



90th New England Complex Fluids Workshop Friday, March 11, 2022

Raytheon Ampitheater
240 Egan Research Center

Sponsors:

Northeastern University

College of Engineering [COE](#), Departments of Chemical Engineering [CHE](#) and Mechanical & Industrial Engineering [MIE](#)

Note: This is an in-person workshop following [Northeastern University's COVID-19](#) protocols:

- Visitors must remain away from campus if they feel sick
- Proof of vaccination (including a booster shot) or negative COVID-19 test result within 72 hours prior to March 11th
- Face coverings are required and may only be removed when actively eating and drinking.

Invited speakers:

- **Jesse Ault**, Brown University Engineering
- **Leila Deravi/Dan Wilson**, Northeastern University, Kostas Research Institute
- **Tony Dinsmore**, UMass Amherst, Physics
- **Ryan Poling-Skutvik**, University of Rhode Island, Chemical Engineering

Schedule:

8:30 – 9:30 a.m.	Registration and Breakfast, Raytheon Ampitheater
9:30 – 10:15 a.m.	Ryan Poling-Skutvik , University of Rhode Island <i>“Tuning the linear and non-linear rheology in suspensions of deformable particles”</i>
10:15 – 11:00 a.m.	Jesse Ault , Brown University <i>“Diffusiophoresis in a taylor-dispersing solute”</i>
11:00 – 11:30 a.m.	Coffee break
11:30 – 12:30 p.m.	Sound Bites Session I Henrik Pinholt , MIT <i>“Single-particle diffusional fingerprinting”</i> Yujing Du , Harvard University <i>“Hydraulic fracturing in impermeable stiff material using pressurized complex fluids”</i> Elisa Julien , Harvard University <i>“Dry crack in colloidal gel”</i>

Zilong Fang, Northeastern University
“Flexural bending resonance of acoustically levitated glycerol droplet”

Boqian Yan, Northeastern University
“Droplet impact on surfaces is ubiquitous in many industrial applications”

Sabrina Marnoto, Northeastern University
“Application of migration scaling behavior to experimental droplet systems”

Michael Stehnach, Tufts University
“Microfluidic serial dilution device for multiplexed chemotaxis screening”

Sara Ghanbarpour Mamaghani, UMass Boston
“Measurement of hydrogel viscoelastic properties using a microfluidic extensional flow device”

Julia Van Burger, Northeastern University
“Novel microfluidic device for liquid-liquid surface tension measurements”

John Biswakarma, Northeastern University
“Processing two-dimensional polymer films”

Caroline Willuhn, University of Rhode Island
“Addition of nanoparticles into peo-based polymer electrolyte for higher ionic conductivity”

Devyesh Rana, Northeastern University
“Atr-ftir and dft study of the mechanism and kinetics of pedot:pss-dvs crosslinking”

Karla Ilic Durdic, Harvard University
“Exploring protein fitness landscape”

Soohee Bae, Northeastern University
“Study of interaction of wall and gel”

Mohammad Nabizadehmashhadroghi, Northeastern University
“Force network in shear-thickening dense suspensions”

12:30 – 1:45 p.m.

Lunch

1:45 – 2:30 p.m.

Tony Dinsmore, University of Massachusetts Amherst
“Switching morphology, elasticity, and permeability in light-stimulated lipid membranes”

2:30 – 3:30 p.m.

Sound Bites Session II

Saeed Mohseniankoochaksaraei, Northeastern University
“Comparison of csf flow resistance and brainstem and cerebellum displacement for chiari malformation type 1”

Louison Thorens, Tufts University
“Pattern formation during the drainage of a frictional fluid”

Milad Saadat, Northeastern University
“Data-driven selection of constitutive models via rheology-informed neural networks (rhinns)”

Elahe Javadi, Northeastern University
“Systematic in silico investigation of blood rheology and thixotropy”

Rishabh More, MIT

"Micromechanics of dense suspensions: microscopic interactions to macroscopic rheology"

Joseph Sullivan, University of Rhode Island

"Influence carbon black on graphite slurry rheology and lithium-ion battery performance"

Robert Campbell, Northeastern University

"Microstructural origins of yielding in colloidal gels"

Deepak Mangal, Northeastern University

"Rheology-informed neural network for geopolymer material design"

Thibault Colombani, Northeastern University

"Advanced cryogels for biomedical applications"

Cassandra Martin, Northeastern University

"Design and production of customizable and highly aligned fibrillar collagen scaffolds"

Richard Henshaw, Tufts University

"Dynamic mode structure of bacterial turbulence"

Jiazhang Chen, Worcester Polytechnic Institute

"Local mechanosensation of neuron in drosophila larvae"

Yeng-Long Chen, Institute of Physics, Academia Sinica

"Fast and slow waltz of red blood cells: coordinated rotation"

Iris Ruider, Technical University of Munich

"Nematic order transition in human aortic endothelial cells layers"

Richard DeCurtis, Northeastern University

"Bacteria movement in a microfluidic channel"

3:30 – 4:00 p.m.

Coffee break

4:00 – 4:45 p.m.

Dan Wilson (for Leila Deravi), Northeastern University

"Soft reconfigurable systems: from molecules to machines"

Contact: Sara Hashmi, Safa Jamali, Steve Lustig, Craig Maloney, Xiaoyu Tang

Meeting Location: In-person only