PROGRAMME

Emerging Trends in Physics of the Cell

15 – 18 OCTOBER 2025 AT THE CPA, TUM, GARCHING, GERMANY

Wednesday 15th October

14:00 – 14:15	Welcome: Andreas Bausch
	It all begins with Membranes
	Chair: Andreas Bausch
14:15 – 14:40	Patricia Bassereau, Institute Curie CNRS, France **"Membrane mechanics affects function and clustering of active membrane transporters"**
14:40 – 15:05	Jay Groves, UC Berkeley, USA **"Phase transitions and signal transduction at the membrane"**
15:05 – 15:30	Reinhard Lipowsky, MPIKG, Germany **"Remodeling of biomembranes and vesicles"**
15:30 – 16:00	*Coffee break*
16:00 – 16:25	Lindsay Case, MIT, USA **"Understanding the role of membranes in regulating condensates"**
16:25 – 16:50	Cornelia Monzel, University of Stuttgart, Germany **"Multi-modal fluorescence spectroscopy and nanoscopy for the study of cell receptor interactions"**
16:50 – 17:15	Atul Parikh, UC Davis, USA **"Mixing Water, Transducing Energy, Shaping Membranes: How Osmotic Stresses Model Membranes"**
17:15 – 17:45	Poster/Flash talks
18:00	*Opening Mixer and Flying Dinner/Poster Session*

Thursday 16th October

	Interface Matters
	Chair: Motomu Tanaka
9:00 – 9:25	David Weitz, Harvard University, USA **"Soft matter physics for the rheology of a cell"**

9:25 – 9:50	Regine von Klitzing, TU Darmstadt, Germany **"From liquid interfaces to foams: a multiscale study"**
9:50 – 10:15	Claudia Steinem, Universität Göttingen, Germany **"Deciphering Actin Cortices: The Roles of Membrane and Ezrin in Actin Network Organization"**
10:15 – 10:45	*Coffee break*
10:45 – 11:10	Tommy Nylander, Lund University, Sweden **"Lipid self-assembled at interfaces - from bilayers to non-lamellar structures"**
11:10 – 11:35	Emanuel Schneck, TU Darmstadt, Germany **„Electrostatics at membrane surfaces: From lipid/RNA interactions to superchaotropic ions"**
11:35 – 12:00	Jörg Renkawitz, LMU, Germany **"Cells Safeguard Organelles from Mechanical Damage to Preserve Function"**
12:00 – 13:30	*Networking Lunch*

The active Cytoskeleton

Chair: Matthias Rief

13:30 – 13:55	Laurent Blanchoin, CNRS Grenoble, France **"Reconstituting the Dynamic Steady States of Actin Networks"**
13:55 – 14:20	Andreas Janshoff, University of Göttingen, Germany **"In-plane resistance of tissue to external strain - the influence of cell polarity and junctions"**
14:20 – 14:45	Ben Fabry, University Erlangen-Nuremberg, Germany **"Mechanics of Immune Cell Migration: The Role of Traction Forces in Tissue Navigation"**
14:45 – 15:15	*Coffee break*
15:15 – 15:40	Sarah Köster, University of Göttingen, Germany **"High strains in biology: from single filaments to networks and cells"**
15:40 – 16:05	Franziska Lautenschläger, University of Saarland, Germany **"Microtentacles in Circulating Tumor Cells"**
16:05 – 16:30	Poster/Flash talks

16:30 – 17:30	*Poster Session with drinks*
19:00	*Dinner (venue: Augustiner Keller, Munich City Center)*

Friday 17th October

	Out of equilibrium systems Chair: Joachim Rädler
9:00 – 9:25	Udo Seifert, University of Stuttgart, Germany **"Inferring entropy production in bio-molecular and cellular systems"**
9:25 – 9:50	Ulrich Schwarz, University of Heidelberg, Germany **"Modelling optogenetic control of cell contractility"**
9:50 – 10:15	Timon Nast-Kolb, TUM, Germany **"Phase separation strength of zyxin-VASP controls actin filament treadmilling"**
10:15 – 10:45	*Coffee break*
10:45 – 11:10	Frank Jülicher, MPI PKS, Germany **"Active Processes in Condensates and Droplets"**
11:10 – 11:35	Kristian Franze, FAU, Germany **"The chemo-mechanical regulation of brain development"**
11:35 – 12:00	Sanjay Kumar, University of California, Berkeley, USA **"Finding the low-stress path: Viscoelastic 3D environments support rapid, collective tumor invasion"**
12:00 – 13:30	*Networking Lunch*
14:00 – 18:00	**Scientific Legacy of Erich Sackmann: Pioneer in Biophysics and Mentor in Education** (venue: Physics building) Contributions by former colleagues and team members
14:00 – 15:00	**Göttingen and Ulm: Liquid crystal and monolayer** Chair: Hermann Gaub Hans-Joachim Galla, Papiya Sengupta-Nandy, Wolfgang Knoll, Johann Engelhardt
15:00 – 15:30	*Coffee break*

15:30 – 16:30	**Munich 1985 – 2000: Vesicles, SLM and actin** Chair: Rudolf Merkel Jacques Prost, Erwin Frey, Rainer Jordan, Monika Fritz
16:30 – 17:00	*Break*
17:00 – 18:00	**Munich 2000 – 2010: Cytoskeleton and living cells** Chair: Kheya Sengupta David Andelman, Berenike Maier, Ingrid Weiss, Alexandra Zidovska
18:00	Rudolf Merkel: Closing Remarks
19:00	*Social Dinner (venue: Marriott Hotel Garching)*

Saturday 18th October

Cells in Context

Chair: Karen Alim

9:00 – 9:25	Stephan Grill, MPI-CBG, Germany **"Physics of left-right body axis establishment"**
9:25 – 9:50	Dennis Discher, University of Pennsylvania, USA **"Intrudopodia for the masses, lipid droplet physics & stress-enhanced fluctuations (in genetics) "**
9:50 – 10:15	Shelly Tzlil, Technion, Israel **"Elastic-mediated interactions between cells"**
10:15 – 10:45	*Coffee break*
10:45 – 11:10	Kinneret Keren, Technion, Israel **„Mechanochemical coupling in Hydra regeneration"**
11:10 – 11:35	Ryo Suzuki, TMU, Japan **"Synergistic spatiotemporal interplay of active tissue deformation and Wnt signalling in Hydra regeneration"**
11:35 – 12:00	Kurt Schmoller, Helmholtz Munich, Germany **"AI-driven automated microscopy video analysis reveals a major origin of species-level cell cycle diversity"**
12:00 – 13:30	*Networking Lunch*