

# 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	G. Charras	A. Leforestier
09:45 - 10:30	G. Karpen	T. Perkins	Y. Tor
10:30 - 11:00	<i>coffee break</i>		
11:00 - 11:45	Student sessions		
	N. Kallweit	G. Jacucci	P. Durand-Smet
	B. Bruininks	M. Bailey	V. Laplaud
	M. Valet	S.K. Nomidis	S. Song
11:45 - 12:30	U. Endesfelder	V. Gabelica	S. Tzlil
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)

**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

**11:00 - 11:45** Student Session 1

**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”***

**11:45 - 12:30** 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”***

**12:30 - 14:00** Lunch

# Monday, October 22 (Afternoon)

**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)

**9:00 - 9:45** Guillaume Charras  
London Centre for Nanotechnology & Department of Cell and Developmental Biology, University College London, United Kingdom  
***"Blistering and buckling in epithelial monolayers"***

**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- $\mu$ s resolution force spectroscopy"***

**10:30 - 11:00** *Coffee break*

### **11:00 - 11:45** Student Session 2

**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"***

**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"***

**12:30 - 14:00** *Lunch*

## Tuesday, October 23 (Afternoon)

**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)

**9:00 - 9:45** 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"*

**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*

## **11:00 - 11:45** Student Session 3

**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"*

**11:45 - 12:30** Shelly Tzlil  
Mechanical Engineering Faculty, Technion, Israel  
*"Mechanical communication in cardiac cell beating and in the sensory nervous system"*

**12:30 - 14:00** *Lunch*

## Wednesday, October 24 (Afternoon)

- 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?"*