

A tender is now open for the attribution of a Post-Doctoral Research grant within the scope of the R&D project “Development of a microwave plasma gasification system for the thermochemical conversion of sewage sludge into synthesis gas” (Plasma2Gas), ref^a POCI-01-0247-FEDER-070233, financed by the European Regional Development Fund (FEDER), through of the Competitiveness and Internationalization Operational Program (POCI) of PORTUGAL 2020, managed by the National Innovation Agency, under the following conditions:

Scientific Area: Physics / Chemistry

Recipients: Doctorates in Physics, Physical Engineering, Chemistry or Chemical Engineering, Mechanical Engineering, which cumulatively meet the following requirements:

- Holders of a PhD degree obtained in the three years prior to the date of submission of the scholarship application***;
- Have carried out the research work that led to the attribution of a doctoral degree in a different entity from the Physics Center of the University of Minho**;
- Do not exceed, with the conclusion of the contract in question, including possible renewals, a cumulative period of three years in this type of scholarship, consecutive or interpolated.

Candidates who do not cumulatively meet the requirements described will be excluded.

Other requirements: The candidates should preferably have experience in one or more of the following topics: Glow discharges, microwave discharges, Plasma Characterization, Plasma Simulation.

** Different R&D Units are included, even if located in the same Organic Unit (UOEI) of UMinho (n^o 4 and 5 of article 7 of the FCT I.P Research Grant Regulation in force)

***Documents proving the ownership of academic degrees and diplomas, or their respective recognition when they have been awarded by foreign higher education institutions, when applicable for the type of scholarship in the competition, may be waived at the application stage, being replaced by declaration of honor of the candidate (see template), with the verification of this condition occurring only in the phase of contracting the scholarship. This statement must attest facts that occurred on a date prior to the application. In situations of divergence between the information contained in the declaration and the documentation submitted for the purpose of contracting a grant, only the information contained in the latter will be considered. If it is verified that the documents proving the ownership of the academic degree and diploma, or the respective recognition under the terms of Decree-Law No. 66/2018, of August 16, do not correspond to the classifications awarded in the evaluation of the academic path and may, consequently, changing the candidate's ranking, the scholarship contracting will not be effected.

Eligibility of candidates: Candidates must meet the eligibility conditions provided in article 9 of the FCT I.P Research Grant Regulation (2019).

Work plan: Support the development of a prototype gasification system based on a microwave plasma torch for treatment of industrial and domestic sludges.

1. Development of a microwave plasma torch model using Comsol and exploration of plasma properties as function operation parameters (injected power, gas mixture).
2. Optimization of the microwave plasma torch, in terms of plasma plume length, gas temperature, and plasma stability, as a function of various operating parameters (gas flow, gas mixture, injected power, quartz tube cooling).
3. Test of plasma torch stability with real sludge samples.

Applicable legislation and regulations: Research Fellowship Statute, approved by Law No. 40/2004 of August 18, in the current wording published by Decree-Law No. 123/2019 of August 28; Regulation of Research Scholarships of the University of Minho and Regulation of Research Scholarships of the Foundation for Science and Technology, I.P. - in force

Place of work and Scientific Guidance: The work will be developed at the Physics Center of the University of Minho, under the scientific guidance of Professor Luís Silvino Alves Marques.

Duration of the scholarship(s): The scholarship will have the maximum **duration of 24 months**, starting in August/September 2021.

Amount of monthly maintenance allowance: The amount of the scholarship corresponds to 1 646.00 Euros, according to the table of values of the FCT, I.P. in the Country (Annex I – Table of monthly maintenance subsidies of the Research Grants Regulation of FCT I.P.

Other benefits: Reimbursement of the Voluntary Social Security, corresponding to the 1st step of the contributory base and Personal Accident Insurance.

Composition of the Selection Jury:

President: Prof. Luís Silvino Alves Marques

Effective members: Prof. Bernardo Almeida and Dr. Veniero Lenzi.

Substitute members: Prof. José Carlos Teixeira and Prof^a. Maria Cândida Vilarinho.

In case of impediment of the President of the Jury, he will be substituted by the first effective member, being appointed a substitute member to replace the effective member.

Evaluation and selection criteria and procedures: The evaluation of the applications will focus on the candidate's Merit (MC), where the classification of all Evaluation Parameters will be expressed in a numerical scale from 0 to 5 values.

Merit of the candidate - MC (100%):

- Academic Qualifications - AQ, (which reflects the evaluation of the academic degree), with a weighting of 50%
- Personal Curriculum - PC, which reflects the scientific and professional path, and research experience in applications of plasma discharges, with a weighting of 40%
- Interview - INT, with a weighting of 10%.

The candidate's final classification (CF) of candidate's merit will be obtained by applying the following formula:

$$CF = MC = (AQ * 0,5) + (PC * 0,4) + (INT * 0,1)$$

Dissemination of results: The evaluation results project, justified on the minutes, will be sent to candidates by email, within 90 working days after the deadline for submission of applications.

If the result is unfavourable to the granting of the requested scholarship, the candidates have a period of 10 working days to comment, if desired, in the context of a prior hearing to interested parties, pursuant to articles 121 and 122 of the Code of Administrative Procedure (DL n° 4 /2015 of January 7th).

Complaint and appeal procedures: The final results of the evaluation will be publicized through the ordered list (alphabetically, by the final grade obtained), posted in a visible and public place of the Reception Unit, as well as by email to all candidates, attaching it if, for this purpose, the minutes with the deliberations of the jury.

The selected candidate must state in writing their intention to accept the scholarship. In case of non-acceptance, the scholarship will be awarded to the candidate in order of final ranking.

A complaint may be filed against the final decision, within 15 working days, addressed to the President of the Jury. Interested parties may also present an optional hierarchical appeal, addressed to the Pro-Rector for Research and Projects, Professor Dr. Filipe Vaz.

Application deadline and form of submission of applications: The notice will be published on the EURAXESS Portugal Portal and applications will be received **within 15 working days after publication**.

Applications must be formalized, mandatorily, by sending an application letter accompanied by the following documents: curriculum vitae; certificate of qualifications or declaration of the candidate (if applicable); other documents considered relevant to the assessment of the scientific and professional path.

Applications should be sent by email to lsam@fisica.uminho.pt and bolsas@ecum.uminho.pt indicating the reference 002/ECUM/CFUM-Plasma2Gas/2021 of the selection tender in the Subject. Applications sent by other means will not be accepted.

More Information

[Additional Information](#)

Benefits

Amount of monthly maintenance allowance: The amount of the scholarship corresponds to 1 646.00 Euros, according to the table of values of the FCT, I.P. in the Country (Annex I – Table of monthly maintenance subsidies of the Research Grants Regulation of FCT I.P.

Other benefits: Reimbursement of the Voluntary Social Security, corresponding to the 1st step of the contributory base and Personal Accident Insurance.

Eligibility criteria

Eligibility of candidates: Candidates must meet the eligibility conditions provided in article 9 of the FCT I.P Research Grant Regulation (2019).

Selection process

Details described in the job description section.

Additional comments

Applications must be formalized, obligatorily, by sending an application letter accompanied by the following documents: curriculum vitae; certificate of qualifications or declaration of the candidate (if applicable); motivation letter; letters of recommendation; other documents considered relevant to the assessment of the scientific and professional path.

Requirements

Required Research Experiences

- RESEARCH FIELD: Physics › Chemical physics
- YEARS OF RESEARCH EXPERIENCE: 1 - 4

Offer Requirements

- REQUIRED EDUCATION LEVEL: Physics: PhD or equivalent
- REQUIRED LANGUAGES: **English**: Excellent

Skills/Qualifications

Recipients: Doctorates in Physics, Physical Engineering, Chemistry or Chemical Engineering, which cumulatively meet the following requirements:

- Holders of a PhD degree obtained in the three years prior to the date of submission of the scholarship application***;
- Have carried out the research work that led to the attribution of a doctoral degree in a different entity from the Physics Center of the University of Minho**;
- Do not exceed, with the conclusion of the contract in question, including possible renewals, a cumulative period of three years in this type of scholarship, consecutive or interpolated.

Candidates who do not cumulatively meet the requirements described will be excluded.

Specific Requirements

Other requirements: The candidates should preferably have experience in Microwave plasma discharges, plasma characterization, plasma simulation.

** Different R&D Units are included, even if located in the same Organic Unit (UOEI) of UMinho (n° 4 and 5 of article 7 of the FCT I.P Research Grant Regulation in force)

***Documents proving the ownership of academic degrees and diplomas, or their respective recognition when they have been awarded by foreign higher education institutions, when applicable for the type of scholarship in the competition, may be waived at the application stage, being replaced by declaration of honor of the candidate, with the verification of this condition occurring only in the phase of contracting the scholarship. This statement must attest facts that occurred on a date prior to the application. In situations of divergence between the information contained in the declaration and the documentation submitted for the purpose of contracting a grant, only the information contained in the latter will be considered. If it is verified that the documents proving the ownership of the academic degree and diploma, or the respective recognition under the terms of Decree-Law No. 66/2018, of August 16, do not correspond to the classifications awarded in the evaluation of the academic path and may, consequently, changing the candidate's ranking, the scholarship contracting will not be effected.