

We are hiring a researcher (three-year contract)

Theme: Inception of Movement and Bedload in MacroPlastics

Preamble: The Institute for Water and Environment at the Karlsruhe Institute of Technology (KIT), Germany, invites applications for a researcher position within the framework of the InMoBed project, supported by the Deutsche Forschungsgemeinschaft (DFG) and in collaboration with Imperial College London, UK. The project focuses on understanding processes of plastic transport in rivers, specifically bedload transport and the successful candidate will contribute to advancing fluvial plastic pollution research.

Problem statement: Plastic pollution in riverine environments is one of the most pressing global environmental challenges of our time. Rivers act as pathways for transporting plastic waste from land to oceans, significantly contributing to marine pollution and threatening aquatic ecosystems. Among the least understood aspects of this issue is the behavior of macroplastic when transported as bedload, involving complex interactions between the channel bed and hydrodynamic forces. Addressing this knowledge gap is crucial for developing effective monitoring strategies, predictive models, and mitigation measures to reduce plastic pollution in riverine and marine ecosystems.

Research challenges: The hired researcher should ultimately contribute to the development of a model of negatively buoyant plastic transport. Particular tasks include: conducting high-resolution experimental research using advanced facilities, including 3D tracking systems, at the Theodor-Rehbock Hydraulics Laboratory in IWU-KIT; investigating the transport dynamics of macroplastic in rivers; developing probabilistic models for the inception of macroplastic motion and its behavior under different flow regimes; translating findings into practical strategies for monitoring and mitigating riverine plastic pollution. There is an opportunity to enroll as a PhD student for candidates interested in pursuing a doctorate.

Profile of the candidate: we are seeking a highly motivated and skilled candidate who meets the following criteria: a Master's or Doctoral degree in engineering (civil, hydraulic, environmental, mechanical or similar), environmental sciences, fluid mechanics, or a related field; strong background in fluvial hydraulics, sediment transport and turbulence; experience or willingness to perform laboratory experiments, data analysis, and programming; strong analytical skills and the ability to work collaboratively; proficiency in English, both written and verbal; a three-years commitment to high-quality research and contributing to impactful solutions.

To apply send a single pdf, not longer than 5 pages A4, to wasserbau@iwu.kit.edu with the subject "InMoBed: APPLICATION" and the following content:

- Letter of Motivation (2 pages, including a max 500-word Research Concept outlining your understanding of the research topic, key objectives, and your proposed approach)
- CV (2 pages, include ORCID number if applicable)
- List of referees (these may be contacted later)
- Degree certificate (Bachelor and Master and, if applicable, Doctor)
- Transcript of records (Bachelor and Master and, if applicable, Doctor)

Working place: Karlsruhe Institute for Technology (KIT), Institute for Water and Environment – Hydraulic Engineering and Water Resources Management (<https://www.iwu.kit.edu/wb>).

Application deadline: 15 January 2025

Starting date: early 2025

More information: wasserbau@iwu.kit.edu