

PUBLIC NOTICE FOR A RESEARCH SCHOLARSHIP

Reference i2A/RODA+AIIs/02/2025

Internal Reference: PRBI/24/2025

A call is open for the award of 1 Research Grant (BI) within the scope of the RODA+AIIs project, with the operation code **MPPr-2023-7**, which aims to develop innovative solutions in the assembly and tuning of bicycle wheels, integrating smart measurement, biomechanics and artificial intelligence technologies. The work will be developed in close collaboration with industrial partners (ATENA and BARUFIL), providing the grantee with practical experience in a real context of technological innovation.

Scientific area: Mechanical Engineering.

Requirements:

Holders of a Master's degree in Mechanical Engineering, with experience in:

- 3D Modeling and Automatic Calculation of Mechanical Systems;
- Research work in the field of biomechanics.

PhD student in the area of mechanical engineering.

Additional requirements valued:

Experience in handling additive manufacturing technologies;

Experience in instrumentation;

Ability to work in a team and initiative;

Good knowledge of technical English.

Work Plan achievements:

The grantee will be part of the project's technical and scientific team. You will develop work in the mechanical and biomechanical component, which includes:

- Design and development of a biomechanical test bench to study the influence of the tuning variables of a bicycle wheel on its interaction with the cyclist;
- Participation in the instrumentation of bicycles for laboratory tests and in real environment;
- Participation in the definition of test protocols with volunteers to study the influence of the tuning variables of a bicycle wheel on its interaction with the cyclist, both on the test bench and in a real context;
- Execution of biomechanical tests with and without volunteers, to study the influence of the tuning variables of a bicycle wheel on its interaction with the cyclist, both on the test bench and in a real context;

- Analysis and treatment of data from biomechanical tests of tension in bicycle spokes;
- Participation in the writing of scientific articles, reports and material for the dissemination of project results.

Scholarship Length:

The fellowship, on an exclusive basis, has a duration of 12 months, renewable for periods of 6 months, within the limits established in the IPC Grant Holder Regulation, approved by Order No. 5963/2020, published in the 2nd series of the DR of June 1st, and Regulation No. 950/2019 of December 16th (FCT Research Grants Regulation, I.P.), scheduled to start in October 2025.

Monthly Maintenance Allowance:

1309.64 euros, according to the table of values of Research Grants in the Country awarded by FCT, I.P. (www.fct.pt/apoios/bolsas/valores), and payment is made monthly by bank transfer to the account to be designated by the Grant Holder. To this value is added the voluntary social insurance corresponding to the first step, if the candidate chooses to register, and personal accident insurance is also required.

Workplace:

The work will be developed at the Higher Institute of Engineering of the Polytechnic Institute of Coimbra, under the scientific supervision of Professor Luis Roseiro.

Selection Criteria:

The evaluation of applications will be carried out on a scale of 0 to 20 values, using the following weightings:

$$\text{Rank (0 – 20)} = (0.50 \cdot C1 + 0.30 \cdot C2 + 0.20 \cdot C3)$$

Criteria C1, C2 and C3 are evaluated from 0 to 20 according to:

C1 – Adequacy of the candidate's profile to the needs of the project;

C2 – Experience in the tasks to be developed;

C3 – Motivation and autonomy.

Note: The Jury may call the candidates for an interview.

Jury of Selection:

President: Prof. Luis Manuel Ferreira Roseiro

Members: Prof. Fernando Domingues Moita

Prof. César Paulo das Dores Paris

Substitutes: Prof. Raquel Almeida de Azevedo Faria

Prof. Simão Pedro Mendes Cruz Reis Paredes

Mandatory documents:

Applications must include the following documents:

- a) Application form available on the internet page for this competition at <https://www.ipc.pt/ipc/sobre/rh/a-decorrer-pessoal-bolseiro>.
- b) Motivation letter, in which the candidate must explain his/her motivation to carry out this multidisciplinary work plan, as well as mention if he/she is available to start the scholarship on schedule date;
- c) Document(s) proving that the candidate holds the academic degree and/or diploma(s) required in the competition, preferably indicating the final average and the marks obtained per curricular unit. Applicants with foreign qualifications must provide proof of their foreign degree and diploma in accordance with Decree-Law no. 66/2018, of 16th August;
- d) Document proving enrolment and registration in the master's or doctoral degree or non-degree course, which may be made at a later date than the application, provided that it is prior to the contractualization of the scholarship;
- e) Updated *Curriculum Vitae* of the candidate, with a description of the qualifications;
- f) Supporting document(s) for other assessment parameter(s) indicated in the application notice;
- g) Declaration, under oath, regarding the scholarship(s) of the same type that the candidate have carried out and its duration;
- h) Other certifications and/or other documents considered relevant by the candidate.

Deadline of Application Submission:

Between **03/09/2025** and **16/09/2025**, i.e., 10 working days.

Candidates must access and register on the website https://www.ipc.pt/bupc/concursos/form/concursos_bolseiros to submit the application, selecting the procedure for which they intend to apply.

Applications must be delivered exclusively in digital format, in portable document format (pdf), except for documents whose delivery is scheduled in other digital formats.

Application instructions are completed by filling in the sections available at the aforementioned email address.

When formalizing the application, if it contains a classified document that reveals commercial or industrial secrets, or secrets relating to literary, artistic or scientific property, the candidate must expressly indicate such reservation, under penalty of the work in question being freely accessed by any one of the other candidates, in consultation with the process.

When submitting the application, the candidate must provide only the necessary data, according to this notice, and must hide personal data present in the documentation, as these data may be freely accessed by other candidates during the process consultation..

Legislation and applicable Regulation:

The award of this scholarship is based in the Law 40/2004, of the 18th of August (Statute of the Scientific Research Fellow), changed and republished by the Decree-Law 202/2012, of the 27th of August, updated by: Decree-Law 233/2012, Law 12/2013, Decree-Law 89/2013 and Decree-Law 123/2019; the Regulation of the research

scholarships from the Fundação para a Ciência e a Tecnologia, I. P. and the Regulation of the Research Scholarships from Coimbra Polytechnic no. 12709/2016, published on the DR, 2nd serie, of 21/10/2016.

The model of the scholarship contract, as well as that of the final reports to be prepared by the scholarship holder and the scientific supervisor, are those set out in the annexes to the above-mentioned Statute for Scientific Research Scholarship Holders.

Information of Results:

The results of the evaluation will be published within 90 working days from the deadline for submission of applications, by sending a communication to the candidates, via email. After the results have been published, candidates will be notified to, if they wish, give their opinion in a prior hearing within a maximum of 10 working days after that date. After this deadline, the selected candidates will have to declare their acceptance in writing. Unless a justifiable reason is provided, failure to make the declaration within the deadline will be considered as a waiver of the scholarship. In case of resignation or withdrawal of the selected candidate, the immediately best ranked candidate will be notified.

For further information please contact:

For more information, contact: Luis Roseiro (lroseiro@isec.pt)

Coimbra, 12th August 2025