



**EMORY**  
UNIVERSITY



**Georgia Institute**  
**of Technology**

## **10<sup>th</sup> Southeast Meeting on Soft Materials**

**Friday, May 12, 2017, Georgia Institute of Technology**

**Scheller College of Business**

**Invited Talks and Sound Bites – Room 200**

**Breakfast, lunch, and refreshments – Atrium**

## **PROGRAM**

**8:00 am – 8:30 am**

Arrival and breakfast

**8:30 am – 8:40 am**

Welcome and opening remarks (Jennifer Curtis and Justin Burton)

**8:40 am – 9:30 am**

**Keynote Talk**

**Itai Cohen** (Cornell University)

*Atomic Origami: A technology platform for nanoscale machines, robots, and material building blocks*

**9:30 am – 10:20 am**

**Invited Talk**

**Ravi Kane** (Georgia Institute of Technology)

*The design of nanoscale therapeutics and nanostructured materials*

**10:20 am – 10:40 am**

Coffee and refreshments

**10:40 am – 11:30 am**

**Sound Bites I: Nanoscale and Nonlinear Mechanics**

Chair: Justin Burton

**11:30 am – 12:20 pm**

**Invited Talk**

**Alberto Fernández-Nieves** (Georgia Institute of Technology)

*Toroidal physics*

**12:20 pm – 1:30 pm**

Lunch and refreshments

**1:30 pm – 2:20 pm**

**Invited Talk**

**Khalid Salaita** (Emory University)

*Polymer nanoparticle actuators as synthetic muscle to study mechanochemistry and mechanobiology*

**2:20 pm – 3:10 pm**

**Sound Bites II: Physics of Living Systems and Biophysics**

Chair: Jennifer Curtis

**3:10 pm – 3:30 pm**

Coffee and refreshments

**3:30 pm – 4:20 pm**

**Invited Talk**

**Eric Weeks** (Emory University)

*2D and 3D colloidal glass transitions: Does dimensionality really matter?*

**4:20 pm – 5:10 pm**

**Sound Bites III: Complex Fluids and Particles**

Chair: James Kindt

**5:10 pm – 5:20 pm**

**Sound Bite Winners and Prizes Announced!!!**

**5:20 pm**

**Meeting Adjourn**

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**Sound Bite Session I: Nanoscale and Nonlinear mechanics**

**Jonathan Michel** (Georgia Institute of Technology)

*Role of structural hierarchy in elastic network mechanics*

**Sunghan Kim** (Georgia Institute of Technology)

*Interfacial shear strength of silk ionomer LbL-microcapsules*

**Shashank Markande** (Georgia Institute of Technology)

*A chiral minimal surface from space group symmetries*

**Perry Ellis** (Georgia Institute of Technology)  
*Nematic materials in toroidal geometries*

**Michael Dimitriyev** (Georgia Institute of Technology)  
*Coupled geometry and order in quenched hydrogel rods*

**Nicholas Cuccia** (Emory University)  
*Surface friction of polyacrylamide hydrogel particles*

**Svetoslav Nikolov** (Georgia Institute of Technology)  
*Understanding micromechanics of stimuli-sensitive microgels using dissipative particle dynamics*

**Justin Pye** (Emory University)  
*No-slip and anomalous behavior at the liquid/solid interface*

**Maritza Mujica** (Georgia Institute of Technology)  
*Double emulsion templated microreactors for nanowire synthesis*

**Richard Sullivan** (Georgia Institute of Technology)  
*Exploring relationships between gold nanorod aptamer structures*

**Xinru Huang** (Emory University)  
*Use of tethered chains to alter the local glass transition temperature of polystyrene near silica substrates*

**Cornelia Rosu** (Georgia Institute of Technology)  
*Polypeptide-assisted organization of conjugated polymers into responsive, soft 3D networks*

**Suneesh Karunakaran** (Georgia Institute of Technology)  
*Schuster non-covalent terminators and supramolecular polymers: Boltzmann control over length, dispersity, and hydrogel viscosity*

**Wenbin Wei** (Georgia Institute of Technology)  
*Dynamic polymer brush interfaces generated by hyaluronan synthase*

**Rezwan Rafid Mohammed** (Gwinnett College)  
*Self-assembly and gelation studies of simple steroidal molecular gelators*

**Michael Thees** (Emory University)  
*Trying to understand unexpected differences in glassy stability for high molecular weight thin films*

## **Sound Bite Session II: Physics of Living Systems and Biophysics**

**Skanda Vivek** (Georgia Institute of Technology)

*Material properties in *V. Cholerae* biofilms*

**Alisina Bazrafshan** (Emory University)

*Programming microbots for sensing applications*

**Michael Tennenbaum** (Georgia Institute of Technology)

*Rheology of active matter: Mechanics of fire ant aggregations*

**Andrea Welsh** (Georgia Institute of Technology)

*Pattern formation of brine shrimp aggregation*

**Arben Kalziqi** (Georgia Institute of Technology)

*Killing to fluctuate, or: Fluctuation-response theorem in biofilms*

**Michelle Gaines** (Georgia Institute of Technology)

*Collective cell proliferation on 3D hydrogels*

**David Yanni** (Georgia Institute of Technology)

*Killing mediated spatial structure in *V. Cholerae* biofilms*

**Bo Broadwater** (Georgia Institute of Technology)

*Probing the energy landscape of branch migration in DNA strand displacement*

**Manali Banerjee** (Georgia Institute of Technology)

*Surface modifications of nanocellulose for applications in pharmaceutical crystallization*

**Shlomi Cohen** (Georgia Institute of Technology)

*Collective cell migration in development and cancer*

**Ki Wolf** (Georgia Institute of Technology)

*Fluid-structure model of lymphatic valve and vessel*

**Patricia Yang** (Georgia Institute of Technology)

*Hydrodynamics of defecation*

**Valeria Milam** (Georgia Institute of Technology)

*DNA aptamer screening for dynamic proteins*

**Callen Rhodes** (Gwinnett College)

*Design of pharmaceutically active soft materials: synthesis and studies of novel polycyclic systems using ninhydrin and alkyloxyanilines*

**Hemaa Selvakumar** (Georgia Institute of Technology)  
*Two against one: Immune cells and bacteriophage against bacteria*

**Olga Shishkov** (Georgia Institute of Technology)  
*Active mixing of black soldier fly larvae during feeding*

**Brian Matei** (Gwinnett College)  
*Mechanotropic and gelation studies of stearic acid based molecular gelators*

### **Sound Bite Session III: Complex Fluids and Particles**

**Xiaotang Du** (Georgia Institute of Technology)  
*Probing barriers to particle adsorption at bubble and droplet surfaces via dynamic interfacial tensiometry*

**Dominic Robe** (Emory University)  
*Observing intermittency in large systems*

**Drew Gorman** (Georgia Institute of Technology)  
*Characterization and manipulation of nonspherical bubbles*

**Songcheng Wang** (Georgia Institute of Technology)  
*Trajectory and velocity of oil-coated bubbles*

**Andras Karsai** (Georgia Institute of Technology)  
*Rapid wheeled locomotion in granular beds*

**Sven Behrens** (Georgia Institute of Technology)  
*Influence of surface roughness on colloidal interaction*

**Guram Gogia** (Emory University)  
*Emergent Bistability in 2D Dusty Plasma Crystals*

**Alexandros Fragkopoulos** (Georgia Institute of Technology)  
*Instabilities of charged toroidal droplets*

**Shengkai Li** (Georgia Institute of Technology)  
*Supersmarticle*

**Mia Morrell** (Emory University)  
*Clogging of soft particles in 2D hopper*

**Xujun Zhang** (Georgia Institute of Technology)  
*Toroidal air bubbles*

**Clay Wood** (Emory University)

*Liquid coffee rings" and the spreading of volatile liquid mixtures*

**Shawn Sanderlin** (Georgia Institute of Technology)

*Spreading drops and solid boundaries: How fluid entrainment shapes fluid to fluid interactions*

**Scott Essenmacher** (Georgia Institute of Technology)

*Capillary foams with conducting polymers*

**Perrin Schiebel** (Georgia Institute of Technology)

*Granular response to drag at the surface and its application to surface sand-swimming*

**Cong Cao** (Emory University)

*Aging near the wall in 3D colloidal glass*

**Christian Hubicki** (Georgia Institute of Technology)

*Robotic jumping on granular media*

**James Kindt** (Emory University)

*Order-disorder transitions in gravitationally confined hard sphere monolayers*

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