

Physics and Biological Systems 2024 | Program

June 26-28 2014, Palaiseau, France

All talks will take place in amphithéâtre Gay-Lussac at Ecole Polytechnique, Palaiseau, France

Wednesday, June 26

WELCOME COFFEE AND OPENING (9:45-10:15)

Session chair: Cédric Bouzigues

10:15	Andreas Möglich	Leveraging Phytochromes for Regulating Biological Processes by Light
11:00	Dominik Bucher	Towards single-cell NMR spectroscopy with quantum sensors in diamond
11:45	Severine Le Gac	Organ-on-chip platforms for biological and medical applications

LUNCH (12:30-13:30)

Session chair: Vincent Ouazan-Reboul

13:30	Mathilde Louçã	Functional impacts of Huntingtin lowering on human cortical synapses
13:45	Caroline Giuglaris	Hydrodynamics of active cells migrating under mesoscopic confinement
14:00	Marie-Charlotte Emperauger	Real time tracking of single nanoparticles motion and orientation in neurons
14:15	Lara Koehler	From waves to chaotic flows in the cytoplasm

POSTER SESSION (14:45-15:30)

Session chair: Harold Auradou

15:30	Chase Broedersz	Learning the statistical folding of bacterial chromosomes
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COFFEE BREAK (16:15-16:30)

16:30	Roberto di Leonardo	Programming bacterial dynamics with light
17:15	Thomas Gregor	Precise and scalable self-organization in mammalian pseudo-embryos

Thursday, June 27

Session chair: Pavel Muller

9:00	Tony Stöcker	Structural and quantitative whole-brain MRI at 7 Tesla
9:45	Manuel Maestre-Reyna	3D molecular movies of flavins at work

COFFEE BREAK (10:30-11:00)

11:00	Peter Dedecker	Information-enhanced fluorescence imaging using smart probes and novel instrumentation
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POSTER SESSION (11:45-12:30)

LUNCH (12:30-13:30)

Session chair: Xavier Serfaty

13:30	Samuel S. Gomez	Diffusion, viscosity, and linear rheology of valence-limited disordered fluids
13:45	Romain Rollin	Mechanics of Cell Nuclei under Large Deformations
14:00	Ivana Rondon	Integrative gene networks predict stromal changes in human prostate cancer upon PTEN protein loss
14:15	Dounia Zamiatì	From Fluorescence Signals to Molecular Insights: FRET-Based Techniques for Investigating ER-Phagosome Membrane Associations

POSTER SESSION (14:45-15:30)

Session chair: Magda Magiera

15:30	Miguel Munoz	Scaling of brain activity and optimal functionality: from real neurons to artificial intelligence.
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COFFEE BREAK (16:15-16:30)

16:30	Laure Buhry	Computational modeling of electrophysiological signals in neurology and psychiatry: towards the identification of new therapeutic targets
17:15	Cécile Charrier	Molecular mechanisms of synaptic development: insights from human-specific genes

POSTER SESSION (18:00-18:45)

CONFERENCE DINNER (18:45-21:00)

Friday, June 28

Session chair: Pauline Durand

9:00	Sarah Robinson	The relationship between cell division and mechanical properties
9:45	Naomi Nakayama	Future-proofing plant forms

COFFEE BREAK (10:30-11:00)

11:00	Benoît Landrein	Mechanics of seed morphogenesis
11:45	Jean-Christophe Baret	Bottom-up construction of life-like synthetic cells

LUNCH (12:30-13:30)

Session chair: Stella Dees

13:30	Tom Burkart	Function Follows Form: Geometrical Guidance of Intracellular Self-Organization
13:45	Laure Mancini	Control of the spiral phyllotaxis from a single stem cell in the moss <i>Physcomitrium patens</i>
14:00	Thomas Bugea	Visualising the self-assembly dynamics of icosahedral viruses through fluorescence microscopy at the single particle level

COFFEE BREAK (14:30-14:45)

Session chair: Meriem Elkaroui

14:45	Joe Howard	Biophysics of branched cells: growth, scaling laws and the supply of metabolic demand
15:30	Teuta Pilizota	On the most important thing you likely know little about: the ion motive force(s)

CONFERENCE CLOSING (16:15-16:30)