH: “Digitalisation is more than ever playing an increasingly important role in the development of innovative solutions to challenges in the energy sector. Our PhD programme offers students the opportunity to work at the forefront of these developments and make a significant contribution to the future of building heating technologies.”

Thomas Flechl, Head of Sustainable Thermal Energy Systems at AIT: “The use of heat pumps to meet heating requirements in densely populated urban areas requires much research. The combination of theoretical knowledge and practical experience makes this PhD programme unique. Our graduates will be able to put innovative ideas into practice and drive change in the field of building heating and cooling.”

A PhD programme focusing on technological development and economic services

The joint PhD programme, open for applications from 6 May 2024, focuses on innovations in the field of building heating and cooling. The HEAPNOSYS (HEAt Pumps as the driver of iNtelligent energy SYStems) programme is based on various research projects which are closely linked thematically and promote scientific exchange between the experts at AIT and KTH. The programme is based on two pillars: the development of a heat pump system for different boundary conditions in densely populated urban areas and the development of innovative services for building heating and cooling systems. The two pillars comprise the development and testing of a prototype heat pump system as well as the development of digital heat pump twins, both of which

support the installers and service personnel with the safe, efficient and error-free installation, operation and maintenance of heat pump systems.

Call for PhD positions:

The PhD programme is open to applicants with a strong background in energy engineering, mechanical engineering, process engineering, physics, a similar discipline or computer science. Those interested can apply for the programme via the KTH and AIT websites.

<https://jobs.ait.ac.at/Jobs?jobProfiles=PhD>

About KTH Royal Institute of Technology

KTH Royal Technological Institute in Stockholm is one of the leading technical universities in Europe and educates a wide range of engineers, architects, teachers, and researchers. The university offers nearly 100 programs, attracting around 17,000 students globally. KTH is known for its cutting-edge research and close co-operation with industry. <https://www.kth.se/en>

AIT Center for Energy

Research and development is the central driving force behind innovation for industry, the economy and society as well as securing jobs and prosperity and thereby strengthens Austria as a business location. Applied research also provides solutions to the major challenges of our time. The AIT Austrian Institute of Technology is Austria's largest research and technology organisation with 1,527 employees at present working on the key infrastructure issues of the future. AIT focuses on the two interlinked research priorities of 'sustainable and resilient infrastructures', particularly in the areas of energy, transport and health, and the 'digital transformation of industry and society', working closely with industry and clients from public institutions.

Heat pump research at the AIT Center for Energy includes heat pumps for residential buildings, commercial buildings and industrial plants as well as heat pump systems for heating/cooling networks. Further information: <https://www.ait.ac.at/energy>

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