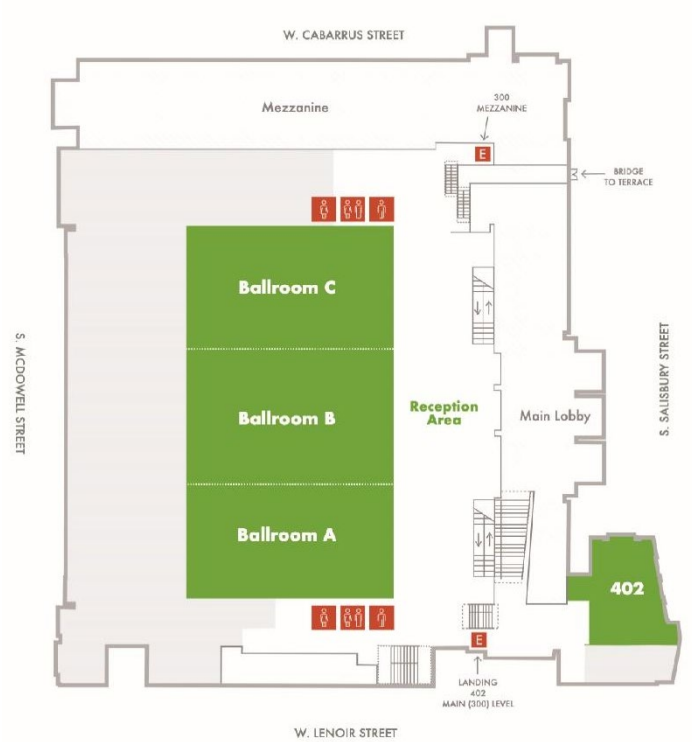


Program of the International Soft Matter Conference 2024, Raleigh, NC

The ISMC2024 will take place in the [Raleigh Convention Center](#) in Raleigh, NC, between July 29, 2024, and August 2, 2024.

Conference Abstract Sorting Categories:

A	Active
B	Biological
C	Colloidal
F	Fluid Dynamics & Rheology
G	Glasses, Granular & Jamming
I	Interfaces, Surfaces & Membranes
L	Liquid Crystals
M	Measurement & Characterization
N	Networks & Gels
P	Polymers
S	Self-Assembly



- Women
- Men
- All-gender/Family
- Elevator
- Open to Below
- Back of House

Monday, July 29, 2024

5:00 PM – 8:00 PM – Registration (see Registration area on the map on the previous page)

6:30 PM – 8:00 PM – Conference Reception (see Reception area on the map on the previous page)

Tuesday, July 30, 2024

7:30 AM – Registration Opens (see Registration area on the map on the previous page)

8:45 AM – Conference Opening Ceremony, Ballroom B

9:15 AM – 10:00 AM - Plenary Session F, Chair: Fyl Pincus, Ballroom B

Howard A. Stone “Physicochemical hydrodynamics and soft matter: From thin films to molecular biology to swimming cells”

10:00 AM – 10:30 AM - Coffee Break

Session	A1 (Room 306 BC)	B1 (Room 305 AB)	P1 (Room 302 BC)	G1 (Room 301 AB)
Chair	Fred MacKintosh	Paul Janmey	Timothy Fornes	Srikanth Sastry
10:30 AM	A1.1: Steve Granick A skeptic's guide to active matter	B1.1: Dennis Discher Rigidity percolation predicts tissue viscoelasticity scaling with fibrillar collagen based on collagenase kinetics imaged by SHG	P1.1: Sanat Kumar Mechanism of micro and nanoplastics	G1.1: Zahra Fakhraai Controlling Glass Equilibration Using Soft Substrates
10:45 AM		B1.2: Kinjal Dasbiswas Modeling active contractility in fibrous living matter		
11:00 AM	A1.2: Carles Calero Self-propulsion at the nanoscale	B1.3: Gijsje Koenderink Living soft matter: bridging cell - free and live-cell perspectives	P1.2: Daniel Rau Multi -material additive manufacturing of polymeric composites with seamless soft - hard interface integration from molecular bonding	G1.2: Francesco Zamponi Creating equilibrium glassy states via random particle bonding
11:15 AM	A1.3: Suzanne Ahmed Tunability and switchability of nanomotor modes of motion utilizing biocompatible actuation methods		P1.3: Alina Kirillova 3D Printing of polymeric and composite porous scaffolds for biomedical applications	

11:30 AM	A1.4: Clemens Bechinger Brownian particles in non-equilibrium baths	B1.4: Sam Safran Novel mesoscale properties of protein condensates: Non-equilibrium activity and conformational freedom	P1.4: Mark Ediger Surface-directed assembly of structured glasses	G1.3: Cacey Bester Force signatures of creep in a photoelastic granular medium
11:45 AM				G1.4: Kai Huang Role of gravity on granular drag: From impacting on to digging into sand
12:00 PM	Sessions end			

12:00 PM - Lunch

12:15 PM – 1:00 PM - Panel Discussion 1, Ballroom B

2:15 PM – 3:00 PM - Plenary Session B, Chair: Patricia Bassereau, Ballroom B
Kinneret Keren “Topological defects and their role in Hydra morphogenesis”

3:00 PM – 3:30 PM Coffee Break

Session	I1 (Room 306 BC)	B2 (Room 305 AB)	C1 (Room 302 BC)	N1 (Room 301 AB)
Chair	Beverly Asoo Stonas	José R Alvarado	Jacinta Conrad	Aniket Bhattacharya
3:30 PM	I1.1: Eric Dufresne Controlling interfacial tension without surfactants in biomolecular condensates	B2.1: Peter Olmsted Diffusion in a multiscale model for the Stratum Corneum	C1.1: Jasna Brujic Colloidal protein analogs	N1.1: Eric Weeks Highly polydisperse colloidal gels
3:45 PM		B2.2: Alexander Alexeev Collective behavior of platelets in fibrin fiber clots		N1.2: Liheng Cai A universal strategy for decoupling stiffness and extensibility of polymer networks
4:00 PM	I1.2: Yohko Yano Investigating viscoelastic behavior of lipid monolayers in spontaneous oscillation of surface tension induced by the Marangoni effect	B2.3: Lakshminarayanan Mahadevan Endless forms most beautiful: geometry, physics and biology	C1.2: Perna Sharma Folding of colloidal membranes into non-Euclidian geometries	N1.3: Kohzo Ito Slide-ring materials for circular economy
4:15 PM	I1.3: William Ducker Porous thin films facilitate rapid evaporation of water droplets			

4:30 PM	I1.4: Jacob Klein Lipid bilayers under transmembrane fields: cell - inspired, massive electromodulation of friction	B2.4: Sharon Lubkin Cell packing in the notochord	C1.3: Amir Pahlavan Diffusiophoretic transport of colloids in disordered media	N1.4: Olga Kuksenok Characterizing dynamic heterogeneities and properties of degrading polymer networks
4:45 PM		B2.5: Julio Belmonte Connectivity and Contraction in Cytoskeletal Networks	C1.4: Jeffrey Richards Engineering the electrical response of conductive suspensions	N1.5: C. Nadir Kaplan Rapid, non-linear diffusio - phoretic swelling of chemically responsive hydrogels
5:00 PM	I1.5: Di Jin Thin films under an electric field	B2.6: Toshiyuki Nakagaki Adaptable network of veins to environmental complexity in an huge amoeboid organism of Physarum plasmodium	C1.5: Ning Wu Assembly of particles under orthogonally applied electric and magnetic field	N1.6: Costantino Creton Ionically conducting elastomers: balancing strength, reversible elasticity and conductivity
5:15 PM	I1.6: Jacopo Vialetto Deposition of complex colloidal assemblies from drop evaporation		C1.6: Gaurav Arya Machine-assisted design of effective potentials for colloidal self-assembly	
5:30 PM	Sessions end			

6:00 PM – 8:00 PM - Poster Session 1, Exhibit Hall A

Wednesday, July 31, 2024

9:15 AM – 10:00 AM – Plenary Session A, Chair Jean-François Joanny, Ballroom B

Ramin Golestanian “Non-reciprocal active matter across the scales”

10:00 AM – 10:30 AM - Coffee Break

Session	A2 (Room 306 BC)	L1 (Room 305 AB)	F1 (Room 302 BC)	S1 (Room 301 AB)
Chair	Orlin Velev	Timothy Bunning	Charles Schroeder	Dean DeLongchamp
10:30 AM	A2.1: Ludovic Berthier Collective motion in very dense active matter	L1.1: Chinedum Osuji Polymer self-assembly and liquid demixing in the presence of liquid crystals	F1.1: Véronique Trappe Memory of shear flow in soft jammed materials	S1.1: Madhavi Krishnan A charge dependent long-ranged force drives tailored assembly of matter in solution
10:45 AM			F1.2: Vanessa Ward Shear Banding as a cause of Non Monotonic Stress Relaxation	

11:00 AM	A2.2: Menachem Stern Physical networks become what they learn	L1.2: Slobodan Žumer Topological soft matter: Some examples from photonics to active and biosystems	F1.3: Itai Cohen Viscosity Metamaterials	S1.2: Erika Eiser Using multivalency and superselectivity of DNA-coated colloids for whole genome detection
11:15 AM	A2.3: Shengkai Li Memory-induced spontaneous symmetry breaking			
11:30 AM	A2.4: Julia Yeomans Active nematics: A new approach to mechanobiology?	L1.3: Xinyu Wang Moiré effect enables versatile design of topological defects in nematic liquid crystals	F1.4: Ralph Colby Determination of molecular weights using a polydisperse Rouse model for semidilute unentangled polyelectrolyte and neutral polymer solutions	S1.3: Thi Vo Rational design of nanoparticle surface patterning for directed self-assembly
11:45 AM		L1.4: Kushal Bagchi Functional soft materials from the directed self-assembly of liquid crystals		S1.4: Andraž Gnidovec Towards controlled self-assembly of curved surfaces
12:00 PM	Sessions end			

12:00 PM - Lunch

12:15 PM – 1:00 PM - Panel Discussion 2, Ballroom B

2:15 PM – 3:00 PM – Plenary Session L, Chair: Seth Fraden, Ballroom B
Shu Yang “Responsive liquid crystalline elastomeric droplets and particles”

3:00 PM – 3:30 PM Coffee Break

Session	I2 (Room 306 BC)	B3 (Room 305 AB)	P2 (Room 302 BC)	S2 (Room 301 AB)
Chair	Ryan Fuierer	James Harden	Matthew Becker	Ramón Castañeda-Priego
3:30 PM	I2.1: Vivek Narsimhan Pearling, buckling, and wrinkling instabilities of multicomponent vesicle threads	B3.1: Oded Farago Multiscale lattice modeling and simulations of heterogeneous membranes	P2.1: Matthew Tirrell Molecular arrangement in polyelectrolyte complex coacervates	S2.1: Greg Grason Misfits unite: Understanding & engineering self-limitation in geometrically frustrated assembly
3:45 PM	I2.2: Dean DeLongchamp Polarized resonant soft X-ray scattering measurements in polymer-grafted nanoparticles	B3.2: Valeria Milam Competition-based selection of universal DNA ligands for antibody fragments		
4:00 PM	I2.3: Marcia C. Barbosa Functionalized carbon nanocones performance in water harvesting	B3.3: Ankur Jain Sequence programmable nucleic acid condensates	P2.2: Jacinta Conrad Phage probes couple to DNA relaxation dynamics across scales and regimes	S2.2: Dwaipayan Chakrabarti Programming self-assembly of colloidal gyroids for advanced materials

4:15 PM		B3.4: Atanu Chatterjee Adapt to bend: An cooperative transport of soft rods	P2.3: Thomas Schroeder Triggering inorganic crystal deposition from polymer-induced liquid precursors	S2.3: Edward Van Keuren Multicomponent liquid -core nanocapsules synthesized with flash nanoprecipitation
4:30 PM	I2.4: Abdelhamid Maali Direct measurement of the hydro -capillary lift force acting on sphere moving along liquid interfaces	B3.5: Cesar Rodriguez Emmenegger Phagocytic synthetic cells: non-living predators to fight bacteria	P2.4: Zhen-Gang Wang Origin of the entropic driving force in polyelectrolyte complex coacervation	S2.4: Xiaoming Mao Frustrated assemblies as incompatible graphs
4:45 PM	I2.5: David Cheung Effect of surface chemistry on conformation and aggregation of amyloid peptides	B3.6: Jay Tang Gastric mucin Promotes the spread of growing bacterial swarm on agar surface		
5:00 PM	I2.6: Ko Okumura A hydrodynamic analog of critical phenomena: an uncountably infinite number of universality classes	B3.7: Andela Šarić Shape-shifting soft matter across evolution "2023 <i>Soft Matter</i> Lectureship Award"	P2.5: Panayotis Benetatos Stretching bistable linear polymers and loops	S2.5: Yulia Shmidov Self-Assembly of Recombinant Elastin-like Polypeptide
5:15 PM			P2.6: Geoffrey Geise Microwave dielectric relaxation spectroscopy: A technique to inform ion transport in hydrated polymer membranes	S2.6: Maggie Daly Design of Peptide-DNA Architectures to Build Functional Artificial Cells
5:30 PM	Sessions end			

7:00 PM – 9:00 PM - Conference Banquet, Ballroom A

Thursday, August 1, 2024

9:15 AM – 10:00 AM – Plenary Session N, Chair: Jian Ping Gong, Ballroom B

Zhigang Suo "Mechanical behavior of a tanglemer – a polymer network in which entanglements greatly outnumber crosslinks"

10:00 AM – 10:30 AM Coffee Break

Session	A3 (Room 306 BC)	L2 (Room 305 AB)	P3 (Room 302 BC)	S3 (Room 301 AB)
Chair	Daphne Klotsa	Edward Samulski	Thomas Halsey	Leah Johnson
10:30 AM	A3.1: Cecile Cottin-Bizonne Active colloids climbing up a wall	L2.1: Christopher Quinones Interparticle friction in sheared, dense suspensions of rod-like particles: Simulations	P3.1: Gary Grest Dynamics of ring polymers	S3.1: Oleg Gang Programming self-assembly and transformations of nanoscale systems

10:45 AM		L2.2: Thomas Parton Chiral doping of a colloidal liquid crystal phase in cellulose nanocrystal suspensions		
11:00 AM	A3.2: Hartmut Löwen Active matter: self-propelled colloids and beyond	L2.3: Ivan Smalyukh Knotted chiral meta matter	P3.2: Ting Ge Elastomer mechanics of cross-linked ring-linear polymer blends	S3.2: Timothy Lodge Equilibration of block copolymer micelles: How difficult can it be?
11:15 AM			P3.3: Myoem Kim Dynamics of polymers with controlled distribution and density of associative groups	
11:30 AM	A3.3: Orlin Velev New mechanisms of active particle propulsion powered by temporally asymmetric AC fields	L2.4: Oleg Lavrentovich Domain structures and space charge in ferroelectric nematic liquid crystals	P3.4: Kurt Kremer Playing with entanglements to structure polymer materials	S3.3: Kateri DuBay Dissipative self-assembly within an oscillating energy landscape
11:45 AM	A3.4: Nitesh Arora Light-driven transformations in entangled active matter			S3.4: Rae Robertson-Anderson Timed material self-assembly controlled by circadian clock proteins
12:00 PM	Sessions end			

12:00 PM - Lunch

12:15 PM – 1:00 PM - Panel Discussion 3, Ballroom B

2:15 PM – 3:00 PM - Plenary Session C, Chair: Hajime Tanaka, Ballroom B
Emanuela Del Gado "Soft particulate networks and their hidden hierarchical nature"

3:00 PM – 3:30 PM Coffee Break

Session	A4 (Room 306 BC)	B4 (Room 305 AB)	F2 (Room 302 BC)	G2 (Room 301 AB)
Chair	James Harden	Rae Anderson	Bavand Keshavarz	Daniel Blair
3:30 PM	A4.1: Alexander Grosberg Active hydrodynamics in the nucleus of a living cell	B4.1: Megan Valentine New approaches to designing and deploying hydrogels for force sensing and control	F2.1: Yoav Tsori Electrolubrication in flowing liquid mixtures	G2.1: Connie Roth Impact of chain connectivity and covalent bonding on the local glass transition temperature of polymers

3:45 PM			F2.2: Saad Khan Nanodiamond -stabilized Pickering emulsions: Microstructure and rheology	G2.2: Gregory McKenna Anomalous behavior of ultrastable glasses and the implications for the glass “transition”
4:00 PM	A4.2: Rony Granek Active fractal networks with stochastic force monopoles and force dipoles unravel subdiffusion of chromosomal loci	B4.2: Brent Hoffman Coupling during collective cell migration	F2.3: Dimitris Vlassopoulos Rheological challenges with polymeric gels	G2.3: Annie Colin Flow of non Brownian suspensions
4:15 PM	A4.3: Ram Adar Environment-stored memory in active matter: a framework for extra-cellular matrix remodeling	B4.3: Xianting Lei De-novo ATP independent contractile protein network		
4:30 PM	A4.4: Rodrigo Soto Kinetic theory for active Brownian particles	B4.4: Ioana Illie Computational engineering of responsive metaparticles	F2.4: Victor Steinberg Amplification of vorticity fluctuations and stochastic resonance in inertia-less viscoelastic channel flow	G2.4: Sarika Maitra Bhattacharyya Exploring the structural contribution to dynamics in supercooled liquids
4:45 PM		B4.5: William Polacheck Cell-derived matrix hydrogels with tunable mechanics for donor-derived microphysiological systems	F2.5: Sara Hashmi Complex fluids in confined flows	
5:00 PM	A4.5: Stewart Mallory Phase behavior and transport of active colloids under extreme confinement	B4.6: Jérémie Palacci Bacteria as blacksmiths	F2.6: Anette Hosoi Bio-inspired filtration: Fluid mechanics of the Manta Ray	G2.5: Shima Parsa Emergence of preferential flow paths in transport of emulsions in porous media
5:15 PM	A4.6: Paarth Gulati Asymmetry in active-passive phase separation			G2.6: Vinutha H. A. Stress relaxation in soft jammed materials
5:30 PM	Sessions end			

6:00 PM – 8:00 PM - Poster Session 2, Exhibit Hall A

Friday, August 2, 2024

9:15 AM – 10:00 AM - Plenary Session M, Chair: Eugenia Kumacheva, Ballroom B
Roberto Cerbino “Multiscale dynamics in inert and living soft matter”

10:00 AM – 10:30 AM - Coffee Break

Session	A5 (Room 306 BC)	B5 (Room 305 AB)	C2 (Room 302 BC)	N2 (Room 301 AB)
Chair	Andrea Liu	Liheng Cai	Preeti Datta	Stephen L. Craig
10:30 AM	A5.1: Sriram Ramaswamy The anomalous long-ranged influence of an inclusion in a viscous active fluid	B5.1: David Hill Neutrophil Extracellular Traps (NETs) in Muco-Obstructive Pulmonary Disease.	C2.1: Paul Chaikin Random to ordered packings: From candies to monster crystals from space	N2.1: Barbara Ruzicka Dynamical and structural behaviour of PNIPAM based microgels
10:45 AM		B5.2: Aniket Bhattacharya Fine structures and missense mutations in intrinsically disordered proteins using Coarse-grained models and machine learning		N2.2: Krassimir Velikov Cellulose microfibrils: Properties and application in complex fluids and soft materials
11:00 AM	A5.2: Luca Giomi Phase transitions in confluent epithelia	B5.3: Meera Ramaswamy Morphodynamics of bacterial communities proliferating in three dimensions	C2.2: Nicolas Fares Confined Brownian motion of soft colloid	N2.3: Monica Olvera de la Cruz Controlling the structure and function of confined electrolytes
11:15 AM		B5.3: Danielle German Bacterial dynamics at the swarm front	C2.3: Steven van Kesteren Light-controlled colloidal crystallization	
11:30 AM	A5.3: Gwynn Elfring The hydrodynamics of active matter in inhomogeneous environments	B5.4: Rebecca Schulman Programmed spatiotemporal dynamics and pattern recognition in soft materials with synthetic biochemical signaling networks	C2.4: Delia Milliron Interactions and assemblies of colloidal nanocrystals	N2.4: Michael Dickey Ultra tough ionogels
11:45 AM	A5.4: Mickaël Bourgoïn Magnetic Janssen effect			N2.5: Avisek Das Correlated orientational disorder in crystalline assemblies of hard convex polyhedral
12:00 PM	Sessions end			

12:15 PM – 1:00 PM – Ballroom B Business Meeting of Soft Matter Association of the Americas and ISMC 2024 Closing Ceremony