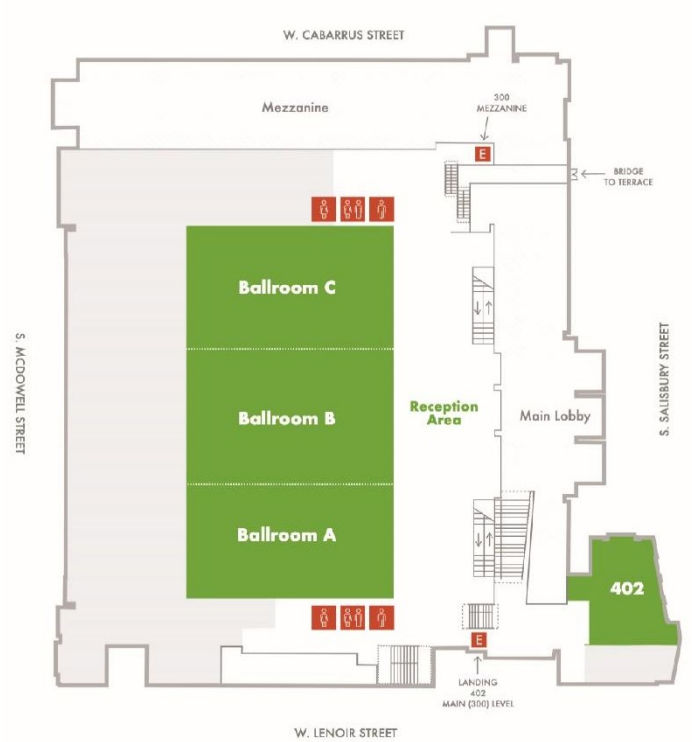
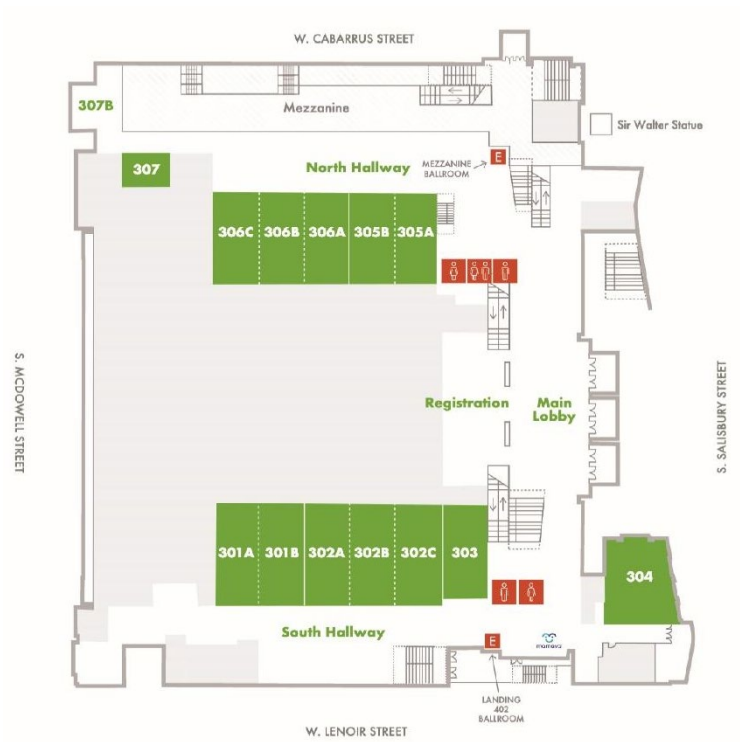


Program of the International Soft Matter Conference 2024, Raleigh, NC

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

Opening Remarks by

Dr. Penny Gordon-Larsen, Vice Chancellor for Research, University of North Carolina at Chapel Hill

Dr. Chris Clemens, Provost and Chief Academic Officer, University of North Carolina at Chapel Hill

Dr. Jennifer Lodge, Vice President for Research and Innovation, Duke University

Dr. Peter Fedkiw, Interim Associate Dean for Research and Infrastructure, College of Engineering at NC State University

Dr. Genevieve Garland, Senior Associate Vice Chancellor of Research, Development and Operations, NC State University

Senator Paul Newton

Ribbon Cutting

Conference Background and Week Review: Michael Rubenstein

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: Prema 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 Fuijter	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

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		assembly
4:00 PM	I2.3: Yendry Corrales Urena 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	I2.3.1: Penger Tong AFM force clamping and extension spectroscopy studies of velvet worm slime proteins at different pH and buffer conditions	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	Preetta 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 Bourgoin 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

