Note: This is an **in person (*only*)** workshop following Harvard's safety protocols.

- Face coverings are optional.
- No eating is allowed in Maxwell Dworkin G115.
- Everyone is responsible for disposing their own trash and wiping clean their eating surface.

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 awardee** and **on the SB *bubble***)

Sabrina Marnoto, Northeastern University
Novel in-line fluidic tensiometer and elastometer for droplet and particle characterization

Bobby Tyrell Haney, Harvard University
Cell jamming on curved surfaces

Sheng Chen, Yale University
Biochemical and mechanical wave dynamics in the cell cortex

Kevin Jahnke, Harvard University
Impact of polysaccharide functionalization on lipid vesicles

Fernando Caballero, Brandeis University
Active liquid crystals and phase separation

Audrey von Raesfeld, Harvard University
Design and fabrication of disordered macroporous photonic materials

Daniel Keane, University of Rhode Island
Bottlebrush midblocks to boost bridging fraction of telechelic polymers in emulsions

Yan Liu, Harvard University
Navajo tea extracts encapsulated in microgels and their antibacterial effects

Theadora Vessella, Worcester Polytechnic Institute
Ddr2 signaling and mechanosensing orchestrate neuroblastoma cell fate through different transcriptome mechanisms

Brian Freedman, Brown University
Dependence of bacterial swarming on temperature and evaporation rate

9:30–10:00 a.m. **Liheng Cai,** University of Virginia
"Bottlebrush polymers, networks, and devices"

10:00–10:30 a.m. **Tal Cohen,** Massachusetts Institute of Technology
"Cavitation at interfaces, with bacterial colonies, and in our bodies

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

11:00–12:00 p.m. **Sound Bites Session II** (**early bird awardee** and **on the SB *bubble***)

Benjamin Thorne, Harvard University
Syneresis and dynamic instability in fibrous oil-in-hydrogel emulsions

Arnold Mathijssen, University of Pennsylvania
Bacterial upstream swimming in non-newtonian fluids

Robinson Tom, Harvard University
Developing a selective hydrogelation method using pico-injection as a robust alternative to droplet sorting

Bennett Sessa, Brandeis University
Pattern formation in active droplets

Zhang Wu, Harvard University
Double emulsions droplets with thermally reconfigurable shells as micro-lenses

Shengwei Wang, University of Massachusetts Boston
Plasmonic study of gold nanoparticles dispersed in nematic liquid crystals

Sara Ghanbarpour Mamaghani, Univ. of Massachusetts Boston
Investigating shape metrics of cell spheroids deforming in an extensional flow microfluidic device

Arkaprabha Basu, Harvard University
Phase behavior of vimentin filaments precursors

Jing Yan, Yale University
Biofilm-inspired underwater adhesives

Zuwan Lin, Harvard University
Multimodal charting of molecular and functional cell states via in situ electro-sequencing

Anushka Jha, Johns Hopkins University
Relaxation and adhesion of slippery fluid infused elastomers

Wenbo Wang, Harvard University
Optogenetic polymerization for neuromodulation and synthetic bioelectronics

Jose E Flores, UAM-Iztapalapa
Free-energy coupling of nanoparticles and liquid crystal from molecular simulation of the isotropic-nematic transition

Qiang Li, Harvard University
Cyborg organoids

Josephine Cicero, Northeastern University
Bio-inspired proline sensors for diagnosis and surveillance of plant stress

Jennifer McGuire, Harvard University
How surfactants break down grease films

Sarthak Saha, University of Massachusetts Amherst
Polymer based microfluidics for protein structure determination

Danielle Germann, Brown University
Effects of cell density on swarming sm3 bacteria

Soroush Kargar, University of Massachusetts Boston
Micro particle image velocimetry in an experimental shear flow device

Ryan Garry, Harvard University,
Harnessing nature's communication system: Engineering extracellular vesicles

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

Afternoon Presentations, *Maxwell Dworkin, Room G115*

1:30–2:00 p.m. **Alison E. Patteson**, Syracuse University
"Power in Numbers: Cells, collective motion, and coordinated force"

2:00–2:30 p.m. **Emily C. Davidson**, Princeton University
"Directed block copolymer self-assembly via 3D printing for mechanically tailored soft architectures"

2:30–3:30 p.m. **Sound Bites Session III** (**early bird awardee** and **on the SB *bubble***)

Jianping Xu, Harvard University
Statistical analysis of sem-eds data of the columbia river basalt sample

Chungman Kim, Harvard University
Structure and properties measurement of pdms near solid substrate using atomic force microscope

Ren Liu, Harvard University
AI-driven soft bioelectronics

Rahil Ukani, Harvard University
Effect of partial melting transitions of confined alkyl chains on thermal carriers

Max Jiang, Harvard University
Crystallization of colloidal gel networks by shear deformation

Sijie Sun, Harvard University
Role of different cytoskeleton filaments in the mechanical property of the cytoplasm of a live cell

Seongsoo Kim, Harvard University
Work hardening in colloidal crystals makes soft materials very strong

Ahmed Sheri, fHarvard University
Designing soft capillary machines for micromanipulation

Gabriel Yerger, Brown University
Simulating colloidal membranes and their coalescence using Morpho

Yu Chen Chao, Massachusetts Institute of Technology
Excitable nonreciprocal solids

Boqian Yan, Northeastern university
Unraveling different phases of the cornstarch droplet impacting on deep pool

Doh Hyun Kim, Brown University
Swarming motility of enterobacter sp. sm3

Felix Song,Tufts University
Differential growth in colloidal systems

Zsolt Terdik, Harvard University
Traction rheoscopy

Mahmoud Shaqfa, Massachusetts Institute of Technology
Spheroidal harmonics (soh) for generalizing the morphological decomposition of particles

Olukayode Majekodunmi, Northeastern University
Tapered microchannels produce qualitatively different clogging behaviors

Brandon Pugnet, Brown University
Two competing models on how a bacterial body attaches on solid surface

Sima Asadi, Massachusetts Institute of Technology
Airborne infectious disease transmission

Wenyun Wang, Harvard University, *3d visualization of alternation in basalt porous structure*

Amelia Paine, Harvard University, *Permeability of viral capsids to diverse small molecules*

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

4:00 p.m. Applied Physics Colloquium, *Maxwell Dworkin, Room G115*
Suliana Manley, École Polytechnique Fédérale de Lausanne
"Patterns in mitochondrial dynamics and shape"

Please join us for the

98th New England Complex Fluids Workshop
March 2024
at Tufts University

99th New England Complex Fluids Workshop
June 2024
at Brown University

100th New England Complex Fluids Workshop
September 2024
at Brandeis University

100+1st New England Complex Fluids Workshop
December 6, 2024
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