Cyprus University of Technology | Studies and Student Welfare Services

Doctoral Vacancy Announcement form

Research Topic Title: Synthesis and Characterization of Lanthanide-based Nanomaterials for Biomedical and Technological Applications

No. of Openings: (1)

Description: The proposed PhD thesis focuses on the synthesis and structural characterization of nanostructured lanthanide-based inorganic materials (e.g., Eu^{3+}, Tb^{3+}, Gd^{3+}, Nd^{3+}). Owing to their unique electronic, optical, and magnetic properties, these materials are highly promising for biomedical applications (such as imaging, magnetic hyperthermia, and biomolecule detection) as well as for advanced technological uses (including sensors, catalysts, and energy conversion devices). The research will employ wet-chemical synthesis approaches including sol-gel, coprecipitation, hydrothermal, and microwave-assisted methods for the preparation of both pure and hybrid nanomaterials incorporating lanthanide ions. Comprehensive structural, morphological, and physicochemical characterization will be carried out, together with an in-depth investigation of their magnetic and functional properties, in order to elucidate structure-property relationships and optimize performance for targeted applications.

Required Qualifications: Applicants should hold a Bachelor's and Master's degree in Chemistry, Materials Engineering, Nanoscience, Physics, Biology, or a related discipline. Good knowledge of English, along with strong scientific writing and data analysis skills, is required. Previous experience with laboratory techniques, particularly in the synthesis and characterization of inorganic materials, will be considered an advantage.

Funding: The position is currently unfunded. However, efforts will be made to seek funding through national, European and/or industrial partnerships, with the aim of partially or fully covering the financial needs of the selected candidate. The candidate will be encouraged to actively participate in the submission of proposals and research projects related to the subject.

Research Advisor:
Name/Surname: Melita Menelaou
Position: Assistant Professor
Email: melita.menelaou@cut.ac.cy

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Research Topic Title: Intelligent Robotic Systems

No. of Openings: 1

Description: The combination of control systems synthesis with task planning constitutes one of the theoretical cores of intelligent robotic systems. In the field of robotics and autonomous systems, automated control synthesis is used to generate the appropriate controllers, with properties that provide performance guarantees, transparency, and interpretability in the implementation of the individual controllers, in order to complete a requested operation. Within the framework of this position, the candidate will be a member of the "Robotics, Control, and Decision Systems " Digital Innovation Hub (www.rcdslab.org) of the Department of Mechanical Engineering and Materials Science and Engineering at the Cyprus University of Technology and will tackle theoretical and applied issues in the domain of intelligent robotic systems concerning autonomous systems, control systems, machine learning, decision systems, and other related fields.

Required Qualifications:

- Undergraduate degree in the field of Engineering or Computer Science or other related field.
- Master's degree relevant to Robotics or Control or Decision System or other related field
- Very good analytic capabilities that can be demonstrated by the candidate's grades in mathematics
- Very good knowledge of the English language (desirable CEFR C1, minimum B2)
- Capability to work in EU

Funding: The successful candidate will have the option for a scholarship/funding according to the University policy. Funding from participation to external research projects is possible, based on the performance of the candidate and funds availability.

Research Advisor:
Name/Surname: Savvas G. Loizou
Position: Associate Professor
Email: savvas.loizou@cut.ac.cy

Cyprus University of Technology

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Research Topic Title:		**Complex Fluids Rheology and Microfluidic Flows**
No. of Openings:	1	
Description:	**Project Description.** Biofluids, liquid biomass, foods, pharmaceutical products, polymer solutions, suspensions, surfactants, gels, and other industrial fluids show complex rheological properties, which become of particular importance in determining the characteristics of the flow at the microscale. In this program, advanced rheological and structural characterization of various complex fluids will be performed, in order to elucidate the influence of their properties in microscale flows. State of the art rheometry and in-house fabricated microfluidics will be utilised, in combination with flow and structural characterization techniques to investigate various aspects of the complex fluid flow problem.	
Funding:	The PhD is partially funded under the program Research Infrastructures / Small Scale Infrastructures, of the Cyprus Research and Innovation Foundation, Project CRaFTC.	
Required Qualifications:	Applicants must have an Undergraduate Degree in Mechanical Engineering, or in a related field, a Master's degree in Mechanical Engineering or in a related field, and preferably having completed an experimental Masters project in a relevant to the present study field. Experience in experimental biofluid physics/mechanics, rheology/biorheology, microfluidics, and data processing is essential. Candidates without a Master qualification, but with a strong undergraduate degree and relevant experience in fluid (biofluid) mechanics / rheology / microfluidics projects, will be considered; in this case, Master modules of 60 ECTS should be taken and completed successfully as part of the PhD Program. Experience in projects involving blood or biofluid handling and treatment is a significant advantage. The candidate should be able to work in an interdisciplinary team, collaborate with industrial partners, and have good oral and written communication skills in English. The candidates should provide a Cover Letter, an English-written one-page preliminary research proposal, which will be relevant to the theme of the project, and two reference letters.	
Research Advisor:		
Name/Surname:	Efstathios Kaliviotis	
Position:	Associate Professor	
Email:	e.kaliviotis@cut.ac.cy	