



Announcing the **81st** New England Complex Fluids Workshop Friday, December 6, 2019 at Harvard University

AGENDA

8:00–8:55 a.m. **Breakfast and Registration**, Maxwell-Dworkin, Ground Floor Lobby

Morning Presentations, Maxwell-Dworkin, Room G115

9:00–9:30 a.m. **Sound Bites Session I** (*early bird)

Perry Ellis*, Harvard University

"Identifying pathogenic bacteria by phenotyping individual cells"

George Kapellos, Massachusetts Institute of Technology

"Tracking the biodegradation of hydrocarbon droplets by marine microbes"

Tina Huang, Harvard University

"Microfluidic fabrication of asymmetric lipid and polymer vesicles"

Shin-Hyun Kim, KAIST, Korea

"Photonic capsule sensors: New platform for monitoring microenvironment and its spatial distribution"

Mattia Serra, Harvard University

"Dynamic morphoskeletons in development"

Kayla Keepseagle, Harvard University

"Mechanical lysis of single bacteria"

Anqi Chen, Harvard University

"Mesenchymal stem cell encapsulation in alginate microcapsules for immunomodulation"

Yuan Yuan*, Harvard University

"Droplet encapsulation improves accuracy of immune cell cytokine capture assays"

Joanna Dahl, University of Massachusetts at Boston

"Non-contact microfluidic mechanical property measurements of single apoptotic bodies"

Arshad Kudrolli*, Clark University

"Burrowing dynamics in sediments"

Ray Tang*, Schlumberger-Doll Research

"Miniaturized inside-out NMR sensor for in-situ characterization of viscoelastic fluids"

Laura Arriaga, Universidad Autonoma de Madrid

"Emulsion-templated vesicles in motion"

9:30–10:00 a.m. **Thomas E. Angelini**, University of Florida
"Investigating cell behavior in 3D with 3D printed experiments"

10:00–10:30 a.m. **Connie B. Chang**, Montana State University
"Examining heterogeneous populations of microbes at the single cell level using stabilized emulsions"

10:30–11:00 a.m. Coffee, Maxwell-Dworkin, Ground Floor Lobby

11:00–12:00 p.m. **Sound Bites Session II** (*early bird)

- Stefano Aime***, Harvard University
"DySH: Measuring fast (sub)microscopic dynamics in 3D with no compromise on the field of view"
- Matteo Sabato***, Harvard University
"Microscopic aspects of crack dynamics in model soft solids"
- Sijie Sun***, Harvard University
"Non-Brownian suspension flow with non-Newtonian fluid"
- Garam Lee***, Brown University
"Dispersion control in deformable microchannels"
- Matteo Milani***, Harvard University
"Droplet deformation in micro channel with constriction"
- Jiwei Wu***, Harvard University
"Experimental investigations of oil transport in 2D porous media"
- Caitlin Carmody***, Montana State University
"Ballistic seed dispersal in leafy spurge"
- Richard Cheng***, University of Toronto
"In-situ delivery of skin precursor hydrogel sheets for wound healing using a microfluidic handheld bioprinter"
- Zhiru Zhou**, Worcester Polytechnic Institute
"A microfluidic approach for study of vimentin effect on cell motility"
- Aditi Chakrabarti**, Harvard University
"Spontaneous spin-sliding of volatile drops on swelling sheets"
- Mingyu Wang**, Brown University
"Two phase flow: Bubbles"
- Andres Zambrano**, Brown University
"Biological flow of swimming microorganisms"
- Michael Stehnach**, Tufts University
"The dispersal of swimming microalgae in viscosity gradients"
- Ryan McKeown**, Harvard University
"Turbulence generation through an iterative cascade of the elliptical instability"
- Lijie Ding**, Brown University
"Shapes of fluid membranes with chiral edges"
- Zahra Zarei***, Brandeis University
"The role of boundaries in 2D active nematic"
- Richard Henshaw***, Tufts University
"Shepherding bacterial flocks using magnetotactic alignment in active suspensions"
- Yunxing Su**, Brown University
"Two-phase flow, biological flow and the fluid mechanics of artistic painting"
- Weixia Zhang***, Harvard University
"Controllable fabrication of inhomogeneous microcapsules for triggered release by osmotic pressure"
- Subhasish Chatterjee***, Barnard College
"Co-assembly of peptide motifs: Towards supramolecular materials design"
- Brendan Deveney**, Harvard University
"Velcro surfactant"
- Tania Thalyta Silva de Oliveira**, University of Rhode Island
"Tunable carbon black-gold nanoparticles for surface-enhanced Raman spectroscopy"
- Sam Dillavou**, Harvard University
"Table-top nucleation"

12:00–1:30 p.m. Lunch, Maxwell-Dworkin, Room 119

Afternoon Presentations, Maxwell Dworkin, Room G115

1:30–2:00 p.m. **Allison M. Sweeney**, University of Pennsylvania
"The evolution of equilibrium: Thermodynamic pattern formation outside of living cells"

2:00–2:30 p.m. **Alberto Fernandez-Nieves**, Georgia Tech and University of Barcelona
"Columns and waves of fire ants"

2:30–3:30 p.m. **Sound Bites Session III** (*early bird*)

Thomas Cochard*, Harvard University
"Hydraulic fracture dynamics"

Mohammad Shoab*, University of Toronto
"Effect of acid addition scheme on bentonite rheology"

Zach Gault*, Harvard University
"Strain dependent hysteresis in nanoparticle aggregate dispersions visualized to explain origin of the Payne Effect and Spectral Hole Burning in cross-linked filled rubber"

Liyuan Zhang*, Harvard University
"Core-shell gel particles for conformance control"

Jordy Uzio*, Harvard University
"Transport of nanoscale zero-valence particles (nZVI) in model porous media"

Weiyue Xin*, University of Massachusetts at Amherst
"The impact of membrane tension and excess area on solid domains in membrane vesicles"

Ming Xiao*, Harvard University
"Photonic glass based dielectric elastomer actuator enables wide-angle display"

Samaneh Farokhirad, New Jersey Institute of Technology
"Quantitative basis for design and vascular targeting of flexible polymeric nanoparticles"

Hee-Sun Han*, University of Illinois Urbana-Champaign
"Single virus sequencing to reveal how dark populations shape viral evolution and pathogenesis"

Bruno Castro, Nature Materials
"An editor's perspective on the value of publishing"

David R. Nelson, Harvard University
"Statistical mechanics of dislocation pileups"

3:30–4:00 p.m. Coffee and Cookies, Maxwell-Dworkin, Ground Floor Lobby

4:00 p.m. Applied Physics Colloquium, Jefferson Laboratory, Room 250

Michael E. Cates, University of Cambridge
"Shear thickening in dense suspensions"