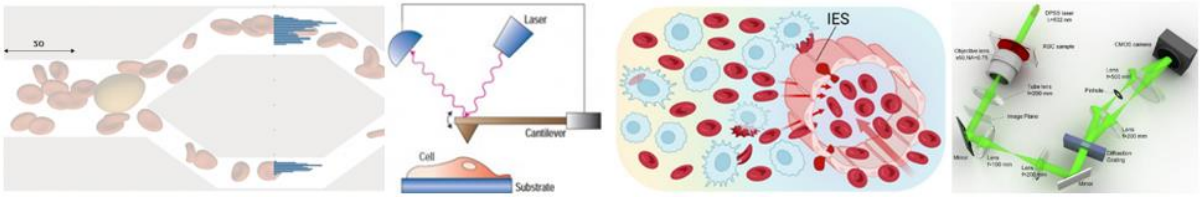
Workshop on *Integrated Modeling and Experiments of Biological Cells and Biomaterials*

September 13-14, 2024

The Chipman Room (Room 6-104), Massachusetts Institute of Technology, Cambridge, MA, USA



Program

Friday, September 13th, 2024 (Session of Invited Lectures)

1:30-1:40pm Opening and welcoming remarks

1:40-2:05pm Adhesive Non-fibrotic Interfaces on Diverse Organs
Xuanhe Zhao, MIT

2:05-2:30pm Advanced AFM Modalities to Study Cells
Igor Sokolov, Tufts University

2:30-2:55pm Experimental Study & Modeling of Diffusion of SK Channels in Unmyelinated Neurons
George Lykotrafitis, University of Connecticut

2:55-3:20pm Biomechanics of Blood Cells and Cell Cluster Modelling
Ivan Cimrák, University of Žilina

3:20-3:35pm Coffee Break

3:35-4:00pm LifeGPT: Topology-Agnostic Generative Pretrained Transformer Model for Cellular Automata
Markus Buehler and Jaime Berkovich, MIT

4:00-4:25pm Homeostasis of Red Blood Cells in Health and Disease Studied by Microfluidics
Ming Dao, MIT

4:25-4:50pm Digital Twins for Sickle Cell Anemia Using Mesoscopic Particle Models
George Karniadakis and Guansheng Li, Brown University

4:50-5:15pm Computational Modeling of Phagocytosis in the Sickle Spleen
He Li, University of Georgia

5:15-5:40pm In Depth Biological Characterization of the Fetal to Adult Hemoglobin Switch Genetic Reversion in Sickle Cell Disease
Daniel De Souza and John Higgins, Massachusetts General Hospital

Saturday, September 14th, 2024 (Future Perspectives, Demo, Lab Tour)

10:00-10:50am Presentations & Roundtable Discussion on Future Research

10:50-11:05am Coffee Break

11:05-12:00am Software Demo & Lab Tour

Funding

MIT MISTI SEED Grant “Inertial Focusing Microfluidics for High-Throughput Sorting of Cell Clusters and Circulating Tumor Cells” supported by MIRRI, Ministry of Ministry of Investment, Regional Development and Informatics of the Slovak Republic