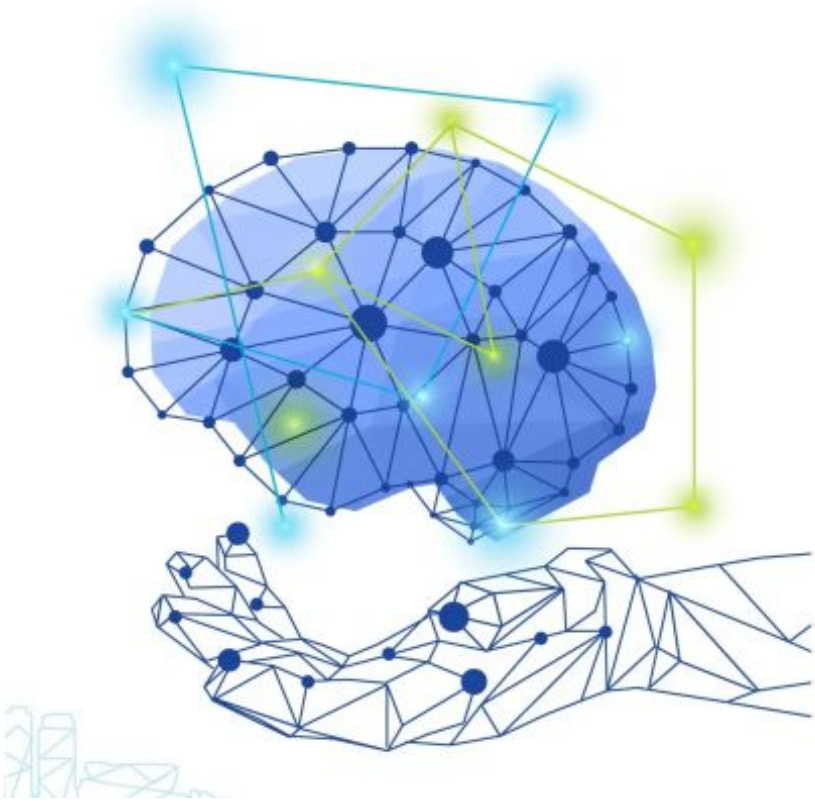

HANDS-ON COURSE on MINDLAB: Manipulating and Investigating Neural Dynamics for Learning and Ageing in the Brain

November 12, 2024 to November 15, 2024
ICFO Auditorium

****In collaboration with Laserlab-Europe project****

The core faculty of the ICFO-MINDLAB, a think tank working jointly towards a transdisciplinary understanding of the brain, offers a school to introduce cutting edge technologies to study neuroscience at the molecular, cellular and systems level to students in a combination of lectures and hands-on experience leading to group projects.

What is MINDLAB?

MINDLAB stands for i¿½Manipulating and Investigating Neural Dynamics for Learning a d Ageing in the Braini¿½ and is an interdisciplinary creative playground rooted squarel in academic rigor, comprising of research groups from ICFO and beyond. We focu

on advancing fundamental knowledge on how the mind emerges from the behavior of indivi ual molecules, neurons and brain networks but also creating and commerciali ing transformational future technologies with outstanding potential to impact our society for g od. Hen **this course will expose participants to the state-of-the-art of photonics-based technologies tailored to monitor a hierarchy of scales in the study of the brain**: i.e. from single molecules up to the whole organism.

The **MINDLAB faculty** includes world leading experts in their fields. The expertise of the core faculty is complemented by a diverse set of affiliated adjunct faculty from various research centres in Barcelona but also through clinical and corporate partners. The course is supplemented by invited lecturers covering topics related to a Horizon 2020 Project, **TinyBrains** (https://tinybrains.eu), that has developed a tomographic, non-invasive imager of brain function for newborns with severe congenital heart defects. In this context, TinyBrains organizes a dedicated session with Prof. Jennifer M. Lynch (a pediatric cardiothoracic anesthesiology at the Children's Hospital of Philadelphia and an assistant professor of bioengineering at the University of Pennsylvania) and Prof. Martin Lauritzen (Professor of Translational Neurobiology at the University of Copenhagen).

Lecturers:

Martin Lauritzen **(University of Copenhagen)**
Jennifer M. Lynch **(Children's Hospital of Philadelphia)**
Giovanna Coceano **(SciLifeLab)**
Ilias Tachtsidis **(University College London)**
John Kennis **(Vrije Universiteit Amsterdam)**
Jordi Soriano **(University of Barcelona)**
Pau Gorostiza **(Institute for Bioengineering of Catalonia)**
Ute Hochgeschwendter **(Central Michigan University)**
Nicoletta Liguori **(ICFO)**
Maria Garcia-Parajo **(ICFO)**
Michael Krieg **(ICFO)**
Morgan Mitchell **(ICFO)**
Pablo Loza-Alvarez **(ICFO)**
Turgut Durduran **(ICFO)**

Hands-on sessions:

Participants will engage in lab sessions focused on the latest photonics technologies. Each lab session will provide participants with an opportunity to work directly with advanced equipment and gain valuable practical skills.

The sessions will take place in the following labs:

Super resolution Light microscopy and Nanoscopy
Neurophotonics and Mechanical Systems Biology
Medical Optics
Photon Harvesting in Plants and Biomolecules
Single Molecules Biophotonics

How To Apply:
Applicants must submit:?

A Curriculum Vitae, including contact details
A statement of purpose outlining their motivation for attending the school.

Applications must be submitted online through the dedicated registration form.
School Fees:
The course has a fee of ?125, which will be charged after the registration process. Registrants will receive a dedicated payment link via email to confirm their enrollment in the course.
Deadline:
The final deadline for applications is **October 15th.**
Registration confirmations will be sent out on a rolling basis after the registration process. Spots will be filled on a first-come, first-served basis, considering the selection criteria.
For any questions, please contact us at frontiers@icfo.eu
Venue:
ICFO - The Institute of Photonics Sciences?
More information about how to get to ICFO can be found here.?
About:
? Frontiers Research Schools on the Frontiers of Light aim at giving talented young researche s and students worldwide a first introduction to a thematic research area and a taste of n international research environment. These schools incorporate a dynamic and social learni g environment beyond participating in lectures, including group discussions, dire t interactions with the lecturers, student talks and poster presentations.
? ICFO does not tolerate any type of conduct or behavior considered harassment or bull ing and has clearly defined policies against harassment.?
Organizing Committee: Prof. Dr. Pablo Loza-Alvarez, Prof. Dr. Turgut Durduran, Prof. Dr. Michael Krieg, Dr. Lorenzo Cortese, Prof. Dr. Nicoletta Liguori, Prof. Dr. Niek van-Hulst, Prof. Dr. Maria Garcia-Parajo, Dr. Ariadna Martinez Marrades, Miss Judith Salvador Herena, Dr. Giovanna Petrillo, Dr. Miguel Angel Moreno.

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