



Universidade do Minho

**UNIVERSITY OF MINHO**

**CENTRE OF PHYSICS OF MINHO AND PORTO UNIVERSITIES (CF-UM-UP)**

**ANNOUNCEMENT FOR THE AWARD OF A RESEARCH FELLOWSHIP**

*Research Fellowship for Master's - 1 Vacancy*

A call for applications is now open for the attribution of one (1) Research Grant for a Master student in the scope of the Project “ODe2D Towards high speed optical devices exploiting the unique properties of engineered 2D materials” (Ref. PTDC/NAN-OPT/29265/2017 and POCI-01-0145-FEDER-02265), funded by European Regional Development Fund (ERDF), of the Competitiveness and Internationalization Operational Program (POCI), by Portugal and by the Budget of the Foundation for Science and Technology (FCT) in its OE component, under the following conditions:

**Scientific area:** Physics

**Recipient category:** The research grant (BIM) is intended to carry out R&D activities by graduate students enrolled in a Masters or an Integrated Masters

**Requirement for granting the fellowship:**

- Candidates may apply for this fellowship without prior registration in a course associated with the identified scientific areas. The requirement to enroll in a degree-granting course will be verified on the date of contracting the fellowship;
- The fellowship will only be contracted if the selected candidate presents valid proof of enrollment in the awarding course, according to the type of fellowship in the competition, issued by the academic services of the Higher Education Institution, respectively with the indication of the current academic year or its duration (beginning and end).

**Profile of recipients:**

- a) mandatory requirements, degree in Physics or a related field;
- b) requirements in the contracting phase, be enrolled in a Masters or Integrated Masters in Physics;
- c) preference factors: advanced knowledge of classical electromagnetism, namely the theory of propagation and reflection/refraction of EM waves in non-linear media, experience with Mathematica or MatLab, vocation for theoretical and experimental work.

**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 project foresees theoretical and experimental research work and aims to generate plasmonic polaritons in graphene using two optical beams with a small difference in frequencies and a non-linear material as graphene substrate.

The theoretical part of the project consists of evaluating the feasibility of the proposed idea and the structure, which requires a comprehensive quantitative description of the propagation of the primary optical beams and the secondary electromagnetic field in the structure, with the frequency in the THz region.

In the experimental part of the project, the student will participate in the development of a set-up for fully optical generation of surface plasmons in graphene deposited on a non-linear crystal substrate using two optical beams and the frequency subtraction mechanism.

**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 series, 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 *Centro de Física da Universidade do Minho*, Gualtar Campus, Braga, under scientific supervision of Profs. José Carlos Viana Gomes and Mikhail Igorevich Vasilevskiy.

**Fellowship duration:** The grant will take place for a period of three months, starting January 2022. The fellowship may eventually be renewed in accordance with the execution of the project and the applicable legislation.

**Amount of the research grant:** The value stipend (Monthly Maintenance Allowance) is 835,98 € 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 series, n. 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 23rd of each month, through bank transfer to the Bank Identification Number of the fellow identified in the contracting process.

**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: Michael Scott Belsley, Associate Professor with Aggregation, Department of Physics, University of Minho.

Effective members: Mikhail Igorevich Vasilevskiy, Full Professor, Department of Physics, University of Minho; José Carlos Viana Gomes, Assistant Professor, Department of Physics, University of Minho.

Substitute members: Bernardo Almeida, Assistant Professor with Aggregation, Department of Physics, University of Minho; Peter Schellenberg, Assistant Researcher, Centre of Physics, University of Minho.

The first effective member will substitute the President of the selection panel in case of impediment, being nominated 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 the candidate's Merit, following evaluation criteria, valued on a scale of 1 to 5 values (or another scale):

Applicant Merit - AM (100%):

- A.1: Academic path (considering the classifications of academic degrees), with a weighting of 60%;
- A.2: Personal curriculum (considering professional and scientific background), with a weighting of 30%;
- A.3: Motivation letter, with a weighting of 10%.

The final classification of the applicant's merit with the achieved through the following formula:

$$AM=(A.1*0,6)+(A.2*0,3)+(A.3*0,1)$$

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 honour 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 sent 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 January 7th).

**Complaint and appeal procedures:** The final results of the evaluation will be published through an ordered list (*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 Research and Projects.

**Application deadline and submission:** The call for applications is open from 26 November till 14 December of 2021.

Applications must be formalized by sending an application letter with the following documents: curriculum vitae; qualifications certificate or declaration of the applicant; motivation letter; statement proving that meets the conditions for the grant typology, according to the application requirements; other documents important to the evaluation process).

Applications must be sent by e-mail to [mikhail@fisica.uminho.pt](mailto:mikhail@fisica.uminho.pt) and [bolsas@ecum.uminho.pt](mailto:bolsas@ecum.uminho.pt), indicating the reference 017/ECUM/CFUM/2021 – ODe2D in Subject:. Applications submitted by other means will not be accepted.

**Fellowship contracting:** 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.