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Collective cell communication via intercellular force transmission

Friday, August 11, 2023 1:45 PM (15 minutes)

The emergence of organization from the collective interactions of cells with no central guidance is a fundamental question in developmental biology, regeneration and biomedicine. Though widely studied from biochemistry and genetics perspectives, the interplay of mechanical interactions and the dynamics of self-organization remains elusive. In this talk, I will focus on the role of intercellular force transmission in three-dimensional, dense and squishy cell collectives. Using both a high-fidelity computational model and experimental data, I will show how altering local mechanical interactions at the single cell scale affects intercellular force transmission and order with consequences for biological functions: (1) cell extrusion program and (2) solid-to-fluid transition in active cell layers.

Presenter: Dr MONFARED, Siavash (NBI)