

PROGRAM (2021)

Monday 18 October 2021

- 9:00 -9:10 *Welcome and opening remarks, coffee*
Valentina Emiliani & Eirini Papagiakoumou (The Vision Institute, Paris)
- 9:10-9:45 *General Introduction: Optical Control of brain functioning*
Valentina Emiliani (The Vision Institute, Paris)
- 9:45 -10:45 **Lecture:** *Introduction to optogenetics and its applications to neuroscience*
McLean Bolton (Max Planck, Florida, USA)
- 11:00 -12:00 **Lecture:** *Wavefront shaping techniques and computer generated holography*
Emiliano Ronzitti (The Vision Institute, Paris) (x2)
- 12:15 -14:00 LUNCH
- 14:00 -15:00 **Lecture:** *Multi(Two)-photon excitation & Temporal focusing*
Dan Oron (Weizmann Institute of Sciences, Rehovot, Israel)
- 15:00 -16:00 **Lecture:** *Opsin Engineering*
Peter Hegemann (Institute of biology, Humboldt University, Berlin, Germany)
- 16:15 -17:15 **Lecture:** *Modelling of Opsin photocycle*
Christiane Grimm (The Vision Institute, Paris)
- 17:15 -18:00 **Lecture:** *Viral vector design*
Deniz Dalkara (The Vision Institute, Paris)
- 19:00 -20:00 DINNER at the cafeteria next to the amphitheatre
- After dinner (optional): **Demonstration:** *How to build a holographic setup*
Emiliano Ronzitti, Nicolò Accanto, Yoann Atlas (The Vision Institute, Paris)

Tuesday 19 October 2021

- 9:00 -10:30 **Lecture:** *Optical approaches for 2P optogenetics: scanning, spiral scanning, parallel illumination (3D temporal focusing)*
Dimitrii Tanese (The Vision Institute, Paris)
- 10:45 -11:45 **Lecture:** *Patterned Microendoscopy*
Nicolò Accanto (The Vision Institute, Paris)
- 12:00 -13:30 LUNCH
- 13:30 -18:00
- Practical 1:** *Building up a 1P holographic microscope* (E. Ronzitti, V. de Sars, N. Accanto)
- Practical 2:** *All-optical 2P manipulation of neurons* (V. Zampini, I. Bendifallah, G. Faini, D. Tanese, Y. Atlas)
- Practical 3:** *Building up a 2P holographic microscope* (R. Sims, E. Papagiakoumou)

19:00 -20:00 DINNER at the cafeteria next to the amphitheatre

After dinner (optional): Lecture: *GPC*
Ruth Sims/Eirini Papagiakoumou (The Vision Institute, Paris)

Wednesday 20 October 2021

09:00 -09:45 **Lecture: *All optical interrogation of brain (I)***
Eirini Papagiakoumou (The Vision Institute, Paris)

10:00 -10:45 **Lecture: *All optical interrogation of brain (II)***
Claire Wyart (ICM, Paris)

11:00 -11:45 **Lecture: *Patterned voltage and Calcium imaging***
Ruth Sims (The Vision Institute, Paris)

12:00 -14:00 LUNCH

13:30 -18:00

Practical 1: *Building up a 1P holographic microscope* (E. Ronzitti, V. de Sars, N. Accanto)

Practical 2: *All-optical 2P manipulation of neurons* (V. Zampini, I. Bendifallah, G. Faini, D. Tanese, Y. Atlas)

Practical 3: *Building up a 2P holographic microscope* (R. Sims, E. Papagiakoumou)

19:00 -20:00 DINNER at the cafeteria next to the amphitheatre

After dinner: Poster presentations

Thursday 21 October 2021

09:00 - 09:45 **Lecture: *Optogenetics and heating***
Valentina Emiliani/Benoît Forget (The Vision Institute, Paris)

10:00 - 10:45 **Lecture: *FliT***
Emiliano Ronzitti (The Vision Institute, Paris)

11:00 -11:45 **Lecture: *Optical control of brain functioning: Applications and Perspectives***
Ofer Yizhar (Weizmann Institute of Sciences, Rehovot, Israel)

12:00 -14:00 LUNCH

13:30 -18:00

Practical 1: *Building up a 1P holographic microscope* (E. Ronzitti, V. de Sars, N. Accanto)

Practical 2: *All-optical 2P manipulation of neurons* (V. Zampini, I. Bendifallah, G. Faini, D. Tanese, Y. Atlas)

Practical 3: *Building up a 2P holographic microscope* (R. Sims, E. Papagiakoumou)

19:00 -... Gala DINNER

Friday 22 October 2021

9:00 -09:45	Special Lecture: <i>Vision restoration with optogenetics</i> José-Alain Sahel (The Vision Institute, Paris)
10:00 – 12:00	Data analysis
12:30 -14:00	LUNCH
14:00 -18:00	<i>Presentation of results from practical courses</i>