

PhysBio2018

October 22-24, 2018 - CNRS Campus, Gif-sur-Yvette, France

	Monday, October 22	Tuesday, October 23	Wednesday, October 24
08:30-08:50	<i>welcome coffee</i>		
08:50 - 09:00	opening		
09:00 - 09:45	C. Picart	U. Endesfelder	
09:45 - 10:30	G. Karpen	T. Perkins	Y. Tor
10:30 - 11:00	<i>coffee break</i>		
11:00 - 11:45	G. Charras	V. Gabelica	A. Leforestier
11:45 - 12:30	Student sessions		
	N. Kallweit	G. Jacucci	P. Durand-Smet
	B. Bruininks	M. Bailey	V. Laplaud
	M. Valet	S.K. Nomidis	S. Song
12:30-14:00	<i>Lunch</i>		
14:00 - 14:45	E. Meyerowitz	A. Boudaoud	B. Martinac
14:45 - 15:30	T. Zambelli	R. Podgornik	B. Engel
15:30 - 16:00	<i>coffee break</i>		
16:00 - 16:45	Poster session		R. Phillips
16:45 - 17:30	L. Kurzawa	D. Marenduzzo	G. Cappello
17:30 - 18:15	L. Marcu	S. Cuylen-Häring	closing
19:00 - 21:00		<i>Conference Dinner</i>	

Monday, October 22 (Morning)

Session chair: Rudi Podgornik (Univ. of Chinese Academy of Sciences, Beijing)

8:30 - 8:50 Welcome Coffee

8:50 - 9:00 Opening remarks

9:00 - 9:45 Catherine Picart
Grenoble Institute of Technology, University Grenoble Alpes, France
"Biomimetic membranes and layer-by-layer as model systems to study cellular processes"

9:45 - 10:30 Gary Karpen
Dept of Molecular and Cell Biology, Lawrence Berkeley Ntl Lab, Berkeley, USA
"Is Chromatin Just a Phase?"

10:30 - 11:00 Coffee break

11:45 - 12:30 Guillaume Charras
London Centre for Nanotechnology & Department of Cell and Developmental Biology, University College London, United Kingdom
"Blistering and buckling in epithelial monolayers"

11:00 - 11:45 Student Session 1

Session Chair: Alexandra Zak (LadHyX, École Polytechnique, France)

11:00 – 11:15 Nicole Kallweit
Laser Zentrum Hannover e.V., Hannover, Germany
"Optoacoustic effect as the basic mechanism for intra-cochlear optical stimulation"

11:15 – 11:30 Bart M. H. Bruininks
Groningen Biomolecular Sciences and Biotechnology Institute and Zernike Institute for Advanced Materials, University of Groningen, The Netherlands
"Lipoplex mediated gene therapy at molecular detail"

11:30 – 11:45 Manon Valet
Laboratoire Jean Perrin, Sorbonne Université, Paris, France
"Probing Molecular Transport in Printed Biomimetic Tissues"

12:30 - 14:00 Lunch

Monday, October 22 (Afternoon)

Session chair: Julien Husson (LadHyX, École Polytechnique, France)

14:00 - 14:45 Elliot Meyerowitz
Division of Biology and Biological engineering, California Institute of Technology,
Pasadena, USA
“Control of Plant Development by Mechanical Signaling”

14:45 - 15:30 Tomaso Zambelli
Laboratory of Biosensors and Bioelectronics, ETH Zurich, Switzerland
“Force-controlled manipulation of single cells in vitro”

15:30 - 16:00 *Coffee break*

16:00 - 16:45 **Poster session**

16:45 - 17:30 Laetitia Kurzawa
CytoMorpho Lab, Biosciences and Biotechnology Institute of Grenoble, Université
Grenoble-Alpes, CEA-CNRS-INRA, Grenoble, France
“Stress fibers and the cell cortex form a continuous contractile network”

17:30 - 18:15 Laura Marcu
Biomedical Engineering Department, University of California, Davis, USA
*“Fluorescence lifetime techniques for surgical imaging, guidance and augmented
reality”*

Tuesday, October 23 (Morning)

Session chair: Aurélie Bertin (CNRS, Institut Curie Paris, France)

9:00 - 9:45 Ulrike Endesfelder
Systems & synthetic microbiology, Max Plank Institute of Terrestrial Microbiology,
Marburg, Germany
*"Exploring cell-biology on a molecular level: New methods for live-cell and
quantitative localization microscopy"*

9:45 - 10:30 Thomas Perkins
JILA, National Institute of Standards and Technology and the University of Colorado,
Dpts of Physics and of Molecular, Cellular, and Developmental Biology, University of
Colorado, Boulder, USA
*"Watching individual proteins unfold and refold by 1- μ s resolution force
spectroscopy"*

10:30 - 11:00 *Coffee break*

11:45 - 12:30 Valérie Gabelica
Laboratoire Acides Nucléiques : Régulations Naturelle et Artificielle, Université de
Bordeaux, Pessac, France
*"Isolated Nucleic Acids: Mass Spectrometry, Ion Mobility Spectrometry, and Ion
Spectroscopy"*

11:00 - 11:45 Student Session 2

Session Chair: Luca Barberi (LPTMS, CNRS, Univ. Paris-Sud, Paris-Saclay, France)

11:00 – 11:15 Gianni Jacucci
Department of Chemistry, University of Cambridge, United Kingdom
"The Cyphochilus beetle as an inspiration for sustainable white materials"

11:15 – 11:30 Michelle Bailey
School of Physics, University of Exeter, Exeter, UK
"Brillouin microscopy to probe the micromechanics of tissue phantoms"

11:30 – 11:45 Stefanos K. Nomidis
Institute for Theoretical Physics, Leuven & Flemish Institute for Technological
Research, Mol, Belgium
"The effect of twist-bend coupling on DNA mechanics"

12:30 - 14:00 *Lunch*

Tuesday, October 23 (Afternoon)

Session chair: Cécile Appert-Roland (CNRS, LPT Univ. Paris Sud, France)

14:00 - 14:45 Arezki Boudaoud
Reproduction et Développement des Plantes, Université & ENS Lyon, France
“Spatial and temporal variations in cell hydrostatic pressure during plant development”

14:45 - 15:30 Rudi Podgornik
School of Physical Sciences and Kavli Institute for Theoretical Sciences, University of Chinese Academy of Sciences, Beijing, China
“Charge regulation of complex (bio)colloids”

15:30 - 16:00 *Coffee break*

16:00 - 16:45 **Poster session**

16:45 - 17:30 *Davide Marenduzzo*
School of Physics and Astronomy, University of Edinburgh, UK
“Epigenetic dynamics on chromatin in 3D”

17:30 - 18:15 Sarah Cuylen-Häring
Cell Biology and Biophysics Unit, EMBL, Heidelberg, Germany
“Regulation of chromosome mechanics by a surfactant-like protein”

19:00 - 21:00 *Conference Dinner*

Wednesday, October 24 (Morning)

Session chair: Olivier Martin (INRA, Génétique Quantitative et Evolution, Univ. Paris Saclay, France)

9:45 - 10:30 Yitzhak Tor
Department of Chemistry & Biochemistry, University of California, San Diego, USA
“Isomorphic and Isofunctional Fluorescent Nucleosides, Nucleotides and Oligonucleotides”

10:30 - 11:00 *Coffee break*

11:45 - 12:30 Amélie Leforestier
Laboratoire de Physique des Solides, Université Paris-Sud & Paris-Saclay, France
“Exploring the variability of nucleosome conformation in vitro and in situ using cryoEM of vitreous sections”

11:00 - 11:45 Student Session 3

Session Chair: Yannick Guerringue (CNRS, I2BC, Univ. Paris-Saclay, France)

11:00 – 11:15 Pauline Durand-Smet
Division of Biology, CalTech, Pasadena, USA & The Sainsbury Laboratory, University of Cambridge, United Kingdom
“Shape and cytoskeleton organization in isolated plant cells”

11:15 – 11:30 Valentin Laplaud
Physique et Mécanique des Milieux Hétérogènes, ESPCI Paris & Institut Curie, PSL Research University, Paris, France
“Direct measure of thickness and dynamic of the cell cortex”

11:30 – 11:45 Solène Song
Laboratoire Matière et Systèmes Complexes, Université Diderot & Institut Jacques Monod, Université de Jussieu, Paris, France
“Mechanical constraints in the morphogenesis of the gastrovascular system of the jellyfish *Aurelia aurita*”

12:30 - 14:00 *Lunch*

Wednesday, October 24 (Afternoon)

Session chair: Jean-Marie Frachisse (CNRS, I2BC, Univ. Paris-Saclay, France)

14:00 - 14:45 Boris Martinac
Victor Chang Cardiac Research Institute & St Vincent's Clinical School, Faculty of Medicine, University of New South Wales, Darlinghurst, Australia
"Tuning mechanosensing at the membrane interface by asymmetry of transbilayer pressure profile"

14:45 - 15:30 Benjamin Engel
Dpt of Molecular Structural Biology, Max Plank Institute of Biochemistry, Martinsried, Germany
"Exploring the molecular landscape of Chlamydomonas with in situ cryo-electron tomography"

15:30 - 16:00 *Coffee break*

16:00 - 16:45 Rob Phillips
Depts of Physics & of Biology and Biological Engineering, California Institute of Technology, Pasadena, USA
"The Two-State World View as Biology's Greatest Model"

16:45 - 17:30 Giovanni Cappello
Laboratoire Interdisciplinaire de Physique, Université Grenoble Alpes, France
"Is Extracellular Matrix a pressure sensor?"