

104th New England Complex Fluids Workshop

Brandeis University, Shapiro Campus Center Theater

September 19, 2025



9:00 - 9:15 AM	Registration: Shapiro Theater
9:15 - 9:55 AM	Research Talk: Shapiro Theater (30 min talk + 10 min discussion) Mathias Kolle (MIT)
9:55 - 10:15 AM	Coffee, Room 236
10:15 – 10:55 AM	Research Talk: Shapiro Theater (30 min talk + 10 min discussion) Greg Grason (UMass-Amherst)
10:55– 12:00 AM	Soundbite session I: Shapiro Theater
12:00 AM – 1:20 PM	Lunch and informal discussions: Shapiro Center, Room 236
1:20 - 2:00 PM	Research Talk: Shapiro Theater (30 min talk + 10 min discussion) Joyce Y. Wong (Boston University)
2:00 – 3:00 PM	soundbite: Shapiro Campus Center
3:00 – 3:20 PM	Coffee, Registration table outside the theater
3:20 - 4:00 PM	Research Talk: Shapiro Theater (30 min talk + 10 min discussion) Duane Juang (Brandeis University)
4:00pm	Social and Pizza (Abelson 333)

Registration (free) required: <https://complexfluids.org>

Registration deadline: Wednesday 8am, September 17, 2025

Sponsored by: The Brandeis MRSEC, E ink, the Brandeis Physics Department, and the Office of the Vice Provost for Undergraduate Affairs

Session 1

1. Akshit Aggarwal **Brandeis University**
Developing strategies to control the flows and densities of 3D active isotropic fluids
2. Mehrdad Ahmadinejad **University of Vermont**
Multiscale modeling of nanoparticle transport in viscoelastic hydrogels
3. Hunter Seyforth— **Brandeis University**
Two-dimensional crystallization of polymer-mediated oppositely charged colloids
4. Arkaprabha Basu - **Harvard University**
Phase separation and wetting in vimentin filament assembly
5. Samuel Nielsen — **Brandeis University**
Reconfiguration of DNA-origami dimers using DNA linkers
6. Wei-Ting Chang — **Northeastern University**
Production of scalable tea-derived polyphenols nanoparticles as food-safe colorants
7. Caroline Martin— **Brandeis University**
Fight or flight: response of large, fused cells to crowding in MDCK tissue
8. Thomas Krug— **Harvard SEAS & Physics**
Endoplasmic reticulum fluctuations are actively and thermally driven
9. Owen Dunton— **Wesleyan University**
Modeling the onset of a Peierls distortion in amorphous Ge-Sb alloys using an ML potential
10. Jose E. Flores — **Tufts University**
Shape optimization: simulating tactoids in liquid crystal nanocomposites
11. Kaitlyn Flynn— **Northeastern University**
Protein–pigment interactions drive granule formation in cephalopod
12. Sara Ghanbarpour Mamaghani— **UMass Boston**
Mechanical characterization of cancer cell spheroids using an extensional flow microfluidic device
13. Mohammad Jabarifar— **University of Vermont**
Drag and lift on raised particles in particulate beds and vortex-induced resuspension
14. Delace Jia — **MIT**
Fluorescence confocal polarizing microscopy for 3D characterization of dynamic anisotropic materials
15. Benjamin Thorne — **Harvard University**
Elasticity of emulsion-in-fiber network composites
16. Raphael Kay— **Harvard University**
Fluid instabilities for thermoregulatory homeostasis
17. Hirunika Kumarasinghe— **Tufts University**
Silk-based cell encapsulation as a shield during cell therapy
18. Arnaud Lazarus — **MIT**
Wavenumber lock-in in buckled elastic structures: an analogue to parametric instabilities
19. Cheng Long — **Harvard University**
Theory of liquid crystal ground states on hyperbolic cones

Session 2

1. Yeling Luo— **Boston University**
Bridging in vivo tissues and synthetic phantoms: microbubble stability in peritoneal fluid and targeted binding with fibrin gels
2. Madhurima Roy — **Brandeis University**
Controlling polymorphism in DNA origami assemblies of a Schwarz P-surface
3. Jack Barotta, **Brown University**
Wave-mediated capillary assembly on a fluid interface
4. Adrielle Cusi— **Brandeis University**
Actin polymerization in DNA nanostar biomimetic condensates
5. Rejoy Mathew — **UMass Amherst**
Engineering self-limiting structures from warped jigsaw particles at finite temperature
6. Mason Miguel— **Brandeis University**
Internal reorganization of syncytia post-fusion
7. Prasanna More— **UMass Amherst**
Colloidal sessile suspension feeders for bioinspired collective hydrodynamics
8. Ian Murphy — **Brandeis University**
How bond-rigidity affects the self-assembly of 2D DNA-origami kagome lattices
9. Myeonggon Park — **Brandeis University**
Engineering DNA origami crystallization: how subunit symmetry and crystal complexity govern nucleation, growth, and habit formation
10. Rachael Skye — **Wellesley College**
Structure in a self-limiting cluster fluid
11. Francesca Soddu— **Harvard University, UC Berkeley, University of Oxford**
Optical signatures reveal a multi-step pathway of cyanobacterial cell lysis
12. Naren Sundararajan — **Brandeis University**
Computational modeling of viral capsid assembly coupled to phase separation
13. Bella Aizenberg, **Brandeis University**
DNA origami stability in monovalent-divalent salt mixtures
14. Sasha Toole — **Brandeis University**
Control of contractile active materials using optically-induced force generation
15. Nadab Wubshet — **Harvard University**
Differential mechanics of the vimentin juxtannuclear cage
16. Thomas Videbaek — **Brandeis University**
Self-limited stacks through programmable frustration
17. Xu Zhang— **MIT**
Bursting of dense suspension bubbles
18. Siriui Liu — **Brandeis University**
Taming polymorphism of tubule self-assembly using seeded growth
19. Sarah Dennis — **Brandeis University**
Models in extended lubrication theory