

[Talk 23] Phase equilibria of phase-separating self-propelled particles

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When synthetic self-propelled particles or bacteria slow down at high density, either because of collisions or due to biochemical interactions, they may undergo a liquid-gas phase separation. This leads to the emergence of cohesive matter without the need of cohesive forces. For the past ten years, various theories have (unsuccessfully) been put forward to account for the corresponding phase equilibrium. I will show how the equilibrium concepts of pressure and chemical potential can be generalized in this non-equilibrium setting to determine the phase equilibria of systems undergoing the so-called Motility-Induced Phase Separation.