

Program Quantitative Biology Kick-off Meeting
Auditorium Jacques Monod, Institut Pasteur
Monday, 17 October 2017

9:15 **Introduction**
Guillaume Dumenil, Sven van Teeffelen

Multi-scale self-organization from stochastic molecular interactions (9:30-10:30)

9:30 François Schweisguth (Unit Drosophila Developmental Genetics)
Stripe and dot patterns by self-organized Notch dynamics

9:45 François Spitz (Unit Genomics and Epigenomics of Vertebrate Development)
4D-genome folding and dynamics of gene expression in animal development

10:00 Eva Wollrab (G5 Microbial Morphogenesis and Growth)
Transient protein-complex formation facilitates processive cell-wall insertion

10:15 Sandrine Etienne-Manneville (Unit Cell Polarity, Migration and Cancer)
Polarizing the intermediate filament network during directed cell migration

Coffee break (10:30-11:00)

Mechanics in sub-cellular and multi-cellular organization (11:00-11:45)

11:00 Daria Bonazzi (Unit Pathogenesis of Vascular Infections)
Type-IV pili mediated intermittent forces generate viscous liquid aggregates of N. meningitidis

11:15 J.F. Le Garrec (Unit Heart Morphogenesis)
Mechanism of heart tube morphogenesis at the looping stage

11:30 Alexandre Dufour (Unit Bioimage Analysis)
Deciphering intracellular morphodynamics using Biophysical Optical Flow

11:45 Jérôme Gros (G5 Morphogenesis Regulation in Higher Vertebrates)
Mechanics of Gastrulation

Lunch and poster session (12:00-14:00) at Bâtiment "Le 25"

14:00-15:00 **Keynote speaker:** Rob Phillips (Caltech)
How Schrodinger's Cat Became a Cat: Searching for Hidden Variables in Regulatory Biology

Information processing and signaling – from the genetic code to the brain (15:00-16:30)

15:00 Florian Müller (Unit Imaging and Modeling)
A single-molecule view of transcription reveals convoys of RNA polymerases and multi-scale bursting

15:15 Gregory Batt (Computational Systems Biology and Optimization, INRIA)
Balancing a genetic toggle switch by real-time control or periodic stimulations

15:30 Axel Cournac (G5 Spatial Regulation of Genomes)
From Twitter to the understanding of 3D structure of bacterial genomes

Coffee break (15:45-16:15)

16:15 Alessandro Barri (Unit Dynamic Neuronal Imaging)
Computational approaches to understanding cellular contributions to information processing in brain circuits

16:30 Christophe Schmidt-Hieber (G5 Neural Circuits for Spatial Navigation and Memory)
Towards online processing of 2-photon imaging data during rodent virtual navigation

16:45 Charles Baroud (Interfaces, Bio-Engineering & Microfluidics, Ecole Polytechnique)
Experimental Monte-Carlo: Quantifying the growth of bacterial colonies using microfluidics

17:00-17:45 **Panel discussion**
Chairs: Guillaume, Sven.