

Location:**Lectures:** The Vision Institute, 17 rue Moreau, 75012 Paris**Practical demos:** The Vision Institute, 17 rue Moreau, 75012 Paris (1st floor)**PROGRAM 2025****Monday 10 March 2025**

- 9:00 -9:30** *Welcome coffee and opening remarks*
Valentina Emiliani & Eirini Papagiakoumou (The Vision Institute, Paris)
- 9:30-10:00** *General Introduction: Optical Control of brain functioning*
Valentina Emiliani (The Vision Institute, Paris)
- 10:00 -11:30** **Lecture:** *Wavefront shaping techniques and computer generated holography*
Emiliano Ronzitti (The Vision Institute, Paris)
- 11:30 -11:45** *break*
- 11:45 -12:45** **Lecture:** *Multi-photon excitation*
Eirini Papagiakoumou (The Vision Institute, Paris)?
- 13:00-14:30** LUNCH
- 14:30 -16:00** **Lecture:** *Optogenetic tools for excitation and inhibition*
Joahnes Vierock (Charité - Universitätsmedizin Berlin)
- 16:00 -17:00** **Lecture:** *Optogenetics in zebrafish*
Claire Wyart (Paris Brain Institute, ICM)
- 17:00 -17:20** *break*
- 17:20- 18:20** **Introduction to practicals 1 & 2**
Emiliano Ronzitti , Eirini Papagiakoumou (The Vision Institute, Paris)
- 18:20-19:30** **Poster Presentations**
- 19:30 -20:30** DINNER at the cafeteria, Lusseyran Hall

Tuesday 11 March 2025

- 9:00 -9:30** *breakfast*
- 9:30 -10:30** **Lecture:** *Multi-photon excitation & Temporal focusing*
Dan Oron (Weizmann Institute of Sciences, Rehovot, Israel)
- 10:30 -11:00** *break*
- 11:00 -12:45** **Lecture:** *Optical approaches for 2P optogenetics: scanning, spiral scanning, parallel illumination (3D temporal focusing)*
Valentina Emiliani (The Vision Institute, Paris)
- 12:45 -14:00** LUNCH
- 14:00 -18:00** **Practical 1:** *Building up a 1P holographic microscope*

Practical 2: Building up a 2P holographic microscope with Temporal Focusing**18:00 -20:00 DINNER at the cafeteria, Lusseyran Hall****Wednesday 12 March 2025**9:00 -9:30 *breakfast*09:30 -11:00 **Lecture: All optical interrogation of brain circuits**
Eirini Papagiakoumou (The Vision Institute, Paris)11:00 -11:15 *break*11:15 -12:45 **Lecture: Optogenetic inhibition**
Ofar Yizhar (Weizmann Institute of Sciences, Rehovot, Israel)12:45 -14:00 **LUNCH**14:00 -18:00 **Practical 1: Building up a 1P holographic microscope****Practical 2: Building up a 2P holographic microscope with Temporal Focusing****Practical 3: All-optical 2P manipulation of neurons****18:00 -20:00 DINNER at the cafeteria, Lusseyran Hall****Thursday 13 March 2025**9:00 -9:30 *breakfast*09:30 -11:00 **Lecture: Illuminating brain function with optical activity indicators**
Michael Lin (Stanford University, US)11:10 -11:15 *break*11:15 -12:45 **Lecture: Patterned illumination for functional imaging**
Ruth Sims (The Vision Institute, Paris)12:45 -14:00 **LUNCH**14:00 -18:00 **Practical 2: Building up a 2P holographic microscope with Temporal Focusing****Practical 3: All-optical 2P manipulation of neurons****Practical 4: 2P patterned microendoscopy****18:00 -20:00 DINNER at the cafeteria, Lusseyran Hall****Friday 14 March 2025**9:00 - 9:30 *breakfast*09:30 - 11:00 **Lecture: 2P-Miniscopes**
Weijian Zong (Norwegian University of Science and Technology - NTNU)11:00 -11:15 *break*

11:15 -12:45 **Lecture:** *Patterned Microendoscopy*
Nicolò Accanto/Valentina Emiliani (The Vision Institute, Paris)

12:45 -14:00 **LUNCH**

14:00 -18:00 **Practical 3:** *All-optical 2P manipulation of neurons*

Practical 4: *2P patterned microendoscopy*

Practical 5: *Scanless 2P voltage imaging*

19:00 -21:00 **DINNER at the atrium IDV, 3rd floor**

Monday 17 March 2025

9:00 -9:30 *breakfast*

09:30 - 11:00 **Lecture:** *Viral vector design*
Deniz Dalkara (The Vision Institute, Paris)

11:00 -11:15 *break*

11:15 - 12:45 **Lecture:** *Hight throughput connectivity mapping*
Dimitrii Tanese (The Vision Institute, Paris)

12:45 -14:00 **LUNCH**

14:00 -18:00 **Practical 4:** *2P patterned microendoscopy*

Practical 5: *Scanless 2P voltage imaging*

Data Analysis (1 group)

18:00 -20:00 **DINNER at the cafeteria, Lusseyran Hall**

Tuesday 18 March 2025

9:00 -9:30 *breakfast*

09:30 - 11:00 **Lecture:** *3P excitation microscopy*
Chris Xu (Cornell University, USA)

11:00 -11:15 *break*

11:15 - 12:45 **Lecture:** *Mesoscopy and optogenetics*
Lamiaa Abdeladim (University of Berkeley)

12:45 -14:00 **LUNCH**

14:00 -18:00 **Practical 5:** *Scanless 2P voltage imaging*

Data analysis

18:00 -20:00 **SOCIAL DINNER**



Wednesday 19 March 2025

- 9:00 -9:30** *breakfast*
- 09:30 - 11:00** **Lecture: *Optogenetics and photodamage***
Valentina Emiliani/Benoît Forget (The Vision Institute, Paris)
- 11:00 -11:15** *break*
- 11:15 - 12:45** **Lecture: *FliT***
Emiliano Ronzitti (The Vision Institute, Paris))
- 13:00 -14:00** **LUNCH**
- 14:00 -18:00** **Presentations from students**