ANNOUNCEMENT FOR THE AWARD OF A RESEARCH FELLOWSHIP
Research Fellowship for Ph.D. – 1 vacancy

02/ECUM/CMAT/2025 –3MControlSystems

A call for applications is now open for the attribution of 1 (one) doctoral research grant under the R&D project "CoSysM3 – Mathematical Modelling of Multi-scale Control Systems: applications to human diseases," ref. 2022.03091.PTDC, https://doi.org/10.54499/2022.03091.PTDC, funded by national funds from the State Budget through the Fundação para a Ciência e a Tecnologia (FCT/MCTES), under the conditions described below.

Scientific Area: Applied Mathematics.

Recipient category: The research grants (BI) are intended for R&D activities by students enrolled in a PhD degree.

Requirements for granting the fellowship

- The applicants may apply without prior registration in the course for which the fellowship is open. The requirement to enrol in a degree course will be verified on the date of contracting the fellowship.
- Only fellowships whose selected applicants present a valid proof of enrolment in a degree course will be contracted, according to the type of the fellowship, issued by the academic services of the Higher Education Institution, indicating, respectively, the academic year or its duration (start and term).

Profile: The following are eligible to apply for this competition:
- Nationals or citizens of other member states of the European Union;
- Citizens of third countries;
- Stateless persons;
- Citizens with political refugee status.

Candidate admissibility requirements

- Mandatory requirements – the applicants should have a master degree in Mathematics or related area; they should be enrolled in one of the following Ph.D. programs at the University of Minho: PhD in Mathematics, Doctoral Program in Applied Mathematics (MAP-PDMA), or Doctoral Program in Mathematics and Applications.
- In the contracting phase, the applicants should be enrolled on one of the following Ph.D. programs at the University of Minho: PhD in Mathematics, Doctoral Program in Applied Mathematics (MAP-PDMA), or Doctoral Program in Mathematics and Applications.
- Preferential factors include the interest in biomathematics, basic programming skills, availability and commitment to the project, English proficiency at B1 level or equivalent.

Admissibility requirements

It is essential, under penalty of not being admitted to the competition, to attach the following documents to the application:

- Application letter;
- Identification Card or Citizen Card or Passport;
- Curriculum Vitae;
- Certificate of qualifications or a candidate's declaration of honor that he/she has completed the degrees required in the notice by the application deadline, providing detailed information about the candidate's academic background, including the average grade obtained at the C2 level and, when applicable, the grades obtained in the courses completed at the C3 level;
- For degrees obtained abroad, the record of recognition of the academic degrees and record of the conversion of the respective final classification to the Portuguese classification scale must be presented, or, alternatively, the candidate's declaration of honor;
- Work plan to be developed within the scope of the doctoral program under the scientific supervision of a member of the CoSysM3 project team at UMinho, with a maximum of three A4 pages, aligned with the research objectives of the CoSysM3 project, signed by the candidate and the supervisor(s);
- Letter of acceptance of the project and the candidate, signed by the supervisor(s);
- Motivation letter, highlighting the interest in Biomathematics, basic programming knowledge, commitment, and interest in the work plan;
- Two letters of recommendation from experts in the field of Mathematics, which should be sent by the authors via email to **bolsas@ecum.uminho.pt** , with a copy to **cosysm3@gmail.com**, indicating, in the subject line, the reference of the competition, which is **02/ECUM/CMAT/2025– 3MControlSystems–FirstNameLastNameCandidate**

    Other documents considered relevant for assessing the Candidate's Merit.

Applicants eligibility: Applicants must comply with the eligibility conditions laid down in article 9 of the Research Grants Regulation of the Portuguese Foundation for Science and Technology (2019).

Workplan and objectives to be achieved: The work plan aims to develop innovative mathematical models for studying human diseases, in the scope of the CoSysM3 project. It will involve detailed qualitative analysis, potentially including (a) Existence and behaviour of solutions; (b) steady states and their asymptotic stability; (c) bifurcations associated with the main parameters of the model.

The project also involves studying optimal control problems formulated for the developed model to decide about therapeutic strategies or decision-making processes.

The theoretical study of the model will be accompanied by numerical simulations to test the solutions' outcomes. The work plan will be conducted in collaboration with members of the CoSysM3 project team.

Applicable legislation and regulations: Research Fellowship Holder Statutes, approved by Law no. 40/2004 of August 18, in its current version published by Decree-Law no. 123/2019 of august 28; Regulation of Scientific Research Fellowships of the University of Minho (RBIC), published in "Diário da República", 2nd serie, no. 119, through dispatch no. 6524/2020 of 22-06-2020, ratified by ratification declaration no. 447/2021 of 22-06-2021 and Regulation of Research Studentships and Fellowships (RBI) of the Foundation for Science and Technology, I.P. - in force.

Host/Contracting institution and scientific supervision: The workplan will be carried out in the Centre of Mathematics (CMAT) of the School of Sciences of the University of Minho, under the project "CoSysM3 – Mathematical Modelling of Multi-scale Control Systems: applications to human diseases (CoSysM3)," ref. 2022.03091.PTDC (https://doi.org/10.54499/2022.03091.PTDC), supervised by at least one member of this project's team at UMinho, proposing the work plan, namely Ana Jacinta Soares, Carolina Ribeiro, Maria Piedade Ramos.

Fellowship duration: The grant will take place for a period of 6 months, with a provisional starting date on the February 2025. The fellowship grant may eventually be renewed, depending on the project status and applicable legislation.

Amount of the research grant: The value stipend (Monthly Maintenance Allowance) is 1,259.64 € per month, in accordance with the stipends values published by the Foundation for Science and Technology (FCT I.P.) in the country (Annex I – Monthly Stipends Values for the maintenance allowances of the FCT Regulation for Research Studentships and Fellowships) and Annex II of the Regulation of Scientific Research Fellowships of the University of Minho (RBIC), published in "Diário da República", 2nd serie, no. 119, through dispatch no. 6524/2020 of 22-06-2020, ratified by ratification declaration no. 447/2021 of 22-06-2021, according to the applicable regulation.

Payment is made on the 23st of each month, through bank transfer to the Bank Identification Number of the fellow identified in the contractualization process.

Other components of the research grant: There are no other components, in particular no tuition or enrolment fees for obtaining an academic degree will be covered.

Other benefits: Reimbursement of Voluntary Social Security (Social Security contributions), corresponding to the 1st level of discounts *(for research grants with a total duration 6 months or higher)* and personal accident insurance.

Exclusivity regime: The grantee will perform the activities under exclusivity, as foreseen in article 5° of the Research Fellow Statutes and applicable regulations.

Selection panel

President: Ana Jacinta Pereira da Costa Soares, Associate Professor, Department of Mathematics and Centre of Mathematics, School of Sciences, University of Minho.

Effective member: Sofia Oliveira Lopes, Assistant Professor, Department of Mathematics and Centre of Mathematics, School of Science, University of Minho.; Cristiana João Soares da Silva, Assistant Professor with Habilitation, Iscte-University Institute of Lisbon and CIDMA, University of Aveiro.

Substitute member: Paulo José Fernandes Louro Ribeiro Doutor, Assistant Professor, NOVAMATH Center for Mathematics and Applications, Faculty of Science and Technology, NOVA University of Lisbon.; Paula Cristiana Costa Garcia da Silva Patrício, Associate Professor, NOVAMATH Center for Mathematics and Applications, Faculty of Science and Technology, NOVA University of Lisbon.

The first effective member will substitute the President of the selection panel in case of impediment, being nominate the first substitute member in the place of the first effective member.

Criteria and procedures for applications assessment and selection

The applications assessment will focus on both the Candidate Merit and the **Research Project Merit,** following evaluation criteria A and B described below, valued on a scale of 1 to 5 values.

A. Applicant Merit - AM (60%):

A.1: Academic path, considering the grades of academic degrees, weighted at 60%;

A.2: Personal curriculum, considering professional and scientific training, reflecting academic and professional background, weighted at 30%;

A.3: Letters of Recommendation from recognized Mathematicians, weighted at 10%.

The classification of the *Applicant Merit* **(AM)** obtained in this criterion is assigned on a scale from 0 to 5, using the formula

$$AM = (A1 \times 0.6) + (A2 \times 0.3) + (A3 \times 0.1)$$

B. Workplan Merit – WM (40%):

B.1: Scientific quality of the Workplan, reflecting the relevance of the topic and its pertinence to the CoSysM3 project, presenting the state of the art and indicating the methodology of the work plan, weighted at 80%;

B.2: Motivation letter (expressing the reasons underlying the application and the candidate's interest in the studies to be undertaken, with reference to the choice of the supervisory team), weighted at 20%.

The classification of the *Workplan Merit* (**WM**) obtained in this criterion is assigned on a scale from 0 to 5, using the formula

$$WM = (B1 \times 0.8) + (B2 \times 0.2)$$

The *Final Classification* (**FC**) for each candidate will be obtained by weighting the *Applicant Merit* **(AM)** and the *Workplan Merit* (**RPM**), using the formula:

$$FC = (AM \times 0.6) + (WM \times 0.4)$$

The academic degrees and diplomas documents, or their respective recognition when awarded by foreign higher education institutions are not mandatory in the application phase, being replaced by a declaration of honor of the candidate with the contents of academic results. The documents of academic qualification or respective recognition will be required in the contracting phase and 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 contracting the grant, only the information contained in the latter will be considered. If 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, which can change the candidate's ranking, the fellowship won't be contracted.

Notes: Applicants with degrees obtained abroad must present proof of recognition of qualifications in Portugal and conversion of the final classification obtained in them to the Portuguese classification scale or declaration under the terms indicated in the previous point. Candidates who do not comply with one of these provisions, the selection panel will assign "0" in the grade of the graduation and/or master course. Candidates will be evaluated on the remaining parameters.

Disclosure of results: The provisional results of applications, based in the selection panel minutes, will be send to the applicants by email until 90 working days from the applications deadline.

If case of unfavourable results, the candidates have a period of 10 working days to comment, if desired, in a prior hearing to interested parties, pursuant to articles 121 and 122 of the Code of Administrative Procedure (DL no. 4/2015 of 7 January).

Complaint and appeal procedures: The final results of the evaluation will be published through an ordered list organized *alphabetically, by final grade obtained*, posted in a visible and public place of the host unit, as well as by email to all applicants, enclosing for that purpose, the minutes of the jury deliberations.

The selected candidate must inform its willingness to accept the grant, in writing. In case of rejection, the fellowship will be awarded to the next candidate in the ordered list of applicants.

The final decision can be contested within 15 working days, by sending to the President of the jury the corresponding claim. Interested parties may also submit an optional hierarchical appeal, addressed to the Pro-Rector for Scientific Projects and Research Management, Professor Doctor Sandra Paiva.

Constitution of a selection reserve list: The applicants ranked in the next positions on the ordered list will be included in a selection reserve list, which can be used until July 31, 2025.

Application deadline and submission: The call for applications is open for a period of 10 working days from the date of publication of the advertisement on the Euraxess portal.

Applications must be formalized by sending an application letter accompanied by a statement proving that meets the conditions for the grant typology, according to the application requirements, and by the documents listed in the Admissibility Requirements, with exception of the two letters of recommendation.

Applications must be sent by email to **bolsas@ecum.uminho.pt** , with a copy to **cosysm3@gmail.com** , indicating, in the subject line, the reference of the competition, which is **02/ECUM/CMAT/2025–3MControlSystems.** Applications submitted by other means will not be accepted.

Fellowship contractualization: The fellowship will be attributed by signing a fellowship contract between the University of Minho and the fellow, accordingly with the contract minute (annex IV of the Regulation of Research Fellowships of the University of Minho (RBIC), published in *Diário da República, 2nd Série, no. 119*, through dispatch no. 6524/2020 of 22-06-2020, ratified by ratification declaration no. 447/2021 of 22-06-2021, as indicated in 2.4 of the FCT document: "Rules for Granting and Management of Grants within the scope of R&D projects, including infrastructure projects, the multi-annual financing program for R&D units and other FCT financing instruments (Version 2021)".

The contract may only be concluded after all the documentation required is collected, which must take place within a maximum period of 6 months [including evidences of the academic degrees or diplomas and enrolment in degree courses or non-conferring courses, depending on the type of scholarship].

Once all the documentation has been received, the contracting entity has a period of 60 working days to conclude the scholarship contract. Once received, the fellow must return the contract duly signed within 15 working days.

The activities under the fellowship contract can only began after proper authorization by the contracting entity.

Term and cancellation of fellowship contracts

Without prejudice to the other causes provided the fellowship regulations (FCT and UMinho) and in the Statute of the Research Fellow, the fellowship ends with the completion of the work plan, as well as with the expiration date for which it was granted or renewed.

At the end of the fellowship, the grantee is obliged to present a **Final Report** of the work carried out, in accordance with the objectives and evaluation criteria defined with the scientific advisor, within 30 days after the end of the scholarship.

The **Final Report** must be prepared in accordance with Annex I of the Scientific Research Fellowships Regulation of the University of Minho (RBIC), published in *Diário da República, 2nd Série, no. 119*, through dispatch no. 6524/2020 of 22-06-2020, ratified by ratification declaration no. 447/2021 of 22-06-2021.

Declaration of Honor

Academic qualifications

I, (full name), candidate for the vacancy for the award of a doctoral research grant under the R&D project "CoSysM3 – Mathematical Modelling of Multi-scale Control Systems: applications to human diseases," ref. 2022.03091.PTDC

https://doi.org/10.54499/2022.03091.PTDC

funded by national funds from the State Budget through the Fundação para a Ciência e a Tecnologia (FCT/MCTES), published on the Euraxess portal, with the reference (ref. notice), declare on my honor that I have completed the academic degree of (academic degree), qualifying for the type of scholarship in the competition, namely the course (designation), by the (University conferring the degree), on the date XX/XX/XXXX, with a final average of XXXXX values on the YY scale.

As it is not possible for me to present proof of qualifications until the end of the competition, I declare that I undertake to present the aforementioned certificate at the conclusion of the scholarship contract, in the event that I am selected for the vacancy in the competition.

As this is true, I hereby date and sign this declaration.

(Place), (date).

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(full name)

NOTE: The declaration may only attest to facts that occurred prior to the application.

In the event of a discrepancy between the information contained in the declaration and the documentation submitted for the purpose of contracting the scholarship, only the information contained in the latter will be taken into account.

Declaration of Honor

I, (full name), bearer of identification document number (XXXX), candidate for a doctoral research grant under the R&D project "CoSysM3 – Mathematical Modelling of Multi-scale Control Systems: applications to human diseases," ref. 2022.03091.PTDC

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funded by national funds from the State Budget through the Fundação para a Ciência e a Tecnologia (FCT/MCTES), published on the Euraxess portal, with the reference (ref. call for proposals), declare on my honor that (I have not received any research grants to date / I have received the following research grants) under the Research Grant Holder Statute.

As this is true, I hereby date and sign this declaration.

(Place), (date).

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(full name)