SUMMER SEMESTER 2026

RTG 2756 CYTAC SEMINAR SERIES

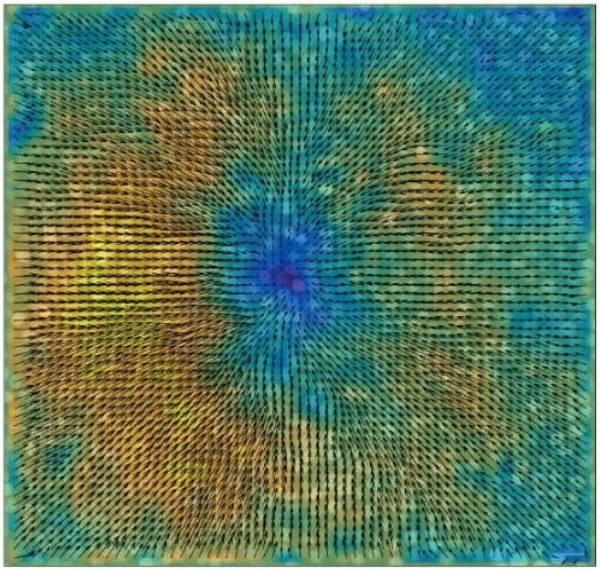
TUESDAY, MAY 5
17:00 IN HS5

CYTAC
RTG 2756

PROF. GUILLAUME CHARRAS

University College London

TOWARDS SYNTHETIC TISSUE MORPHOGENESIS



Tissues in developing embryos are shaped by gradients of surface tension. Coordinated mechanical changes occurring in individual cells give rise to the spatial differences in tissue tension that drive shape change. Mechanistically, many developmental morphogenetic pathways converge on RhoGTPases to control cytoskeletal organization and mechanics for the next step of morphogenesis. However, we do not quantitatively understand how RhoGTPase signalling alters mechanics, how cell-scale changes in mechanics integrate to drive tissue-scale shape change during embryonic morphogenesis, and what forces arise during these processes, signifying that our knowledge of tissue shape change is incomplete.

I will present recent work from my laboratory in which we characterize the mechanical response of single cells to RhoGTPase activation. We then examine how mechanical changes at the cellular scale integrate over many cells to give rise to tissue deformation. Finally, I will present a new method for directly quantifying the forces exerted at intercellular junctions in monolayers.