

# BIOMEMBRANE DAYS 2025



SEPT. 29  
TO OCT. 1,  
2025



## PROGRAM



**LOCATION:** Harnack-Haus Berlin

**REGISTRATION:** <https://biomembrane-days-2025.mpikg.mpg.de>

**ORGANIZERS:** Rumiana Dimova, Helge Ewers, and Thomas Weikl

The conference is supported by:

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## Monday, September 29

### 09:05 - 10:15 | Session 1 | Chair: Andreas Janshoff

#### 09:00 - 09:05 | Welcome

09:05 - 09:35 | **Reinhard Lipowsky** - *The fluid architecture of biomembranes and vesicles*

09:35 - 09:55 | **Yifan Ge** - *Three-phase prewetting by TFAM at the mitochondrial inner membrane drives nucleoid assembly*

09:55 - 10:15 | **Claudia Contini** - *Synthetic cells: from soft matter to cell-like behaviours*

### 10:15 - 10:45 | Coffee Break, Poster Mounting & Viewing

### 10:45 - 12:25 | Session 2 | Chair: Tom Robinson

10:45 - 11:15 | **Erdinc Sezgin** - *Biophysical properties of cells and nanoscale bioparticles as new biomarkers in health and disease*

11:15 - 11:45 | **Jeanne Stachowiak** - *Intrinsic disorder as an organizing principle for membrane bending*

11:45 - 12:05 | **Eva Sevcsik** - *Probing the nanoscopic environment of transmembrane proteins in living cells reveals the absence of tightly associated boundary lipids*

12:05 - 12:25 | **Carla Kirschbaum** - *Characterising lipid transfer proteins and their cargo by native mass spectrometry*

### 12:30 - 14:00 | Lunch

### 14:00 - 15:10 | Session 3 | Chair: Claudia Contini

14:00 - 14:30 | **Zheng Shi** - *A genuine fluorescent sensor for membrane tension*

14:30 - 14:50 | **Agata Witkowska** - *Membrane tension control of neurotransmission via the disordered domain of an endocytic protein*

14:50 - 15:10 | **Javier Montenegro** - *Supramolecular dynamic chemistry for membrane transport and biomimetic systems*

### 15:10 - 15:40 | Coffee Break and Poster Viewing

### 15:40 - 17:30 | Session 4 | Chair: Saša Svetina

15:40 - 16:10 | **Patricia Bassereau** - *A minimal human ESCRT-III system to mimic HIV-1 detachment*

16:10 - 16:30 | **Bert Poolman** - *Structural and functional implications of in vivo phase separation of membrane protein in Escherichia coli*

16:30 - 16:50 | **Dragomir Milovanovic** - *Contact sites at the interface of membraneless organelles and membranes*

16:50 - 17:10 | **Charu Sharma** - *From curvature sensing to membrane scission: real time visualization reveals mechanistic insights into DynaminA mediated synthetic cell-division*

17:10 - 17:30 | **Janett Göhring** - *CD4+ T-cells create a stable mechanical environment for force-sensitive TCR:pMHC interactions*

### 18:00 | Poster Viewing and Snacks Dinner

## Tuesday, September 30

### 08:30 - 10:00 | Session 5 | Chair: Andreas Heuer

- 08:30 - 09:00 | **Roland Wedlich-Söldner** - *Adaptation of plasma membrane domains to metabolic stress*
- 09:00 - 09:20 | **Claudia Steinem** - *Dynamics of ordered domains in pore-spanning membranes: comparing artificial bilayers with plasma membranes*
- 09:20 - 09:40 | **Frederick Heberle** - *Investigating the influence of membrane dipole potential on liquid-ordered/liquid-disordered phase separation in model membranes*
- 09:40 - 10:00 | **Tiemei Lu** - *Dynamic interactions between coacervates and membranes: from endocytosis to penetration*

### 10:15 - 10:45 | Coffee Break and Poster Viewing

### 10:45 - 12:25 | Session 6 | Chair: Karin Riske

- 10:45 - 11:15 | **Ewa Paluch** - *The nanoscale regulation of cell surface mechanics in cell and tissue morphogenesis*
- 11:15 - 11:35 | **Oliver Rocks** - *Formation of giant membrane rods through lipid unmixing and segregation of ER-shaping proteins under thermal stress*
- 11:35 - 11:55 | **Christian Eggeling** - *Zooming in into lipid membrane structure and dynamics with super-resolution MINFLUX microscopy*
- 11:55 - 12:25 | **Rumiana Dimova** - *When a droplet meets a membrane: membrane remodeling by bimolecular condensates*

### 12:30 - 14:00 | Lunch

### 14:00 - 15:10 | Session 7 | Chair: Aleš Iglič

- 14:00 - 14:30 | **Omer Dushek** - *Optimising CAR-T cell sensitivity by engineering extracellular receptor/ligand sizes*
- 14:30 - 14:50 | **Harsha Bajaj** - *Dynamic duos: coacervate-lipid membrane interactions in regulating membrane transformation and condensate size*
- 14:50 - 15:10 | **Gerald Hammond** - *Balancing the membrane: feedback and feedforward regulation of plasma membrane PI(4,5)P<sub>2</sub>*

### 15:10 - 15:40 | Coffee Break and Poster Viewing

### 15:40 - 17:30 | Session 8 | Chair: Daxiao Sun

- 15:40 - 16:10 | **Markus Deserno** - *On the thermodynamics of ternary asymmetric lipid membranes*
- 16:10 - 16:30 | **Seraphine Wegner** - *Light based communication between cells across membranes*
- 16:30 - 16:50 | **Ludger Johannes** - *GlycoSwitch — a novel signaling circuit to control endocytosis*
- 16:50 - 17:10 | **Petia Vlahovska** - *Curvature dynamics of biomembranes: role of membrane viscosity and interleaflet friction*
- 17:10 - 17:30 | **Tanmoy Ghosh** - *Elevated actin contractility combined with cargo-loaded clathrin pits decisively shapes midplane-peaked apico-basal tension profiles in HeLa cells*

### 18:00 | Conference Dinner and Poster Session

## Wednesday, October 1

### 08:30 - 10:00 | Session 9 | Chair: James Saenz

08:30 - 09:00 | **Jay Groves** - *Protein condensation and signal transduction on the membrane*

09:00 - 09:20 | **Yuka Sakuma** - *Long-range viscosity of *C. elegans* plasma membrane*

09:20 - 09:40 | **Jan Steinkühler** - *Reconstitution of electrically excitable membranes and lipid nanotubes*

09:40 - 10:00 | **Giacomo Fiorin** - *Simulating membrane remodeling under asymmetric and symmetric membrane tensions*

### 10:05 - 10:35 | Coffee Break and Poster Viewing

### 08:30 - 10:00 | Session 10 | Chair: Jelger Risselada

10:35 - 11:05 | **Padmini Rangamani** - *Biophysical modeling of membrane curvature generation by the glycocalyx*

11:05 - 11:35 | **Alf Honigsmann** - *Role of adhesion protein size on segregation of epithelial cell junctions*

11:35 - 11:55 | **Kandice Levental** - *Nanoscale organization of living membranes by protein paralipidomes*

11:55 - 12:15 | **Rainer Böckmann** - *Unraveling the stability, dynamics, and mechanics of cellular model membranes through multiscale simulations*

### 12:30 - 14:00 | Lunch

### 14:00 - 15:10 | Session 11 | Chair: Kandice Levental

14:00 - 14:30 | **Michael Kozlov** - *Model for tension propagation in crumpled compartmentalised cell membranes*

14:30 - 15:00 | **Helge Ewers** - *Membrane compartmentation by submembrane actin rings*

15:00 - 15:30 | **Georg Pabst** - *Can lipid asymmetry allosterically modulate integral membrane protein function?*

### 15:30 - 16:00 | Coffee Break (please remove posters from boards)

### 16:00 - 17:50 | Session 12 | Chair: Antonio Stocco

16:00 - 16:30 | **Petra Schwille** - *Protein-driven membrane remodeling for synthetic cell division*

16:30 - 17:00 | **Ilya Levental** - *Lipid number asymmetry: The hidden dimension of mammalian plasma membranes*

17:00 - 17:20 | **Thomas Weikl** - *Excess area and elasticity of the Piezo protein-membrane nanodome*

### 17:20 - 17:50 | Closing Remarks & Best Poster Awards