(BL146/2025)

Research Studentships (for PhD students)

Applications are open for one (1) Research Studentship, within the framework of project TRAP – Transforming Rivers by Reducing Aquatic Plastic Pollution (1018P.06829.1.01.02), co-financed by the Interreg Atlantic Area Programme through the European Regional Development Fund, under the following conditions:

Scientific Area: Hydraulics, environment and water resources**.**

Admission Requirements: a) To hold a Master's degree in Environmental Sciences, Engineering, Physics or a related field; b) To be enrolled at a PhD program (at the studentship start); c) To have a strong background in Computational Fluid Dynamics, should be familiar with High Performing Computing, including coding in CUDA, and should have knowledge of C++, Julia and Python; d) Ability to work both independently and collaboratively in an international, interdisciplinary environment; e) Good communication skills in English.

Workplan: The PhD plan is aimed at implementing Lagrangian and Eulerian descriptions of the motion of particles in rivers or estuaries with applications to plastic transport. The transport models will be included in existing shallow-water solvers running in hybrid CPU-GPU architectures. The expected workplan includes: - Development of a Lagrangian module of plastic transport in rivers to be integrated in a novel Eulerian–Lagrangian hybrid framework to capture complex pathways and intermittency in plastic transport; - Integration in the model key processes including advection, dispersion, sediment–plastic interactions, and biofouling effects; - Model calibration and validation using controlled laboratory experiments and with real-world field data; - Integration of the numerical model in a digital management tool for riverine plastic mitigation strategies; - Publication of results in peer-reviewed journals and present at international conferences; - Contribution to project reports and collaborate within a multidisciplinary international research team.

Legislation and Regulations: Statute of Scientific Research Fellow, approved by Law nr. 40/2004, of August 18, as worded by Decree-Law nr. 123/2019, of August 28; IST Regulation of Scientific Research Fellowships, available on https://drh.tecnico.ulisboa.pt/files/sites/45/despacho_8532_regulamento_bolsas.pdf

Workplace: The work will be developed at CERIS of IST-ID, under the scientific supervision of Professor Rui Miguel Lage Ferreira and Doctor Ana Margarida da Costa Ricardo.

Duration: The research fellowship will have the duration of 12 months. It's expected to begin in November 2025, and may be renewed up to the project end date.

Monthly maintenance allowance: the amount of the monthly maintenance allowance is € 1309.64, being the payment method an option of the Fellow by Wire Transfer.

Selection methods: The selection methods will be the following: i) Curriculum evaluation (60%); ii) previous experience in Computational Fluid Dynamics (40%).

Composition of the selection Jury: Professor Rui Miguel Lage Ferreira, Doctor Ana Margarida da Costa Ricardo and Professor Dídia Isabel Cameira Covas.

Form of publication/notification of results: All candidates will be notified by e-mail of the Final Result of the Evaluation.

Deadlines and procedures of complaint and appeal. A complaint may be lodged from the final decision, or an appeal to the Executive Board of IST, within 15 working days counted from the respective notification.

Announcement/ notification of the results: The final evaluation results will be communicated to all applicants by email.

Application deadline and formalization: The call is open from September 25 until October 1, 2025.

It is mandatory to formalize applications with the submission of the following documents: i) B1 Form – Fellowship application (https://drh.tecnico.ulisboa.pt/bolseiros/recrutamento/); ii) *Curriculum Vitae*; iii) academic degree certificate; iv) motivation letter.

Applications must be submitted to the email*: ruimferreira@tecnico.ulisboa.pt*