

Company Description

BCAM is the Research Center on applied mathematics created with the support of the Basque Government and the University of the Basque Country, which aims to strengthen the Basque science and technology system, by performing interdisciplinary research in the frontiers of mathematics, talented scientists' training and attraction, so the excellence of our results are recognized by the Society.

Information

 Deadline: 2021-03-15
  Country: Basque Country
 Category: Business
 Province: Bizkaia

Company

BCAM



Main functions, requisites & benefits

Main functions

In the framework of the BCAM "Mathematical Modelling Applied to Health" strategy, a series of projects in the field will be launched in different areas of Applied Mathematics. This position is related to "Mesoscopic Modelling of Blood Coagulation" Applications are invited for a postdoctoral position in mesoscopic modelling of blood coagulation at the CFD group in BCAM. Among several COVID-19-related disorders, twenty to thirty percent of critically-ill patients develop coagulopathies, that produce thrombotic complications leading to high mortality. Studies suggest that thrombotic complications may be associated with: i) platelet hypereactivity, ii) abnormal composition of soluble pro-coagulant factors, and iii) alterations on the smooth lining of the blood vessels. Up to date, the full understanding of the mechanism triggering the clotting remains unclear. The goal of this project is to develop new mesoscopic models and investigate up to which extent platelet aggregation, coagulation agents, and surface modifications of the vessels play a dominant role in such coagulopathies and to link them to hemo-rheological alterations. The modelling and simulation at mesoscale will be implemented using smoothed dissipative particle dynamics (SDPD) and reduced order models. The results of this project are expected to provide further support in the design of robust hemorheology-based diagnostic tools. The postdoctoral candidate will work under the supervision of Ikerbasque Prof. Marco Ellero (CFD group, BCAM) on the developments and use of mesoscopic particle-simulation methods to better understand mechanical and compositional effects on blood coagulation and rheology. On these topics the candidate will also interact closely with Dr. Gontzalo Tamayo (Cruces University Hospital) in Bilbao, Prof. Ruiz-Cabello (CICbiomaGUNE) in San Sebastian as well as Prof. Karl Hawkins and Dr. Dan Curtis at the Center for NanoHealth (Swansea University, UK).

Requisites

Promising young researchers. Applicants must have their PhD completed before the contract starts. PhD degree in Chemical/Mechanical/Biomedical Engineering.

