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Possible research scholarship positions at KTH Royal Institute of Technology

KTH Royal Institute of Technology is happy to host 2-3 scholarship-funded researchers from México City in the areas of urban mobility, smart cities, and electrification and freight. The hosting arrangement will be a collaboration between the Division of Transport Planning and the Division of Energy Systems at KTH. **The division of Transport Planning** conducts fundamental and applied research within four main areas: road traffic, rail transportation, public transport and logistics. The research is multidisciplinary by nature and always seen in a multimodal context. **The division of Energy System** conducts research in innovative energy technologies and systems, with transition of the energy sector towards sustainability, e.g. quantitative models for optimizing energy systems and develop the basis for strategic decisions on investments, as well as for policy. The vision for the research performed is an equitable, sustainable and resilient low-carbon future.

The electrification of the urban transport system is a crucial component to reduce carbon emissions and reach a climate-neutral society. KTH is active in research and development projects on the electrification of public transports and urban freights, including infrastructure and vehicle technologies, planning, policies, operations, and system-level effects. For example, new cost structures, charging times and limited battery capacity require a new paradigm for designing public transport networks and vehicle fleets.

KTH has been leading research developments within the smart cities sector internationally, e.g. “Smart City concepts in Curitiba, Brazil”. The project included demonstration of technological solutions in a triple helix setup with industry partners VOLVO and SAAB Combitech, and the municipality of Curitiba, to provide smart mobility and a platform for information monitoring and sharing. One of the first electric hybrid buses in Latin America was also tested in the new mass transit corridor of the city, and energy and emission savings were monitored and analysed in collaboration with KTH and university partners in Curitiba. Another important aspect developed is the upscaling of electric bus services once the vehicles have been tested and functioning in an in demo environment. For this reason, KTH developed a novel tool for optimizing charging infrastructure placement for the project “Wireless Bus Stop Charging”, which was a collaboration with Scania, Vattenfall, Nobina, Stockholm’s PTA, Södertälje municipality (in the Stockholm Region), and IIASA. The tool was later tested and implemented for large-scale electric bus deployment scenario for the whole Stockholm region.

The efficiency of freight transport in urban areas must improve in terms of vehicle kilometres, street space, energy consumption and CO₂ emissions. KTH is conducting research on new sustainable freight transport in close collaboration with local authorities, logistics companies and vehicle manufacturers. New concepts such as e-cargo bikes, mobile lockers, modular vehicles and city hubs are developed, tested and evaluated.

Collaboration with KTH research partners

SEI - Stockholm Environmental Institute is a close partner to KTH, with which KTH share strategic partnership. SEI can contribute with analysis where the synergies between research and policy systems are in focus. More specifically, the following topics could be of interest for further explorations:

- strategic planning of charging infrastructure placement
- mapping successful experiences with sustainable freight in urban environments
- sharing best practices for sustainable fuel and electric vehicle procurement by public actors

Furthermore, KTH in collaboration with SEI can support internships and MSc. thesis fieldwork through the Swedish governmental Minor Field Study grant programme (MFS). The program provides KTH students with scholarships to perform field-studies abroad as part of their master thesis, usually, for two to three months. The topic of the internship and/or thesis could be decided in dialogue with potential collaborators from Mexico City or academic institutions such as IPN or Monterrey Tech. KTH will promote the positions offered in Mexico City to KTH students who have an interest in undertaking MFS abroad. Through the collaboration with visiting postdoctoral students from Mexico, it will also be advantageous to put potential MFS students and their supervisors from KTH in contact with these representatives from Mexico. There is already an ongoing mapping of positions for MFS students from KTH to do exchanges at IPN, and it will be beneficial to design these positions also in conjuncture with public agencies in Mexico City.

Research procedures and requirements at KTH

KTH can receive scholarship-funded researchers from CDMX for a stay at KTH with the goal of giving them the opportunity to scientifically develop their areas of research together with their fellow research colleagues at KTH. A prerequisite for the stay is that the visitors must have a reasonable allowance or scholarship funding for their stay at KTH. The level of compensation that applies when the stay starts is valid for the entire stay. For international researchers and postdoctoral students affiliated with scholarships this amount will cover all the calculated fees during their time at KTH (e.g. supervision, administrative fees/bench fees, and equipment's, laboratory and office-space fees). It should also be estimated to cover all the necessary living expenses e.g. accommodation, food, and transportation costs for the researchers. KTH will arrange and cover a full health insurance provided by the Swedish state. KTH does not provide additional funding during their stay. An additional requirement is that the dean, or the dean appoints, judge that the scholarship conditions are reasonable and that the selected candidates have the required research profile to carry out his or her investigation within the appointed research group.

There is no lower duration for research visit/exchange at KTH but a maximum of one year is recommended.

Scholarship holders from abroad are not liable to taxation unless explicitly stated in the contract that regulates the scholarship in question. In order to be granted a research visit or position at universities in Sweden, international citizens need a research residence permit or a visitor's permit, depending on the funding attached to the stay, and the length of the stay. This should be applied through the Swedish Migration Board together with the documents provided by KTH. Please visit www.migrationsverket.se For more details on the visa.