

We are looking for a Post Doc (two-years)

Theme: Interdisciplinary research on urban hydrosystem management

Preamble: Worldwide, the trend of increasing urbanization is continuing, i.e. population, area and density of cities are growing and consequently, pressure on water security rises. At the same time, climate change increasingly challenges urban planners with severe heat waves as well as prolonged droughts on one side, and extreme rainfall events with flooding on the other side. This causes complex problems for urban dwellers, both human and non-humans (physiological limits to well-being, heat-induced mortality, water scarcity etc.). Intellectual path-dependency (i.e., past situations influencing later events or decisions) and siloed administrative units, but also inefficient communication within the scientific community and between academia and society, hamper the generation and development of appropriate, sustainable and adaptive solutions. Interdisciplinary approaches, design tools and communication strategies are needed to overcome these hurdles.

Research challenges: The hired researcher should ultimately contribute to the development of novel paradigms to optimize the management of urban hydrosystems, i.e., natural or artificial water bodies in cities, including lakes, wetlands, rivers, streams and floodplains. A reflexive study of existing and potential urban trajectories and solutions to contribute to an enhanced water-based urban environment is to be realized. Foci should be on “multiple-purpose urban hydrosystems” and “eco-social justice between humans and non-humans”. This project may include socio-ecological restoration of urban rivers, natural transformation of organic or toxic pollutants in water bodies, urban microclimate (especially evapotranspiration and thermal buffering), flood management, water and carbon storage, adaptation measures for stormwater management, drought, heat events, etc.

The hired researcher should: coordinate systematic and interdisciplinary synthesis and a catalogue of problematics in the “urban hydrosystem context” and the corresponding “key-type measures” or “best management practices” already known/tested to face these problems; evaluate, qualitatively and by a quantification of benefits, previous projects concerning which measures worked well, which failed, and how these insights can be used to further improve management; identify the maturity level of existing solutions (e.g. Technology Readiness Level (TRL) qualification); develop concepts for optimizing urban hydrosystem management; identifying research requirements to fill knowledge gaps and fasten the transfer to practice.

Profile of the candidate:

- PhD in urban hydraulics, water management, urban climate, multicriteria decision analysis in water contexts, or environmental engineering or sciences
- capacity/experience to work in interdisciplinary and transdisciplinary contexts
- innovative/creative person, excellent communication skills, self-motivated

To apply send a single pdf, not longer than 5 pages A4, to wasserbau@iwu.kit.edu with the subject “EUCOR POST-DOC APPLICATION” and content:

- Letter of motivation
- CV and Publications list
- List of referees to be contacted later

Working place: Karlsruhe Institute of Technology, Germany, in collaboration with the University of Strasbourg, France, in the framework of EUCOR – the European Campus, with Karl Matthias Wantzen, Mario Franca and Olivier Eiff.

Starting date: October 2024 the earliest