



Seminar/Talk

Pattern formation in collective cell migration

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During metastasis cancer cells migrate collectively through conjonctive tissues that can be considered as elastic or visco-elastic media. Experiments in particular by P. Friedl and E.Sahai have shown that there exist several types of migration patterns for collective cell migration in these tissues showing for example "avenues" along which the cells move in the same direction. This talk presents two approaches to study the patterns of collective cell migration. We first present an active hydrodynamic theory of the cells' migration in an elastic medium by considering them as an active polar fluid permeating through an elastic gel. We discuss the various instabilities of uniformly moving cells and compare the results to the various modes of migration observed experimentally: Individual cell motion, Multicellular streaming and collective cell migration. We also present a more microscopic model where we consider individual cells, which remodel the extracellular matrix both by secreting and degrading it. A very simplified model leads to non-equilibrium phase diagrams that show very unusual equilibria between dilute isotropic and concentrated nematic cell phases and between two different nematic phases.

Monday, January 8, 2024 10:00am - 11:00am

Moonstone Bldg / Ground floor / Seminar Room F (I24.EG.030f)



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