



Northeastern University
College of Science

Joint CIRCS and CTBP Seminar:

Amoeboid cell migration through the lens of mechanics (from a single cell to a pair)

Dr. Calina Copos

*Assistant Professor in Biology and Mathematics
Northeastern University*

Host: Max Bi

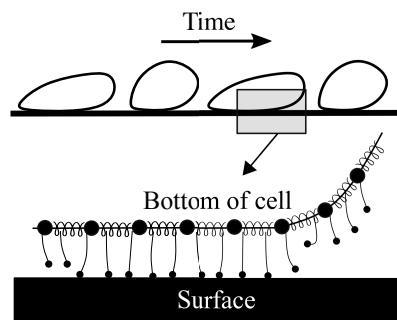
Wednesday, December 1, 2021

12:00 noon

IN PERSON!

177 Huntington Ave. 13th floor

Adhesion-based cell movement on a surface



Cell movement is required in many physiological and pathological processes such as immune system response and cancer metastasis. The movement of the single-cell amoeba is characterized by cycles of morphological expansion and contraction and highly coordinated mechanical forces on the substrate by means of transient cell-substrate adhesions. Despite recent intense studies, the mechanisms of rapid shape changes and how they lead to motility of amoeboid cells is still an open question. Here, we develop a model to study the interplay of cellular mechanics, cell-substrate interaction, and the resulting migration. The novelty of this work is that we demonstrate that a simple mechanical-only model can explain how amoeboid motility is achieved and robustly maintained to produce the complex and highly-coordinated features of amoeboid motility. At the end, we will touch upon applications of active matter theory to collective cell migration in embryo development.