



## **COLLOQUIUM: Shining light on synapses - neural engineering with photons as synaptic transmitter**

**MICHAEL KRIEG**

June 23, 2023

12:00 to 13:00

ICFO Auditorium

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### **Profile: ?**

Prof Michael Krieg leads the Neurophotonics and Mechanical Systems Biology at ICFO where his group uses *Caenorhabditis elegans* as a model to study the importance of cell's mechanical properties for health and disease on the molecular and systems levels, exploiting microfluidic and nanotechnological tools to apply precise forces to single cells or animals. His group also works to establish an optogenetic neurotransmitter system with the aim to rewire neuronal circuits in diseased animals. He received his PhD from Technische Universität Dresden and carried out postdoctoral work at the Max Planck Institute of Molecular Cell Biology and Genetics and in the Department of Molecular and Cellular Physiology at Stanford University School of Medicine. Michael received an ERC Starting Grant in 2017 for the project

How to build a brain: Engineering molecular systems for mechanosensation and protection in neurons.

**Abstract:**

The correct communication between neurons is crucial for development and survival of the organism. Defects in neurotransmission lead to neurological disorders or misinterpretation of perceived threats. To overcome defects in cellular communication, we developed a synthetic, photon-based signaling system that enables the transmission of information from one neuron to another, a feature inherent to synaptic communication.