

# Ph.D. Student position available at IIT of Genova/Italy

## Description

**Title: Neural control and biomechanics of the octopus arm hydrostatic muscles.**

The Octopus vulgaris arm is a remarkable example of muscular hydrostat where extraordinary motor capabilities are achieved despite the absence of a rigid skeleton. This structure offers both a skeletal-like support and works as an actuator for the arm movements' generation. The uninucleated skeletal muscle cells are finely controlled and coordinated to produce a wide variety of motions such as arm bending, elongation and stiffening, three motion components fundamental to the animal behavior. In the last decade, these studies have also been an important source of inspiration for bio-roboticists particularly in the emerging field of soft-robotics due to the potential of soft robots to better interact with real-world environments.

In this research we employ techniques of muscle physiology and biomechanics, biochemistry, molecular biology and high-resolution imaging to investigate the properties of muscles at various level of organization (i.e. from single cell to fibers). We aim at elucidating the mechanisms of neural control and coordination of muscle cell ensembles with particular attention to their implementation in a bio-robotic environment.

Further detail about this research project can be found at:

<https://www.iit.it/it/people/letizia-zullo>

or by directly contacting Dr. Letizia Zullo at the contact info below.

## Job Information

Closing date: 31-05-2018

Contract length: 3 years

Institution: FONDAZIONE ISTITUTO ITALIANO DI TECNOLOGIA

Centre for Synaptic Neuroscience and Technology (NSYN)

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