



**One Post-doctoral Research Fellow in the project**  
**Functional Nanoclusters for Multimodal Imaging of Atherosclerosis (LAMIA)**  
**FORTH-SYNERGY grant**

Ref: 78610

Heraklion  
11/05/2022

The Institute of Applied and Computational Mathematics (IACM), of the Foundation for Research and Technology Hellas (FORTH), in the framework of the FORTH-SYNERGY project **LAMIA**, is seeking to recruit one (1) Post-doctoral Research Fellow.

**Job Description**

Project LAMIA is based on a multidisciplinary synergy between the Institute of Electronic Structure and Laser (IESL) and the Institute of Applied and Computational Mathematics (IACM) of FORTH. The project involves experiments and numerical simulations in order to develop new multimodal assemblies of Magnetic Nanoparticles that will serve as contrast agents to increase sensitivity and specificity in the early detection of atherosclerotic lesions by exploiting photoacoustic imaging and MRI. The outcome of the proposed study will be an effective, safe, and innovative system that when manipulated for magnetomotive photoacoustic imaging and sensitized by targeting vascular cell adhesion molecule 1 (VCAM-1) will provide compositional information for advanced plaque characterization, overall, improving the quality of cardiovascular disease patient management. IACM will provide numerical simulations of the complex flow environment in the fluid flow device used *in vitro* to study the effects of flow of functionalized nanoparticle binding to VCAM-1. Detailed shear stress maps provided by the computational models combined with the outcome of *in vitro* flow experiments are expected to help better understand the role of flow induced stress on nanoparticle adhesion on targeted sites.

A highly motivated, post-doctoral research fellow is sought for the project LAMIA, for 12 months initial contract, with an additional up to 4 months, extension foreseen upon performance. The successful candidate must have a PhD degree in Engineering, Physics, Applied Mathematics, or a similar discipline, with a background in the numerical solution of partial differential equations. Previous background on numerical simulations related to research in fluid mechanics will be considered as a strong asset.

FORTH is a major research organization in Greece, with the mission to pursue high quality basic and applied research. IACM ([www.iacm.forth.gr](http://www.iacm.forth.gr)) focuses its research activities in several fields of natural sciences and engineering including among others multi-scale modelling of complex systems, scientific computing, and computational statistics, being the main applied and computational mathematics

Nikolaou Plastira 100  
Vassilika Vouton  
GR 700 13 Heraklion  
Crete, Greece  
Tel. +30 2810391800  
Fax +30 2810391801  
Email: [iacm@iacm.forth.gr](mailto:iacm@iacm.forth.gr)

research center in Greece. The project is conducted in close collaboration with the Institute of Electronic Structure and Laser (IESL, <https://www.iesl.forth.gr/>), which focuses its activity in conducting high quality fundamental and applied research in specific target areas in the fields of laser science and applications, micro/nano-electronics, polymers and soft matter, materials science and astrophysics.

The successful applicant will work in close collaboration with scientists at IESL and IACM at FORTH. She/he will be in direct contact with members of the Cardiovascular Biomechanics lab led Dr. Y. Papaharilaou at IACM, and the Functional Nanoclusters lab led by Dr. A. Lappas and the Tissue Engineering –Regenerative Medicine and Immuno-engineering lab led by Dr Anthi Ranella at IESL.

### **Required qualifications**

PhD degree in Engineering, Physics, or Applied Mathematics

Experience in numerical solution of partial differential equations

Working knowledge of English

**Location:** IACM-FORTH, Heraklion Crete GREECE

**Start Date:** July 2022 onwards

**Project Duration:** 12 Months with possibility of extension according to the needs of the project

**Net Monthly Salary:** around 1300 Euros

**Application Submission** Applications received before **June 10, 2022** will receive immediate attention. The deadline for applications is **July 10, 2022**. Interested candidates who meet the aforementioned requirements are kindly asked to submit their applications to the secretariat of IACM Ms. M. Papadaki ([mariapap@iacm.forth.gr](mailto:mariapap@iacm.forth.gr)) with cc to the Scientific Coordinator Dr Y. Papaharilaou ([yannisp@iacm.forth.gr](mailto:yannisp@iacm.forth.gr)).

### **In order to be considered, the application must include:**

Detailed CV and list of publications

Names and contact details of three individuals who could provide letters of support

Scanned copies of academic titles

### **Applications will be reviewed till the position is filled**

**Contact** For practical information and questions regarding the application and selection procedure, candidates are asked to contact the secretariat Ms. M. Papadaki ([mariapap@iacm.forth.gr](mailto:mariapap@iacm.forth.gr)), tel. +30 2810-391800.

For information regarding the scientific goals of the advertised position and the potential of the research project in general, please contact Dr. Y. Papaharilaou ([yannisp@iacm.forth.gr](mailto:yannisp@iacm.forth.gr)), tel. +30 2810- 391783.

[www.iacm.forth.gr](http://www.iacm.forth.gr) | Nikolaou Plastira 100  
Vassilika Vouton  
GR 700 13 Heraklion  
Crete, Greece  
Tel. +30 2810391800  
Fax +30 2810391801  
Email: [iacm@iacm.forth.gr](mailto:iacm@iacm.forth.gr)