PhD position for the project

"Building hybrid synapses as a therapeutic strategy for photoreceptor degeneration"

A PhD position in the area of hybrid synapses and photosensitive neural interfaces is available at the Center for Synaptic Neuroscience and Technology (NSYN) directed by dr. Fabio Benfenati at the Italian Institute of Technology (IIT) in Genova (Italy). We are looking for a talented and enthusiastic fellow who will join our team to realize and study innovative hybrid synaptic connections to integrate neuronal losses caused by neurodegenerative diseases.

The project aims at the development and characterization of a device able to release glutamate upon illumination by a plasmonic enhancement of electromagnetic radiation. These opto-neural interfaces will be tested on neural cells and tissues *in vitro* and *ex vivo*. In particular, the candidate will be in a unique position to exploit recent advances in the development of nano-tools able to elicit light-driven stimulation of dystrophic neural tissue such as a degenerated retina in the framework of a dedicated research line on "*Neuroscience and Smart Materials*". This position will allow the candidate to join a multidisciplinary team (medicine, biology, physics and chemistry) with the final aim of translating the photosensitive nanotechnology into a therapeutic tool.

Applicants should have a background in Biomedical Engineering, Physics, Chemistry or Biology/ Biotechnology. The ideal candidate wishes to develop practical skills for *in vitro* or *ex vivo* experimental work (electrophysiology, tissue engineering) and data analysis to engineer the hybrid neurointerfaces, unravel the cellular mechanisms of photoexcitation and integrate them successfully with the biophysics of the developed technology.

The PhD contract will be funded by a H2020 FET-OPEN project (HyVIS) and awarded through the Open University program (http://www.open.ac.uk/), for which IIT is an Affiliated Research Center (ARC). The tentative **starting date** is **November 2021.** Please submit your application (**deadline July 31, 2021**), including CV and a research motivation statement **elisabetta.colombo@iit.it** and **fabio.benfenati@iit.it** quoting the project title in the subject line. Candidates must also request 1-3 reference letters to be sent directly to the same email addresses by the referees.