



Northeastern University

College of Engineering

Announcing the 78th New England Complex Fluid Workshop

Friday, March 8, 2019

Northeastern University

Curry Student Center Ballroom

8:00-8:55 am Breakfast and Registration

9:00-9:45 am ***Jacinta Conrad, University of Houston***
"Tracer transport in slowly-relaxing glassy matrices"

9:45-10:30 am ***George Em Karniadakis, Brown University***
"The DPD alphabet for modeling Multiphysics at the mesoscale"

10:30-11:00 am Coffee break

11:00-12:30 am **First Soundbite Session**

- 1- ***Deveney, Brendan***; Julie Bouchon, Perry Ellis, Raoul Rosenthal, John Heyman, David Weitz (Harvard University)
"Gelling of microfluidic droplets for high-throughput capture, sorting and analysis of cells"
- 2- ***Molavi, Amir***; Alain Karma (Center for Inter-Disciplinary Research on Complex Systems, Department of Physics, Northeastern University)
"Spatiotemporal organization of excitation and mechanical waves during life-threatening re-entrant cardiac arrhythmias"
- 3- ***Mohammed, Danahe Zeyna***; David Weitz (Harvard University)
"Modulation of tumoral cell behavior by osmotic shocks"
- 4- ***Abdelshafy, Kareem K***; Botond Tyukodi, Damien Vandembroucq, Craig Maloney (Northeastern University, Brandeis University, ESPCI Paris)
"Cyclic shear in a mesoscopic model of amorphous plasticity"
- 5- ***Balciunaite, Aiste***; Maria Santore (University of Massachusetts Amherst)
"The Effect of Particle Shape on Adhesion to Surfaces in Shear Flow"
- 6- ***Cui, Naiwen***; Yamei Cai; Huidan Zhang; Haichuan Hu; David Weitz (Harvard University)
"Ultra-high-throughput targeted sequencing in single cells using droplet barcoding microfluidics"
- 7- ***Duwe, Lukas***; Michael Molinski, Arijit Bose (University of Rhode Island)

- "Designing Safe and Stable All-Solid-State Lithium-Ion Batteries"
- 8- **Elgailani, Ahmed**; Craig E Maloney (Northeastern University)
"Multi-particle finite element simulation of highly compressed microgel-packings"
- 9- **Faust, Jessica**; Gavin Winter, Marilyn Minus, Randall Erb (Northeastern University)
"Creating a hierarchical interphase in polymer-ceramic composites"
- 10- **Filippov, Sergey**; Bart Verbraecken, Peter Konarev, Dmitri Svergun, Christine M. Papadakis, Sarah Rogers, Aurel Radulescu, Timothee Courtin, José C. Martins, Larisa Starovoytova, Potemkin Potemkin, Richard Hoogenboom (Harvard University)
"Block and gradient copoly(2-oxazoline) micelles: striking different on the inside"
- 11- **Garry, Ryan**; Julie Brouchon, Kirk Mutafulous, Dave Weitz (Harvard University)
"High-throughput hydro-gel encapsulated cell sorting using Traveling Surface Acoustic Waves (TSAW)"
- 12- **Oliveira, Tania Thalyta Silva de**; Arijit Bose (University of Rhode Island)
"Response of Synechococcus elongatus PCC 7942 to microplastics"
- 13- **Pan, Animesh**; Geoffrey D. Bothun (University of Rhode Island)
"Radiofrequency and Near-Infrared Responsive Core-Shell Multifunctional Nanostructures Using Lipid Templates for Cancer Theranostics"
- 14- **Stolovicki, Elad**; Elad Stolovicki, Lloyd Ung, Roy Ziblat and David A. Weitz (Harvard University)
"Drop chemostats: White biotechnology on a chip"
- 15- **Ye, Huilin**; Zhiqiang Shen, Ying Li (University of Connecticut)
"Multi-scale computational method for biological system"
- 16- **Zhang, Weixia**; Weixia Zhang, Xi Xie, Alireza Abbaspourrad, Daniel Anderson, David Weitz (Harvard University, Massachusetts Institute of Technology)
"Colloidal Nanomaterials Encapsulated Microcapsules for Implantable Biosensors"
- 17- **Rabiei, Nastaran**; Carlos H. Hidrovo, Pooyan Tirandazi (Northeastern University)
"Friction Reduction Effects of Wetted Microtexturing in Microchannel Flow"
- 18- **Miranda de Lima**; Nicolle ; Shima Parsa, David Weitz, Márcio Carvalho (PUC-Rio/Harvard University)
"Foam formation analysis during drainage of surfactant solution"

12:30-1:30 pm Lunch Break

1:30-2:15 pm ***Patrick Doyle, MIT***
"Nanoemulsions: formation, assembly and applications"

2:15-3:00 pm ***Samanvaya Srivastava, UCLA***
"Complexation driven self-assembly of block polyelectrolytes"

3:00-3:30 pm Coffee break

3:30-4:15 am **Second Soundbite Session**

- 19- ***Ellis, Perry***; Giridhar Anand, David A. Weitz, Sharad Ramanathan (Harvard University)
"Identifying pathogenic bacteria by phenotyping individual cells"
- 20- ***Li, Xinzhi***; Amit Das, Dapeng (Max) Bi (Northeastern University)
"Cell-level mechanical heterogeneity promotes rigidity in confluent tissues"
- 21- ***Cochard, Thomas***; T. Cochard, Y. Song, L. Xiao, D.A. Weitz (Harvard University)
"Working towards an energetic approach of hydraulic fracture dynamics"
- 22- ***Julien, Elisa***; E. Julien, G. Gerber, T. Cochard, Y. Hue, W. Steinhardt, D.A. Weitz (Harvard University)
"Particles motion during hydraulic fracture propagation and collapse"
- 23- ***Gerber, Gaetan***; M. Bensouda, D.A. Weitz, P. Coussot (Université Paris-Est, Navier, Champs-sur-Marne, France ; Harvard University)
"Colloid accumulation in 3D porous media"
- 24- ***Arroyo, Julian***; Carlos H. Hidrovo (Northeastern University)
"In-air microfluidics under confined 3D flow focusing microchannels for droplet generation under the jetting regime"
- 25- ***Vasudevan, Aditya***; Chih-Hung Chen, Alain Karma (Northeastern University)
"Crack front instability in mixed mode I + III with a shear-dependent fracture energy"
- 26- ***Zando, Robert***; Randall Erb (Northeastern University)
"Magnetic Patterning of Fiber Suspensions for Controlled Fracture Pathways and Improved Material Toughness"
- 27- ***Ran, Ran***; Tingting Zhu, Kaizhen Zhang, Sinan Müftü, Kai-tak Wan (Northeastern University)
"Mechanical Characterization and Fusion of Giant Unilamellar Lipid Vesicles"
- 28- ***Hu, Xiaoyi***; Thomas Cubaud (Stony Brook University)
"Microfluidic viscosity-stratified flows: from droplets to waves"

4:15-5:00 pm ***Lillian Hsiao, North Carolina State University***
"Designing and understanding friction within soft materials"