

**Vacancy Type: Research Only**

**Department: Mediterranean Institute for Advanced Studies**

**Job Title: Research Fellow**

**Salary: €24,850 per annum**

**Contract Length: 24 months**

**Location: IMEDEA UIB-CSIC**

**Closing Date: Feb 28, 2020.**

### **Overview**

The Mediterranean Institute for Advanced Studies (IMEDEA UIB-CSIC) seeks to appoint a research fellow within the Physico-Biological Interactions in the Ocean group (<https://imedea.uib-csic.es/infibio/>) to start in April 2020.

#### **Project title: Rheological properties of eukaryotic cilia and flagella (RheoFlag)**

Cilia and flagella are slender organelles common to a wide spectrum of eukaryotes, both marine and terrestrial. Their deformations -either passive or active- underpin essential processes, from mechanical sensing, self-organization and locomotion of aquatic microorganisms, to the generation of feeding currents in corals. The project aims to use an active-rheology approach to measure directly both viscous and elastic components of flagellar mechanics, developing the required experimental techniques and mathematical data analysis that will subsequently lead to an improved, experimentally-tested model of the flagellum. The results will critically advance our understanding of flagellar biomechanics and its coupling to intracellular cytoskeleton, and provide a novel viewpoint of the biomechanical role of individual protein species that make up the flagellar scaffold. This knowledge will be crucial to the development of the next generation of models scrutinizing spontaneous wave emergence and adaptation in flagella, with impact on microbial locomotion, reproduction and beyond.

The project, which will combine experiments and modelling, is fundamentally interdisciplinary. Based in the lab of Drs. Idan Tuval and Marco Polin (IMEDEA, Balearic Islands, Spain), it hinges on an exciting collaboration with Dr. Hermes Gadêlha (head of the Polymaths Laboratory at University of Bristol, UK), expert in microhydrodynamics and mathematical modelling of flagellar dynamics. The project will include extensive collaboration between the two groups, co-supervision of students and affiliation with the Polymaths lab at Bristol UK. The Fellow will also benefit from initiatives organised by a related European Training Network which the host group is part of, among many other interdisciplinary and international networking opportunities associated to this research.

You will have a PhD in physics or related subjects, with a strong background in experimental biophysics or soft matter. You will be excited about moving into biophysics of cell motility, and to work at the interface between experiments and mathematical modelling, building on the interdisciplinary training provided to drive the successful development of the project. You will be an excellent communicator capable of working effectively both independently and as part of a multidisciplinary research team. You will possess excellent planning and time management skills to ensure your research objectives are achieved effectively.

Please direct all informal inquiries to Marco Polin ([mpolin@imedea.uib-csic.es](mailto:mpolin@imedea.uib-csic.es)) or Idan Tuval ([ituval@imedea.uib-csic.es](mailto:ituval@imedea.uib-csic.es)).

**To apply:** send 1-page cover letter, CV and contacts for two referees to Marco Polin ([mpolin@imedea.uib-csic.es](mailto:mpolin@imedea.uib-csic.es)) or Idan Tuval ([ituval@imedea.uib-csic.es](mailto:ituval@imedea.uib-csic.es)). The position is open to candidates from any nationality, provided they can be employed in Spain by the beginning of the contract. The University of the Balearic Islands, to which IMEDEA is associated, can support selected candidates in their VISA application process.

## Further Particulars

### IMEDEA

IMEDEA is a joint research center of the University of the Balearic Islands (UIB) and the Spanish Council for Scientific Research (CSIC). It is consistently ranked as one of the best institutes within the Natural Resources area of CSIC. IMEDEA emphasizes interdisciplinary approaches to oceanography, global change and ecology research and it provides many opportunities for resources and interactions with researchers in several branches of science, including biology, physics, chemistry, geology, and mathematics. IMEDEA will support the integration of the fellow by providing him/her with excellent facilities to carry out their research.

### InFiBio

The research group on Physico-Biological Interaction in the Ocean (InFiBio <http://imedea.uib-csic.es/infibio/>) integrates researchers from various disciplines, who share a common interest in the study of the functioning and dynamics of marine ecosystems. The core of the group is formed by researchers specialised respectively in the study of fluid mechanics, physical and biological oceanography, marine plankton, acoustics, dynamical systems theory and the biophysics of microorganisms. The members of the group belong to both UIB and CSIC and are affiliated to the Department of Marine Ecology (MARE) of the Mediterranean Institute for Advanced Studies (IMEDEA, UIB-CSIC). In addition, InFiBio components lead the Coastal Oceanography, Environmental Microfluidics and Marine Acoustics Laboratories, and coordinate some common IMEDEA infrastructures, such as the Flow Cytometry Service.

The research of this stable nucleus of researchers is supported by postdoctoral researchers, who participate in both the research of the group (including the design and execution of research projects) and the supervision of the work of researchers in training (predoctoral or master students) and a laboratory technician. The group has well-established national and international collaborations including Uni Cambridge, UNAM, Rockefeller, Uni Melbourne, DTU, ESPCI, CEA Grenoble.

The project benefits from an exciting collaboration with the Polymaths laboratory at the University of Bristol, UK (<http://www.polymaths-lab.com/>).

For further information about the research activity of the group:

[www.mpolin.com](http://www.mpolin.com)

<https://imedea.uib-csic.es/~ituval/>