

(2026-BI001_HyLab)

CALL FOR THE AWARD OF A RESEARCH FELLOWSHIP WITHIN R&D PROJECTS AND INSTITUTIONS

Research Fellowship (BI)

Applications are open for the award of one (1) Research Fellowship (BI), intended for a student enrolled in a study cycle leading to a doctoral degree, to be carried out at HyLab – Green Hydrogen Collaborative Laboratory, within the framework of the project “H2tALENT – Alentejo Green Hydrogen Valley delivering integrated full-chain sustainable hydrogen ecosystem with technical, economic, social and environmental benefits and superior upscaling/replicability”, ref. 101137611, funded by the European Union.

The fellowship aims to support the development and application of quantitative risk assessment (QRA) methodologies for hydrogen facilities and infrastructures, including the integration of variables associated with seismic risk, using a real infrastructure associated with the demonstrator in Sines, within the H2tALENT project, as a case study.

Scientific Area

Chemical and Biological Engineering, Chemical Engineering, Process Engineering, or a related field.

Admission Requirements

In accordance with Article 6 of the FCT Research Fellowship Regulations, eligible applicants are:

- a) Students enrolled in a study cycle leading to a doctoral degree in Chemical and Biological Engineering, Chemical Engineering, Process Engineering, or a related scientific field, with an academic background and profile suitable for the proposed work plan.

Note:

- Applicants may submit their application without proof of enrolment at the time of application. This requirement must, however, be fulfilled by providing proof of enrolment in a study cycle leading to a doctoral degree by the date of signature of the fellowship contract, should the applicant be selected;
- Where applicable, holders of academic degrees obtained abroad must provide the corresponding recognition in accordance with the applicable legislation.

Preferred/valued technical requirements

- Knowledge and/or experience in quantitative risk assessment (QRA) methodologies, process safety, hazard identification and consequence assessment;
- Knowledge of hydrogen technologies and the safety of hydrogen facilities and infrastructures;
- Knowledge of external natural hazards, with experience or knowledge related to seismic risk being particularly valued;

- Knowledge of risk analysis methodologies, namely Fault Tree Analysis and Event Tree Analysis (FTA/ETA);
- Experience or familiarity with risk modelling and analysis tools, namely EFFECTS, RiskCurves, or equivalent tools;
- Ability to analyse, process and interpret technical data;
- Ability to prepare technical and scientific reports and documentation;
- Good command of technical English.

Behavioural competencies

- Autonomy, organisation and accuracy in carrying out activities;
- Ability to work as part of a team and interact with different stakeholders;
- Sense of responsibility, analytical skills and ability to meet deadlines.

Work Plan

The work aims to support the development and application of an integrated QRA methodology for hydrogen facilities and infrastructures, incorporating variables associated with seismic risk, using a real infrastructure associated with the demonstrator in Sines, within the H2tALENT project, as a case study.

The fellow will:

- Carry out a literature review and technical-scientific assessment covering hydrogen safety, quantitative risk assessment and external natural hazards;
- Technically characterise the hydrogen infrastructure associated with the case study and define the system boundaries, assumptions and methodological approach;
- Develop Fault Tree Analysis and Event Tree Analysis (FTA/ETA) applicable to the system under study;
- Identify and analyse relevant failure and accident scenarios for the risk assessment;
- Collect and systematise information on the vulnerability of infrastructure components and develop a database of seismic fragility curves;
- Integrate seismic variables and fragility curves into the QRA methodology;
- Develop and apply consequence and risk assessment models using specialised tools available at HyLab, namely EFFECTS and RiskCurves, where applicable;
- Simulate and analyse representative scenarios associated with the hydrogen infrastructure;
- Compare results obtained for scenarios with and without consideration of the seismic component and assess the influence of these variables on the facility risk profile;
- Identify critical components and situations and contribute to the development of technical recommendations aimed at improving safety;
- Consolidate and systematise the results obtained, contributing to the preparation of technical reports, methodological documentation and, where applicable, technical and scientific publications.

The work plan will be carried out in close coordination with the HyLab team involved in the H2tALENT project and under the scientific supervision of Dr. Nuno Henrique Varela Canha.

Applicable Legislation and Regulations

Law No. 40/2004 of 18 August (Research Fellowship Holder Statute), as currently amended; HyLab Research Fellowship Regulations, in their current version, available at <https://hylab.pt/wp-content/uploads/2025/10/regulamento-de-bolsas-hylab-anexos.pdf>; FCT, I.P. Research Fellowship Regulations, in their current version, available at https://www.fct.pt/wp-content/uploads/2026/01/RBi_Republicado_2025.pdf.

Workplace

The activities will be carried out under a hybrid working arrangement:

- On-site work (mandatory, 3 days/week): Edifício da Quinta da Lameira – Sines Tecnopolo, ZIL II, Lote 122A, 7520-309 Sines, Portugal;
- Remote work (up to 2 days/week): from home, according to a weekly plan agreed with the supervisor and ensuring availability for online meetings.

Occasional travel may be required within the scope of the fellowship activities, namely for meetings with partners, dissemination activities, technical visits and other activities related to the H2tALENT project, in accordance with the applicable internal rules.

Duration of the Fellowship

The fellowship will have a duration of 5 (five) months, under an exclusive dedication regime, with an expected starting date of 15 September 2026.

Monthly Maintenance Allowance

The monthly maintenance allowance amounts to €1,359.64, in accordance with the table of values applicable to Research Fellowships (BI) for doctoral students in Portugal for 2026.

A 20% increase, corresponding to €271.93, will be added to this amount, resulting in a total monthly fellowship amount of €1,631.57.

Payment will be made monthly by bank transfer.

Selection Method

The selection method will be based on: i) curriculum assessment, taking into account the applicant's academic, scientific and technical merit and the suitability of their background for the proposed work plan; and ii) an interview, aimed at assessing the applicant's suitability for the work plan and the activities to be carried out.

Each selection method will be assessed on a scale from 0 to 20 points, with the following weighting: curriculum assessment (70%) and interview (30%).

The final classification (FC) will be calculated according to the following formula:

$$FC = 0.70 \times CA + 0.30 \times I$$

where CA corresponds to the curriculum assessment and I to the interview assessment.

Composition of the Selection Jury

Edgar Caetano Fernandes (President), Nuno Henrique Varela Canha (Full Member) e Marcelo Matos Martins (Full Member).

Publication/Notification of Results

All applicants will be notified by email of the provisional evaluation results and of the final decision.

Deadlines and Procedures for Preliminary Hearing, Complaint and Appeal

Following notification of the provisional evaluation results, applicants for whom the proposed decision is unfavourable will have a period of 10 working days to submit comments, should they wish to do so, within the framework of a preliminary hearing of interested parties, in accordance with the Portuguese Code of Administrative Procedure.

The final decision will be issued following consideration of the comments submitted during the preliminary hearing, where applicable.

A complaint may be lodged against the final decision within 15 working days, or an appeal may be submitted to the Executive Director of HyLab within 30 working days, both periods being counted from the date of the respective notification.

Application Period and Submission Procedure

The call for applications will be open from 1 to 7 September 2026.

Applications must include the following documents:

- Curriculum Vitae;
- Motivation letter;
- Academic degree certificate.

Applications must be submitted by email simultaneously to geral@hylab.pt and nuno.canha@hylab.pt, with the reference 2026-BI001_HyLab indicated in the subject line of the email.