



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

9:00–10:00 a.m. **Sound Bites Session I (Early bird awardee)**

Theadora Vessella, Worcester Polytechnic Institution
Independently modulated 3D collagen hydrogels

Sydney Packard, Worcester Polytechnic Institute
Machine learning to characterize biocolloidal properties of bacterial clusters released from biofilms

Pragya Arora, Brandeis University
Programmable icosahedral capsids: A layered approach mediated by lipid templates

Nicholas Patino, University of Colorado Boulder
Localized spectral flows in fractal lattices with harmonic interactions

Luca Lomazzi, Politecnico di Milano, Univ. of Colorado Boulder
Frequency scale invariance in the sierpinski triangle beam lattice

Grace Petrarca, Emmanuel College
Presenting activated kinetics of phase transitions of 8OCB liquid crystal

Thomas Videbaek, Brandeis University
Measuring multi-subunit fluctuations of DNA-origami particles using cryo-Electron Microscopy (EM)

Manodeep Mondal, Brandeis University
Self-assembly of two-dimensional ionic crystals using polymer-grafted colloids

Jennifer McGuire, Harvard University
Interactions between absorption and scattering in disordered colloidal materials

Mehrana Nejad, Harvard University
Morphogenesis of active deformable shells

Meredith Taghon, Williams College
Dynamic contact initiation with adhesive silicone gels

Jiwoo Han, Williams College
Brightfield imaging of high-speed adhesive contact dynamics

Justyn Friedler, Williams College
Milk fracking

Ahmed Sherif, Harvard University
Capillary tweezers for manipulating colloidal particles

Amit Dawadi, Clark University
Self-propulsion of floating ice blocks in water

Yujing Du, Harvard University
Particle transport in hydro-fracture

Xingcai Zhang, Stanford University
Machine-learning microfluidics-mediated materials and medicine & mimetics (M5)

Ryan Garry, Harvard University
A rapid, high yield production of lipid or polymeric vesicles using droplet microfluidics

Chang Liu, University of Connecticut
Traveling spatially localized convective structures in an inclined porous medium

Duc Nguyen, University of Connecticut
Determining exact coherent structures of sheared double-diffusive convection

Jino George, University of Connecticut
Input-output analysis of transitional channel flow over large-scale wavy walls

10:00–10:30 a.m. **Kevin Jahnke**, Harvard University
Engineering asymmetric vesicles for protein delivery

Katharine Jensen, Williams College
Mechanics of interfaces

Paul Drzaic
A random walk through industry

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

11:00–12:00 p.m. Joint Session with the Applied Physics Colloquium
Zvonimir Dogic, University of California at Santa Barbara
Morphogenesis of soft matter

12:00–1:15 p.m. Lunch, Maxwell-Dworkin, Room 119 Foyer

Afternoon Presentations, Maxwell Dworkin, Room G115

Celebration of Jennifer Lewis 360

1:15–1:30 p.m. **Jacinta C. Conrad**, University of Houston
Introductory Remarks on the Celebration for Jennifer A. Lewis 360

1:30–2:00 p.m. **Robert F. Shepherd**, Cornell University
Perspectives on the Lewis Group at the University of Illinois (1990-2012)
The rise of autonomous materials

2:00–2:30 p.m. **Mark A. Skylar-Scott**, Stanford University
Perspectives on the Lewis Group at the Harvard University (2013-2024)
Large-scale production of wholly-cellular bioinks as a pathway for organ-scale tissue engineering

2:30–3:30 p.m.

Sound Bites Session II (Early bird awardee)

Thomas Litschel, Harvard University

3D printing cytoskeletal networks: ROS-induced filament severing leads to surge in actin polymerization

Sheng Chen, Yale University

Maximal dissipation regime in mechanochemical cellular systems

Xiangyu Gong, Yale University

Bioprinting functional tissues via rapid collagen assembly

Daniel Keane, University of Rhode Island, Brown University

3D printing bottlebrush-linked emulsions

Frank Wang, MIT Alumni, formerly with SINOPEC

Brittle to ductile transition found in 3d printed stripe samples and its potential applications

Jeffrey Aceves, Harvard University

Assembling kidney tissues one organoid building block at a time

Paul Stankey, Harvard University

Embedding biomimetic vascular networks via coaxial sacrificial writing into functional tissue

Carlos Marquez, Harvard University

STEP: Selective Transfection via electroporative printing

Jonathan Rubins, Harvard University

Engineering human kidneys on chip: Toward bioprinted tissues for transplantation

Larissa Senatus, Harvard University

Meta-structured particle inks for 3D printing

Jackson Wilt, Harvard University

Programmable fluidic soft robotic materials via rotational multimaterial 3D printing

Brandon Clarke, Harvard University

Printing via frontal polymerization of multimaterials

Mustafa Abdelrahman, Harvard University

4D printing with a twist: Multimaterial rotational printing of active and passive elastomers

Dylan Barber, Harvard University

Zwitterionic tethers and the thermodynamics of melting

3:30–4:00 p.m.

Coffee and Cookies, Maxwell-Dworkin, Ground Floor Lobby

4:00 p.m.

Jennifer A. Lewis, Harvard University

Printing soft and living matter in three dimensions

5:30 p.m.

Reception, Pierce 301

Please join us for the

102nd New England Complex Fluids Workshop

March 7, 2025
at Yale University

103rd New England Complex Fluids Workshop

June, 2025
at UMass Amherst