

# Inserm Workshop 263

## OPTO-BIOLOGY, sensors and actuators for probing signaling in living systems



**REGISTRATION DEADLINE: November 12, 2021**

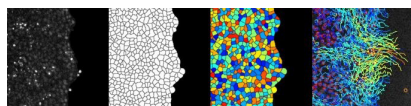
**ORGANIZERS:** Nicolas BORGHI (Institut Jacques Monod, Paris), Claire WYART (Institut du Cerveau et de la Moelle épinière, Paris), Volker BORMUTH (Laboratoire Jean Perrin, Sorbonne Université, Paris), Simon DE BECO (Institut Jacques Monod, Paris)

**AIMS:** This workshop will present the principle of genetically-encoded biosensors and optogenetic actuators, the different signals that can be measured and manipulated, imaging and actuation techniques, methods for analyzing sensor signals, and applications of these tools in medicine.



### PHASE I – CRITICAL ASSESSMENT

January 24-26, 2022 in Bordeaux



#### KEYNOTES

Valentina EMILIANI (Institut de la Vision, FRA), May MORRIS (Institut des Biomolécules Max Mousseron, Université de Montpellier, FRA), Jin ZHANG (University of California San Diego, USA)

#### BIOLOGICAL SIGNALS, BIOSENSOR AND ACTUATOR DEVELOPMENT

Olivier DESTAING (Institut Albert Bonniot, FRA), Barbara DI VENTURA (University of Freiburg, DEU), Lin TIAN (University of California, USA)

#### BIOSENSORS AND ACTUATORS: APPLICATIONS

Arnold BOERSMA (DWI Leibniz Institute, DEU), Mathieu COPPEY (Institut Curie, FRA), Nicolas BORGHI (Institut Jacques Monod, FRA)

#### BIOSENSOR IMAGING AND ACTUATOR CONTROL

Clare BUCKLEY (University of Cambridge, GBR), Eirini PAPAGIAKOUMOU (Institut de la Vision, FRA), Marc TRAMIER (Institut Génétique & Développement de Rennes, FRA)

#### SIGNAL ANALYSIS AND MODELLING

Olivier PERTZ (Institute of cell Biology, CHE), Loic ROYER (Chan Zuckerberg Biohub, USA), Thomas OERTNER (Center for Molecular Neurobiology Hamburg, DEU)



### PHASE II – TECHNICAL WORKSHOP

February/March 2022 - Paris

- Molecular tension and kinase sensors, optogenetics of RhoGTPases on epithelial cells in culture.
- Imaging of kinase and molecular tension sensors on 3D organoids by light sheet microscopy.
- Light-sheet imaging & calcium imaging on zebrafish larvae.
- Testing of new opsins for activation and inactivation of neurons in vivo with optogenetics (electrophysiology, stimulation, imaging).
- 3D light patterning.

**SELECTION:** 4 trainees will be selected among Phase I participants for each session.

Information and registration  
ateliers@inserm.fr  
<https://tinyurl.com/3kt5axhx>