

Master in Photonics – “PHOTONICS BCN” ERASMUS+ “EUROPHOTONICS”

MASTER THESIS PROPOSAL

Dates: April - September 2020

Laboratory : Medical Optics

Institution: ICFO-The Institute of Photonic Sciences

City, Country : Castelldefels (Barcelona), Spain

Title of the master thesis: What is the normal cerebrovascular reactivity on healthy, young population?

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Keywords : biophotonics; biomedical optics; neuroimaging

Summary of the subject (maximum 1 page) :

Diffuse correlation spectroscopy (DCS) using diffuse, near-infrared light and laser speckle fluctuations provides non-invasive measures of cerebral blood flow in the adult human brain. It is often used to study pathological alterations in patients such as those suffering from ischemic strokes. However, the question remains: “what is the healthy cerebrovascular reactivity (CVR)?” In other words, “how does the healthy brain respond to a particular challenge?” It is quite complex to answer this definitely but DCS is now a practical technology for this purpose. In this project, the student will put together a selected group of challenges and do a pilot study on health volunteers. By using clinical and physiological measures of systemic physiology (e.g. blood pressure), they will be able to provide a recipe for carrying out a much larger study.



Additional information :

- * Required skills :
- * Miscellaneous :