

# Program

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## Monday, 13 September

- 08:00 - 13:00 Registration and informal discussions  
(on-site & in gather.town)
- 12:30 - 13:30 Welcome lunch
- 13:45 - 14:00 **Frank Jülicher & Steffen Rulands**  
**(scientific coordinators)**  
Opening  
  
*Chair: Steffen Rulands*
- 14:00 - 14:30 **Thomas Quail** (MPIPKS)  
Force generation by protein-DNA co-condensation
- 14:30 - 15:00 Coffee break
- 16:00 - 16:30 **Wolfram Poenisch** (University of Cambridge)  
Stochastic dynamics of cell shape during cell state transitions
- 16:30 - 17:30 VIRTUAL  
**Nathalie Balaban** (The Hebrew University of Jerusalem)  
A statistical physics view of cells under strong perturbations
- 17:30 - 18:00 **Preeti Sahu** (IST Austria)  
Biomechanics of stem cell fate determination
- 18:00 - 18:30 **Martha Carolina Elizondo Cantu** (Institut Curie)  
Optogenetic control of pheromone expression and degradation in budding yeast

## Program

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18:30 - 19:30	Dinner
19:30 - 20:00	<b>Giovanni Dalmasso</b> (EMBL Barcelona) 4D reconstruction of developmental trajectories
20:00 - 20:30	<b>Manuel Reinhardt</b> (AMOLF Amsterdam) Using Stochastic Simulations to Compute the Information Rate of Biochemical Signaling
20:30 - 21:30	Informal discussions (on-site & in gather.town)

**Tuesday, 14 September**

*Chair: Charlie Duclut*

09:00 - 09:30

VIRTUAL

**Amit Singh** (Institut Curie)

A mechano-osmotic feedback couples cell volume to the rate of cell deformation

09:30 - 10:00

**Daniel Boockock** (IST Austria)

Theory of mechano-chemical patterning and optimal migration in cell monolayers

10:00 - 10:30

**Stefano Bo** (MPIPKS)

Stochastic dynamics of single molecules across phase boundaries

10:30 - 11:00

Coffee break

*Chair: Wolfram Poenisch*

11:00 - 11:30

VIRTUAL

**Diana Khoromskaia** (University of Geneva)

Active morphogenesis of epithelial shells

11:30 - 12:00

**Ander Movilla** (Institut Curie)

Compaction and localization of the bacterial nucleoid

12:00 - 12:30

VIRTUAL

**David Oriola** (EMBL Barcelona)

Arrested coalescence of multicellular aggregates

12:30 - 13:30

Lunch break

*Chair: Vittore Scolari*

13:30 - 14:00

VIRTUAL

**Shi-Lei Xue** (IST Austria)

Active mechanics-induced large-scale curvature sensing of epithelial monolayers

14:00 - 14:30

**Joanna Podkalicka** (Institut Curie)

Caveolin-assisted sphingolipid transport to the plasma membrane

14:30 - 15:00

**Sumanjit Datta** (EMBL Heidelberg)

Chromosome condensation by condensin at single-molecule resolution

15:00 - 15:30

Coffee break

*Chair: Giovanni Dalmaso*

15:30 - 16:00

**Ramon Creyghton** (AMOLF Amsterdam)

Possibilities for entropy driven segregation of chromosomes in dumbbell-shaped cells

16:00 - 16:30

**Gerardo Ceada**

(Institute for Bioengineering of Catalonia (IBEC))

Mechanical compartmentalization of the intestinal organoid enables crypt folding and collective cell migration

*Chair: Steffen Rulands*

16:30 - 17:00

Poster Flash Session via Zoom

17:00 - 18:00

Poster Session in gather.town

19:00

Physical Biology Circle Meeting dinner & discussions at **Fährgarten Johannstadt**, Käthe-Kollwitz-Ufer 23b, 01307 Dresden

**Wednesday, 15 September**

*Chair: Frank Jülicher*

09:00 - 09:30

VIRTUAL

**Oleg Mikhajlov** (Institut Curie)

Dynamics of early stages of cell adhesion on fluid substrates

09:30 - 10:30

**Anne Grapin-Botton** (MPICBG)

Self-organization in organoids

10:30 - 11:00

Coffee break

*Chair: Stefano Bo*

11:00 - 11:30

**Felix Meigel** (MPIPKS)

The interplay between organelle and molecular dynamics enables timing of cellular decisions

11:30 - 12:00

**Florian Gaertner** (IST Austria)

WASP-driven actin foci act as mechanosensitive bumpers facilitating amoeboid immune cell migration in dense tissues

12:00 - 12:30

**Yuki Hayashi** (EMBL Heidelberg)

Mapping the nucleolar reorganization by RNA polymerase I inhibition

12:30 - 13:30

Lunch break

*Chair: Florian Gaertner*

13:30 - 14:00

**Leanne Strauss** (EMBL Heidelberg)

Membrane-to-Cortex Attachment Regulates Cortical Mechanics

- 14:00 - 14:30      **Charlie Duclut** (MPIPKS)  
Nonlinear rheology of cellular networks
- 14:30 - 15:00      **Burak Demirbas** (AMOLF Amsterdam)  
Function & mechanism of DAF-16 nuclear translocation pulses
- 15:00 - 15:30      Coffee break  
  
*Chair: Steffen Rulands*
- 15:30 - 16:00      VIRTUAL  
**Mathilde Lacroix** (Institut Curie)  
Collective contact guidance triggers polar laning of turbulent epithelial monolayers
- 16:00 - 16:30      VIRTUAL  
**Hanna Häkkinen**  
(Centre for Genomic Regulation (CRG))  
Molecular and biophysical mechanisms of protrusion plasticity in epithelial cells during phagocytic tissue clearance
- 16:30 - 17:00      **Lucina Kainka** (Universität des Saarlandes)  
Analysis of the actin cortex nano- and microstructure of cancer (Mcf-7) and noncancer (Mcf-10a) cells
- 17:00 - 17:15      Closing & departure