Location:

Lectures & Practical 1: Conference room of the UCL Building of the Vision Institute, 13 rue Moreau, 75012 Paris
Practical 2 & 3: The Vision Institute, 17 rue Moreau, 75012 Paris

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)

12:15 -13:30 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:** *Modelling of Opsin photocycle*
Christiane Grimm, Benoît Forget (The Vision Institute, Paris)

16:15 -17:15 **Lecture:** *Opsin Engineering*
Peter Hegemann (Institute of biology, Humboldt University, Berlin, Germany)

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 conference room

After dinner: **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:** *All optical interrogation of brain*
Eirini Papagiakoumou (The Vision Institute, Paris)

12:00 -13:30 LUNCH

14:00 -18:00

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

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

Practical 3: *All-optical 2P manipulation of neurons* (V. Zampini, I. Bendifallah, G. Faini, D. Tanese, Y. Atlas)

19:00 -20:00 **DINNER at the cafeteria next to the conference room**

After dinner: **Poster Presentations**

Wednesday 20 October 2021

09:00 -10:15 **Lecture:** *Patterned Microendoscopy*
Nicolò Accanto (The Vision Institute, Paris)

10:30 -11:45 **Lecture:** *Patterned voltage and Calcium imaging*
Ruth Sims (The Vision Institute, Paris)

12:00 -13:30 **LUNCH**

14:00 -18:00

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

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

Practical 3: *All-optical 2P manipulation of neurons* (V. Zampini, I. Bendifallah, G. Faini, D. Tanese, Y. Atlas)

19:00 -20:00 **DINNER at the cafeteria next to the conference room**

After dinner: **Special Lecture:** *Vision restoration with optogenetics*
José-Alain Sahel (The Vision Institute, Paris)

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:** *Fast Light Targeting (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 -13:30 **LUNCH**

14:00 -18:00

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

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

Practical 3: *All-optical 2P manipulation of neurons* (V. Zampini, I. Bendifallah, G. Faini, D. Tanese, Y. Atlas)

19:00 -... Gala DINNER

Friday 22 October 2021

9:00 – 12:00	**Data analysis**
12:30 -13:30	**LUNCH**
14:00 -18:00	*Presentation of results from practical courses*