2 PhD and 1 POSTDOCTORAL POSITION IN COMPUTATIONAL NEUROSCIENCE

2 PhD and 1 Postdoctoral positions funded by the **ERC Starting Grant dEMORY** will be available as of **October 1st 2013** (the start date is flexible) at IMBB-FORTH in Crete, in the lab of Dr. **Panayiota Poirazi**.

Indicative application deadline: September 10th, 2013 (applications will be continuously screened until the positions are filled).

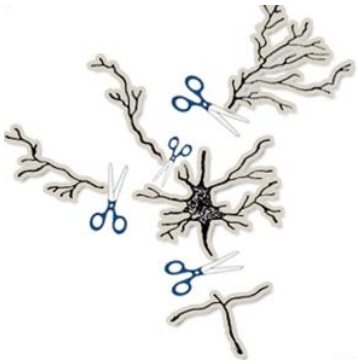
PhD positions:

- Available for 4 years each, funded by a research fellowship (900-1000 €/month, tax free).
- **Requirements:** Bachelor in a Neuroscience related field (Neuroscience, Biology, Physics, Mathematics, Computer Science, Engineering, Medicine) + Master's degree in Neuroscience.

Postdoctoral position:

- Available for 2+2 years, with a **yearly** salary up to 36,000 €.
- **Requirements:** Expertise in computational neuroscience, preferably in compartmental modeling and neural/dendritic computations.

THE PROJECT: Dissecting the Role of Dendrites in Memory



While memory is a function that has attracted the interest of the scientific community for several years, little is known about the rules underlying memory formation in the brain. Until recently, the single neuron was considered the main processing unit of the brain and memories were believed to be stored exclusively through plasticity modifications that take place in the synapses, the connecting sites between neurons. Over the last decade however, emerging evidence suggests that the neuron is no longer the key processing unit of the brain. The dendrites of individual neurons, which were thought as merely passive devices that allow neuronal communication, are currently the no 1 candidate for this role. The goal of this work is to characterize the role of dendrites in learning and memory processes so as to formulate a unifying theory regarding their contribution in memory formation across brain regions and abstraction levels.

This will be achieved via the development of computational models that start at the single cell level and expand to the microcircuit and the network level, while varying in their degree of biophysical detail. Models will express a distinct memory function, specific to the region they belong to: the hippocampus the prefrontal cortex or the amygdala. By manipulating the

biophysical, anatomical and plasticity properties of dendrites and tracking the effect on memory, the project aims to infer the key rules by which these thin structures shape mnemonic processes. These rules will then form the basis for deducing theoretical abstractions of trainable neurons with dendrites.

IMBB-FORTH

The Foundation for Research and Technology-Hellas (FORTH) is one of the top European Research Centers. It has ranked 1st in terms of high impact publications in Greece and 12th in the number of FP7 grants in Europe. It should be noted that since the establishment of the ERC grant scheme in 2007, a total of 34 scientists working in Greek Institutions have been awarded with such prestigious grants and 6 of them are located in Institutes of FORTH.

The Institute of Molecular Biology and Biotechnology (IMBB) at FORTH is the top Biological Institute in Greece, in terms of high quality personnel, publications, infrastructure and competitive grants. IMBB-FORTH is located in Heraklion, one of the most ancient and historical Greek cities, on the picturesque island of Crete. Crete, the homeland of major artists, such as El Greco and Nikos Kazantzakis, impressively combines the outstanding geophysical variety (forests, mountains, gorges, and beaches) with its rich history of thousands of years, resulting in the well-known Cretan culture and cuisine.

THE POIRAZI LAB

The Computational Biology Laboratory at IMBB-FORTH performs research that is at the forefront of Computational Neuroscience. The work of Dr. Poirazi led to several high impact publications, some of which have shaped the field of dendritic computations. This work received prestigious awards, including the EMBO Young Investigator Award in 2005, 2 Marie Curie Fellowships, a scientist-of-the year award in Greece in 2012, a European Research Council (ERC) starting grant in 2012, a nomination by EMBO to AcademiaNet—portal for outstanding female scientists in Europe (2013).

TO APPLY:

Candidates that match the required profile will be continuously interviewed until the positions are filled. Candidates should send a **resume and two (2) reference letters** to **poirazi[at]imbb.forth.gr**. If possible, recommendations should be sent by the referees.