

Program



Research Training Group
Structure Formation of
Soft Matter at Interfaces



Tuesday, 7 October 2025

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|-------------|------------------------|---|---|
| 8:00–8:50 | Registration | | |
| 8:50–9:00 | Welcome remarks | | |
| 9:00–9:40 | IS | Peter Fratzl Max Planck Institute of Colloids and Interfaces, Potsdam | On the role of internal stresses in shaping tissues during growth |
| 9:40–10:20 | IS | David Lynn Emory University, Atlanta | Biomolecular Condensates: Nature's Conformational Computer |
| 10:20–10:50 | Coffee break | | |
| 10:50–11:10 | CT | Mahesh Yadav Johannes Gutenberg University, Mainz | Biomolecular condensates with a Twist: From Assembly to Arrest |
| 11:10–11:30 | CT | Marius Thomas Johannes Gutenberg University, Mainz | Dynamic 1D Supramolecular Peptide Amphiphile Assemblies |
| 11:30–12:10 | IS | Paul van der Schoot Eindhoven University of Technology | Chirality Amplification and Deracemisation in Liquid Crystals |
| 12:10–13:40 | Lunch | | |

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| 12:10–13:40 | Lunch, cont. | | |
| 13:40–14:20 | IS | Sissi de Beer University of Twente, Enschede | Controlling Molecular Absorption using Polymer Brushes |
| 14:20–14:40 | CT | Joan Cerdá University of the Balearic Islands, Palma | Tuning the behavior of dipolar brush polymers and polymer suspensions by enhancement of Kelvin forces using external fields |
| 14:40–15:00 | CT | Rodrique Badr Johannes Gutenberg University, Mainz | Dynamics of Moving Droplets on Lubricated Polymer Brushes |
| 15:00–15:20 | CT | Souraj Mandal Technical University Darmstadt | Microgels for Enhanced Adsorption of Endothelial Cells on Artificial Networks |
| 15:20–15:50 | Coffee break | | |
| 15:50–18:00 | Poster session & refreshments | | |

IS: Invited Speaker, CT: Contributed Talk

Topics:

- Fluid Interfaces
- Polymer Brushes
- Supramolecular Functional Materials & Hybrid Interfaces

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Wednesday, 8 October 2025

| | | | |
|-------------|---------------------|--|---|
| 9:00–9:40 | IS | Roland Netz Free University Berlin | Water and electrolytes at interfaces and in confinement |
| 9:40–10:20 | IS | Giulia Celora University of Oxford | Electrochemical Regulation of Phase Separation in Complex Fluids |
| 10:20–10:50 | Coffee break | | |
| 10:50–11:30 | IS | Jacopo Vialetto University of Florence | Harnessing fluid interfaces for colloidal assembly |
| 11:30–12:10 | CT | Dietmar Auhl Technical University Berlin | Multiphase-morphology development in polymer blends, particle-filled composites, and recycles |
| 12:10–13:40 | Lunch | | |

IS: Invited Speaker, CT: Contributed Talk

Topics:

- Fluid Interfaces
- Dissipative & Non-Equilibrium Assemblies
- Molecular Engineering
- Multiscale Assemblies

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| 12:10–13:40 | Lunch, cont. | | |
| 13:40–14:20 | IS | Dora Tang University of Saarland, Saarbrücken | From molecules to life: building living systems from scratch |
| 14:20–14:40 | CT | Lorena Baranda Johannes Gutenberg University, Mainz | DNA Flipping as Facile Mechanism for Transmembrane Signaling in Synthetic Cells |
| 14:40–15:00 | CT | Emanuele Zippo Johannes Gutenberg University, Mainz | Molecular simulations of enzymatic phosphorylation of disordered proteins and their condensates |
| 15:00–15:30 | Coffee break | | |
| 15:30–16:10 | IS | Giancarlo Franzese University of Barcelona | Machine Learning, Experiments, Multiscale Simulations, and Theory for Hydrated Protein-Nanoparticle Coronas |
| 16:20–22:00 | Event at Bonzheimer Hof | | |

The event at Bonzheimer Hof will include:

- Concluding Perspectives on Emerging Frontiers for Soft Matter and Materials by Pol Besenius
- Poster Prize Awards
- Conference Dinner

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Thursday, 9 October 2025

| | | | |
|-------------|---------------------|---|--|
| 9:00–9:20 | CT | Marios Giannakou Johannes Gutenberg University, Mainz | Micelle Forming Linear-Dendritic Block Copolymers: A Theoretical Comparison between Random Hyperbranched and Precise Dendrimer Polymer Architectures |
| 9:20–9:40 | CT | Rosa Herrera-Rodriguez Johannes Gutenberg University & IMB, Mainz | Promoter and Gene-Body RNA-Polymerase II co-exist in partial demixed condensates |
| 9:40–10:20 | IS | Paulo C.T. Souza ENS Lyon | Complex Soft Matter with Martini 3: From Supramolecular Aggregates to Lipid Nanoparticles |
| 10:20–10:50 | Coffee break | | |
| 10:50–11:30 | IS | Svenja Hövelmann Kiel University | Controlling structural and mesophase transitions in lipid monolayers and lyotropic liquid crystals with light |
| 11:30–12:10 | CT | Jörg Rottler University of British Columbia, Vancouver | Models for polymer dynamics from dimensionality reduction techniques |
| 12:10–13:40 | Lunch | | |

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| 12:10–13:40 | Lunch, cont. | | |
| 13:40–14:00 | CT | Weixiang Chen Johannes Gutenberg University & MPI Polymer Research, Mainz | Growing Functional Artificial Cytoskeletons in the Viscoelastic Confinement of DNA Synthetic Cells |
| 14:00–14:20 | CT | David Zimmer Johannes Gutenberg University, Mainz | Transient interactions between cationic ionizable lipids and anionic lipids foster lamellar to hexagonal phase transition |
| 14:20–15:00 | IS | Marcus Müller Georg August University, Göttingen | Membrane Fabrication via EISA and NIPS: Insights into the Spatiotemporal Evolution from Computer Simulation |
| 15:00–16:00 | Concluding remarks & refreshments | | |

IS: Invited Speaker, CT: Contributed Talk

Topics:

- Multiscale Assemblies
- Dissipative & Non-Equilibrium Assemblies
- Molecular Engineering

List of Posters

| Name | Affiliation | Title |
|---------------------------|---|--|
| Alvandi, Nikta | Johannes Gutenberg University Mainz | Assembly of DNA Nanotubes in Reductive Conditions |
| Bassoli, Simona | Martin Luther University Halle-Wittenberg | Probing side chain organization across pores in amphiphilic COFs via ssNMR spectroscopy study |
| Baykal, Doruk | Johannes Gutenberg University Mainz | Two-way DNA Flipping Enables Communication Across the Lipid Membrane Interface |
| Beer, Leonie | TU Darmstadt | Enhancing Endothelial Cell Attachment on PNIPAM-Based Microgel Coatings with RGD Ligand Functionalization |
| Corsini, Chiara | ENS de Lyon, France | Porosity and Stability in Porous Ionic Liquids |
| Dias, Leticia Rafaella | Federal University of São Carlos, Brazil | Interaction of ionic liquids with an active pharmacological ingredient with lipid bilayers through molecular dynamics simulation |
| Gfall, Konstantinos | Leibniz Institute for Polymer Research | Coarse-Graining of Polymer-Grafted Nanoparticles Using Local-Density-Dependent Potentials |
| Gießelmann, Niels | Johannes Gutenberg University Mainz | X-ray induced structural changes in supramolecular polymer networks |
| Ghosh, Devika | Johannes Gutenberg University Mainz | Precision Engineering of Protein Oligomers to Uncover Structure-Function Relationships: A Macromolecular Chemistry Approach |
| Hallenbach, Elias | TU Darmstadt | Polymer brush/gold nanoparticle composites: Effect of grafting density on nanoparticle distribution |
| Hempel, Nikolai | Johannes Gutenberg University Mainz | β -Sheet Induced Charge-Regulated Supramolecular Copolymerization for Injectable Thermoresponsive Hydrogel Scaffolds |
| Kumar, Anubhav | Friedrich Schiller University Jena | Molecular engineering of naphthalene diimides for switchable assembly in neutral pH aqueous redox flow battery |
| Kumar, Mohit | Johannes Gutenberg University Mainz | Unveiling liquid-liquid phase-separated droplet state of benzene-1,3,5-tricarboxamide (BTA) in water |
| Mors, Mira | Stuttgart University | Self-Assembly of Porphyrin-Based Monomers into Supramolecular Polymers |
| Munko, Frederik | Johannes Gutenberg University Mainz | Manipulating the structure of thermo-responsive polymer brushes with plasmonically heated nanoparticles |
| Ngueldjou Tahabo, Cyrille | Johannes Gutenberg University Mainz | Designing Transmembrane Signaling Systems in Artificial Cells using DNA Structures |
| Otschkowski, Daniel | Leibniz Institute for Polymer Research | Controlled Assembly of Solvent-Responsive Polymer-Decorated Nanoparticles |
| Philip Alamcheril, Mephin | Johannes Gutenberg University Mainz | Exploring Self-Assembly at Liquid-Liquid Interfaces |
| Ping, Xiaofei | Johannes Gutenberg University Mainz | Semi-coarse-grained simulations of the phase behaviour of multi-domain protein TDP-43 |
| Plenio, Niklas | Johannes Gutenberg University Mainz | Design and Photophysical Behavior of Amphiphilic ESIPT Dyes in Polar Environments |
| Ramachandran, Sayanth | MPI Polymer Research Mainz | Particle deposition from controlled evaporation and electrification |
| Saha, Soumya Kanti | Johannes Gutenberg University Mainz | Wetting Transitions in Electrolyte Solutions: A Classical DFT Study of Ion Concentration and Substrate Effects |
| Sharma, Mayank | Johannes Gutenberg University Mainz | Influence of Ionic Conditions and Confinement on the Liquid-Gas Critical Point of the TIP4P/2005 Water Model |
| Sharma, Surbhi | Johannes Gutenberg University Mainz | Self-Organizing Chemical Patterns from Supramolecular Assemblies |
| Som, Arka | Johannes Gutenberg University Mainz | Enzymatic Transformation of Peptide Recognition and Dynamic Supramolecular Crosslinks |
| Wichai, Kamonthira | TU Darmstadt | Molecular Simulation of Pectin and Cellulosic Mucilage Adhesion on a Flat Substrate |
| Xu, Tao | Johannes Gutenberg University Mainz | Synthetic Aptamer Mechanoreceptors Enable Cell-Specific Force Sensing and Temporal Control via DNA Circuits |
| Zick, Isabell | Johannes Gutenberg University Mainz | Amorphous ice and crystallization at soft interfaces |