

(BL199/2024)

Research Studentships (for PhD students)

Applications are open for one Research Studentship(s), within the framework of project/R&D institution SmartWagons, 1018P.06330, financed by national funds through PRR (Plano de Recuperação e Resiliência, through IAPMEI – Agência para a Competitividade e Inovação, under the following conditions:

Scientific Area: Structural and Computational Mechanics

Admission Requirements: *To be enrolled at a PhD.*

Workplan: Development of a framework to enable the simulation of fracture in multibody systems with a focus both on accuracy and numerical efficiency.

Implementation of a numerical tool to simulate the coupling between rigid and flexible bodies using peridynamics and multibody dynamics formulations. The tool must allow a straightforward transition between small-linear-elastic deformations, through nonlinear elastic until fracture. The problem of fracture modelling must be supported by the complete resolution of the peridynamic motion equations of the flexible body.

Application of the tool for the verification of the design of a railway articulated wagon from the point of view of its structural integrity and resistance to fracture initiation and propagation, using realistic load cases.

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 for Research Studentships and Fellowships, available on https://drh.tecnico.ulisboa.pt/files/sites/45/despacho_8532_regulamento_bolsas.pdf.

Workplace: The work will be developed at Instituto de Engenharia Mecânica of Instituto Superior Técnico, under the scientific supervision of Professor Jorge Alberto Cadete Ambrósio.

Duration: The research fellowship(s) will have the duration of 6 months. It's expected to begin in December 2024, and may be eventually renewed up to the maximum of 12 months, including the duration of the initial contract.

Monthly maintenance allowance: the amount of the monthly maintenance allowance is € 1 259,64, being the payment method by Wire Transfer.

Selection methods: The selection methods will be the following: Curriculum evaluation, with the respective weight of 100%

Composition of the selection Jury: Professora Virgínia Isabel Monteiro Nabais Infante (President), Professor António Ramos Andrade, and Professor Jorge Alberto Cadete Ambrósio

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

Deadlines and procedures of complaint and appeal. A complaint may be lodged from the final decision within 15 working days, or an appeal to the Executive Board of IST within 30 working days, both counted from the respective notification

Application deadline and formalization: The call is open from October 16 until October 29, 2024.

It is mandatory to formalize applications with the submission of the following documents: i) B1 Form – Fellowship application (<http://drh.tecnico.ulisboa.pt/bolseiros/formularios/>); ii) *Curriculum Vitae*; iii) academic degree certificate, where applicable; iv) proof of enrollment at an academic degree course (PhD); v) motivation letter;

Applications must be submitted to the email: jorge.ambrosio@tecnico.ulisboa.pt and virginia.infante@tecnico.ulisboa.pt

