

Eugene Wigner Colloquium

joint event of GRK 1558 and SFB 910



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“Geometric control of pattern formation in soft elastic materials and active fluids”

Identifying the ordering principles that govern the non-equilibrium dynamics of soft active matter remains a major theoretical challenge. In this talk, we will survey and compare three recently proposed nonlinear continuum theories, which aim to describe pattern formation and topological defect structures in soft elastic bilayer materials, dense bacterial suspensions and ATP-driven active liquid crystals. We will test model predictions against experiments and demonstrate how geometric constraints control the localization of topological defects in soft surface crystals and the emergence of magnetic order in bacterial 'spin' lattices. The agreement between theory and experimental data suggests that non-equilibrium pattern formation in a diverse range of soft and active matter systems can be efficiently captured through structurally similar higher-order partial differential equations.

H. Engel

Thursday, 20.10.16 · 16:15h · EW 202

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