



## Imaging viruses: from single molecule to diagnosis

March 16<sup>th</sup>, 2021

*Timetable in CET time*

9h15 Introduction

### Session: Open-sources for virus imaging

9h30 **Ricardo Henriques** (*Inst. Gulbenkian de Ciência, Portugal*) - Open and accessible super-resolution and machine-learning technology for viral infection imaging.

10h **Romain F. Laine** (*MRC LMCB, UC London, United Kingdom*) - Microscopes and Computers vs Viruses.

10h30 **Benedict Diederich** (*Leibniz Institute of Photonic Technology, Jena, Germany*) - Creating of Open-source Imaging Tools to Support Virus Imaging

10h45 **Marie Walde** (*Station Biologique de Roscoff, Sorbonne Université, France*) - Imaging marine viruses in diatoms

**11h00 coffee break** (*bring your own coffee*)

### Session: Imaging virus biology I

11h15 **Christian Sieben** (*Helmholtz Center for Infection Research, Germany*) - Understanding the nanophysiology of virus infection.

11h45 **Christian Eggeling** (*Leibniz IPHT – Friedrich-Schiller University, Jena, Germany*) - Super-resolution microscopy studies of viral spreading.

12h15 **Hippolyte Verdier** (*Decision & Bayesian Computation, Institut Pasteur, Paris, France*) - Graph Neural Network approach to anomalous random walks characterization : Application to virus Assembly processes.

12h30 **Jakub Chojnacki** (*IrsiCaixa AIDS Research Institute, Badalona (Barcelona), Spain*) - Characterisation of lipid dynamics within HIV-1 reservoirs as a target for interference with virus persistence.

12h45 **Arnaud Favier** (*Laboratoire d'Ingénierie des Matériaux Polymères – CNRS – Lyon, France*) - Fluorescent lipid-polymer probes for far-red/NIR and dSTORM optical imaging of enveloped virus particles

**13h Virtual lunch**

### Session: Imaging virus biology II

14h Sergio Padilla (*King's college, London, United Kingdom*) - Characterization of HIV-1 entry and fusion

14h30 Delphine Muriaux (*IRIM, CNRS, Montpellier, France*) - Lipids and membrane curvature in HIV-1 assembly

15h Salvatore Chiantia (*Cell Membrane Biophysics, Univ Postdam, Postdam, Germany*) - Investigating protein-protein interactions in Influenza A virus assembly via quantitative fluorescence microscopy.

15h15 Christelle Langevin (*Unité de Virologie et Immunologie Moléculaires, INRAE, Jouy en Josas, France*) - New look at RSV infection : tissue clearing and 3D imaging of the entire mouse lung at cellular resolution.

### Session: Single virus detection & diagnosis.

15h30 Nicole Robb (*Warwick Medical School, University of Warwick, United Kingdom*) - Rapid Virus Detection using Single-Particle Imaging and Deep Learning.

16h Cristof Hepp (*Dept of Physics, University of Oxford, United Kingdom*) - Developing single molecule fluorescence in situ hybridization for detection and structural biology of RNA viruses.

16h15 Samer Alhaddad (*Institut Langevin, ESPCI, CNRS, Paris, France*) - Label-free interferometric detection and characterization of single virus by single-particle tracking analysis.

16h30 coffee break (*you can have tea if you prefer*)

### Session: Single virus structure and mechanical properties

16h45 Saveez Saffarian (*University of Utah, USA*) - Measuring dynamics within the Gag lattice of isolated virus like particles.

17h15 Cendrine Moskalenko (*Laboratoire de Physique, ENS Lyon, CNRS, France*) - Mechanical properties of viruses and genome uncoating probed by AFM imaging and nano-indentation.

17h45 Sebastien Lyonnais (*CEMIPAI, CNRS, Montpellier, France*) - Atomic Force Microscopy in biosafety level 3 laboratory for imaging infectious viral particles at the nanoscale.

18h General Discussion & Conclusion

18h15 Getting together party & Beer Hour! (DIY)

*Link to the web-meeting will be provided individually through the mail you registered with.*

