



PhD in BIOINGEGNERIA / BIOENGINEERING - 38th cycle

THEMATIC Research Field: INNOVATIVE TECHNOLOGIES AND COMPONENTS FOR THE APPLICATIONS OF ELECTROMAGNETIC ENERGY IN MEDICINE AND BIOROBOTICS

Monthly net income of PhDscholarship (max 36 months)

€ 1325.0

In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity

Motivation and objectives of the research in this field

The main objective of this work is to study the possible application of innovative tools based on electromagnetic fields for the development of biohybrid interfaces providing interconnection between living and artificial systems. More in details new strategies for stimulating and sensing peripheral and central nervous system functions will be investigated.

This research is in the framework of "Fit4MedRob- Fit for Medical Robotics", Piano Nazionale Complementare (PNC) – Decreto Direttoriale n. 931 del 6 giugno 2022 – Avviso per la concessione di finanziamenti destinati ad iniziative di ricerca per tecnologie e percorsi innovativi in ambito sanitario e assistenziale, Codice PNC0000007.

Methods and techniques that will be developed and used to carry out the research

Development and application of computational electromagnetic and Multiphysics techniques for modelling the interaction between electric and magnetic fields and human tissues at the interface with bio robotics devices.

Educational objectives

To train the PhD student in computational methods and techniques for the modeling and the characterization of next-generations tools for stimulating and sensing peripheral and central nervous system functions in the



	framework of a breakthrough research project aimed to revolutionize current rehabilitation and assistive models
Job opportunities	The research will be carried out in the framework of the project "Fit4MedRob- Fit for Medical Robotics" Piano Nazionale Complementare (PNC) – Decreto Direttoriale n. 931 del 6 giugno 2022 – "Avviso per la concessione di finanziamenti destinati ad iniziative di ricerca per tecnologie e percorsi innovativi in ambito sanitario e assistenziale, PNC0000007", in strong cooperation with IEIT CNR, coordinator of the project. CNR IEIT has large opportunities for post-doc positions and interdisciplinary research career.
Composition of the research group	0 Full Professors 3 Associated Professors 2 Assistant Professors 2 PhD Students
Name of the research directors	Emma Chiaramello - Serena Focchi

Contacts	
<p>Prof. Emma Chiaramello Email: emma.chiaramello@cnr.it; phone: +39 02 2399 3697;</p> <p>Prof. Serena Focchi Email: serena.focchi@cnr.it; phone: +39 02 2399 3348</p>	

Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents (more than 80Km out of Milano)	--

Scholarship Increase for a period abroad	
Amount monthly	662.5 €
By number of months	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
The student will be encouraged to attend courses with subjects bioelectromagnetics, statistics, stochastic modeling and biorobotics either at POLIMI and at CNR IEIT.



Moreover, the student will be involved in the educational program developed under the project Fit4MedRob with the aim of developing specific expertise in the biorobotics field.

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Decreto Direttoriale n. 931 del 6 giugno 2022 ?

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