UNIVERSIDADE DE ÉVORA

UNIVERSITY OF ÉVORA

RESEARCH SCHOLARSHIP FOR MASTER'S DEGREE – One vacancy

21st of July of 2023

A call for tenders is open for one Research Scholarship for Master's Degree within the scope of the project ConChiMOL: New Structurally Contorted and Chiral Molecules for Optoeletronic Applications with reference 2022.01391.PTDC, financed by national funds through FCT/MCTES, under the following conditions:

Scientific area: Exact Sciences - Chemistry, Materials Science, Electrical Engineering, Physics or similar areas

Admission requirements: Candidates with a Master's degree in Chemistry, Material Sciences, Electrotechnic Engineering, Physics or similar areas, enrolled in a PhD or in a course not conferring an academic degree. The candidate should ideally have the following background: knowledge in chemical synthesis, particularly regarding aromatic compounds; laboratory knowledge with standard chemistry and physic-chemical techniques to characterize compounds and materials; some knowledge of basic electro-optical material properties; good data-management skills and data interpretation; fluence in English (spoken and written); good organizational and teamwork skills.

As set forth FCT Research Scholarship Regulation No. 950/2019 of December 16, 2019, article 3 and 6, candidates for "**BI**" (Research Grants) must comply as a rule condition for the award of the scholarship, the effective inclusion in study cycles leading to the attribution of academic degrees or in courses not leading to an academic degree. Courses that do not confer an academic degree correspond to the courses provided for in subparagraph e) of paragraph 3 of article 4 of Decree-Law No. 74/2006 of 24 March and must be developed in a higher education institution in association with at least one R&D unit, including a course plan in one or several research areas of the unit.

Work plan: The project aims to synthesize a range of polycyclic amide-type molecules and oligomers, using modern synthetic methods that include transition metal-catalyzed coupling reactions (among others). Many of these reactions will be carried out in parallel, speeding up the discovery process. They will then be characterized by spectroscopic and spectrometric methods, including SEM, TEM, AFM and RAMAN-UV techniques. It will also be important to carry out studies involving circular dichroism (CD) and X-ray crystallography (abroad). These studies will ensure the selection of the right materials for the construction of the final OLED and OFET devices. Techniques such as cyclic voltammetry, electrochemical impedance spectroscopy (EIS), Mott-Schottky analysis and dielectric relaxation spectroscopy (DRS) will be used for the electrochemical studies of the most promising synthesized compounds. Their photochemical characterization will also be carried out using techniques such as UV-Visible and fluorescence spectrometry. The determination of HOMO and LUMO energies and optical properties of the compounds of interest (in solution and in the solid state) will be one of the tasks to be developed by the scholarship holder in partnership and synergy with the rest of the research team. As it is a multidisciplinary project, the scholarship holder is expected to carry out scientific work in the

organic synthesis laboratory of the Department of Chemistry and Biochemistry of the University of Évora, in order to obtain a new family of chiral molecules of the polycyclic amide type and oligomers. These will be studied in partnership with the Department of Chemistry NOVA.ID.FCT and the Department of Chemistry of University College Cork, Republic of Ireland. The chiral compounds will be sent and tested by other members of the team by circular dichroism at the Chemistry Center of the University of Coimbra.

Applicable legislation and regulations: The granting of the Research Scholarship will be carried out upon the signing of a contract between the University of Évora and the scholarship holder, as set in the template https://www.fct.pt/apoios/Minuta_Contrato_Bolsa.docx , pursuant to the Research Scholarship Statute (Law No. 40/2004 of August 18 and Decree-Law No. 123/2019 of August 28) and in accordance with the legislation and Regulation of Research Grants of the Foundation for Science and Technology, IP in force, regulation nº950/2019 of December 16, 2019: https://files.dre.pt/2s/2019/12/241000000/0009100105.pdf and other applicable rules.

Place of work: The work will be developed in the following institutions: Department of Chemistry and Biochemistry, University of Évora, under the scientific guidance of Doctor Carolina Marques, Professor Anthony Burke; NOVA.ID.FCT-Department of Chemistry under the guidance of Professor Luís Branco, Doctor Hugo Cruz, and Doctor Sandra Gago; University College Cork, Republic of Ireland under the scientific guidance of Professor Simon Lawrence.

Duration of the scholarship(s): The scholarship will have a duration of 12 months, starting on October 2023, possibly renewable up to a maximum of 7 additional months.

Amount of monthly maintenance allowance: The amount of the scholarship corresponds to €1199,64 according to the table of scholarships awarded directly by FCT, I.P. in Portugal (https://www.fct.pt/wp-content/uploads/2023/02/Tabela-de-Valores-SMM_2023.pdf), payments being made monthly, by check or bank transfer.

Selection methods: The evaluation of applications will focus, in a first phase, on the Curricular Assessment (100%). The top 5 (five) candidates in the Curricular Assessment will proceed to the second phase which will be evaluated as follows:

Curriculum evaluation (60%) and Interview (40%). The following selection criteria will be applied:

Curriculum evaluation (60%):

- Specific knowledge related to the work plan (40%);
- Academic career (10%);
- Publications in scientific proceedings and journals (15%);
- Oral or panel presentation at scientific meetings (15%);
- Scientific dissemination actions (5%);
- Master's degree average (5%);
- Knowledge of foreign languages, namely English (10%).

Interview (40%):
- Motivation and interest (20%);
- Capacity for expression and verbal fluency (20%);

- Knowledge and profile appropriate to the functions to be developed (50%);
- Interpersonal relationship (10%).

Composition of the Selection Jury:
President: Professor Anthony Joseph Burke, University of Coimbra
1º Member – Doctor Carolina Silva Marques, University of Évora
2º Member – Professor João Paulo Cristóvão Almeida Prates Ramalho, University of Évora
1º Alternate – Professor Luís Alexandre Almeida Fernandes Cobra Branco, NOVA School of Science and Technology
2º Alternate – Professor Jorge Manuel Ferreira Morgado, Instituto Superior Técnico, University of Lisbon

Advertising/notification of results: The results of the evaluation will be announced by means of a list sorted by final classification, sent to the candidates by email.

To ensure the right of prior hearing of interested parties, the Final Classification project will be announced by any written means to all interested parties. After communicating the provisional list of the results of the evaluation, candidates have a period of 10 working days to express their opinion in a preliminary hearing of interested parties.

Application deadline and submission of applications: The call is open from 31 July 2023 to 31 August 2023 and the results of the selection will be published within 90 working days of the deadline for submission of applications.
Applications must be formalized, obligatorily, by sending an application letter with the following documents: *Curriculum Vitae, certificate of qualifications, and other supporting documents considered relevant*.

For the purposes of application, the evidence may be replaced by a declaration of honor signed by the candidate, but the failure to demonstrate that evidence, in the contracting phase, possession of the required degree on the deadline for application or the non-presentation of proof of enrollment in the study cycle or non-degree course, for scholarships with this component, imply the cancellation of the candidate's application.

Academic degrees obtained in foreign countries require registration by a Portuguese Institution in accordance with Decree-Law no. 66/2018, of August 16 and Ordinance No. 33/2019, of January 25th. The presentation of the academic certificate is mandatory for the signing of the contract. More information can be obtained at: https://www.dges.gov.pt/pt/pagina/recognition?plid=374

Applications must be sent by email to:

Doctor Carolina Silva Marques
LAQV-REQUIMTE-University of Évora
e-mail: carolsmarq@uevora.pt