LadHyX Seminar – November 3, 10:45, – LadHyX Library

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Active surface flows in biological morphogenesis

During development, biological systems exhibit large-scale flows allowing for their self-organisation. Active matter hydrodynamic descriptions can be used to make sense of these biological flows at the cellular and tissue scale. In this talk I will present the theory of active surfaces and its application to the three-dimensional mechanics and self-organisation of biological tissues. I will discuss how the dynamics of polar or nematic order parameters, active forces and active torques can combine to give rise to complex three-dimensional shape changes. I will discuss how this framework applies to events of epithelial folding, and I will discuss the dynamics of small three-dimensional cell aggregates.