**PROGRAM (2019)**

**Monday 7th October 2019**

**9:00 -9:30** *Welcome and opening remarks, coffee*

Valentina Emiliani & Eirini Papagiakoumou (Vision Institute, IdV, Paris)

**9:45 -10:45 Lecture:** *Introduction to optogenetics*

Ofer Yizhar (Weizmann Institute of Sciences, Rehovot, Israel)

**11:00 -11:45 Lecture:** *Temporal focusing*

Dan Oron (Weizmann Institute of Sciences, Rehovot, Israel)

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

**14:00 -14:45 Lecture:** *Wavefront shaping, spatial light modulators (AO, Amplitude modulation)*

Emiliano Ronzitti (IdV, Paris)

**15:00 -15:45 Lecture:** *Computer generated holography and Generalized phase contrast method*

Valentina Emiliani (IdV, Paris)

**16:00 -16:45 Lecture:** *Two- and three- dimensional light patterning and temporal focusing*

Nicolo Accanto (IdV, Paris)

**17:00 -17:45 Lecture:** *How to build up a holographic set up*

Emiliano Ronzitti (IdV, Paris)

**Tuesday 8th October 2019**

**9:00 -9:45 Lecture:** *Opsin engineering*

Peter Hegemann (IFB, Humboldt University, Berlin)

**10:00 -10:45 Lecture:** *Modelling of Opsin photocycle*

Benoit Forget (IdV, Paris)

**11:00 -11:45 Lecture:** *2P optogenetics: scanning, spiral scanning, parallel illumination: examples and comparison among the different approaches*

Valentina Emiliani (IdV, Paris)

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

**13:30 -18:00**

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

**Practical 2:** *In vivo 2P patterned photostimulation* (I. Wen Chen, V. Zampini, I. Bendifallah)

**Practical 3:** *Building up a 2P holographic microscope* (C. Molinier, D. Tanese, N. Accanto)

**Wednsday 9th October 2019**

**9:00 -9:45 Lecture:** *Viral vector design*

Deniz Dalkara (IdV, Paris)

**10:00 -10:45 Lecture:** *All optical interrogation of brain (I)*

Claire Wyart & Eirini Papagiakoumou (ICM and IdV, Paris)

**11:00 -11:45 Lecture:** *All optical interrogation of brain (II)*

Claire Wyart & Eirini Papagiakoumou (ICM and idV, Paris)

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

**13:30 -18:00**

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

**Practical 2:** *In vivo 2P patterned photostimulation* (I. Wen Chen, V. Zampini, I. Bendifallah)

**Practical 3:** *Building up a 2P holographic microscope* (C. Molinier, D. Tanese, N. Accanto)

**Thursday 10th October 2019**

**9:30 -10:15 Lecture:** *Patterned Microendoscopy*

Nicolo Accanto (IdV, Paris)

**10:30 - 11:15 Lecture:** *Patterned voltage and Calcium imaging*

Dimitrii Tanese (IdV, Paris)

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

**13:30 -18:00**

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

**Practical 2:** *In vivo 2P patterned photostimulation* (I. Wen Chen, V. Zampini, I. Bendifallah)

**Practical 3:** *Building up a 2P holographic microscope* (C. Molinier, D. Tanese, N. Accanto)

**Friday 11th October 2019**

**9:30 -10:15** *Data Analysis*

**12:30 -14:00 LUNCH**

**14:00 -18:00** *Presentation of results from practical courses*