



The Physics of Soft and Biological Matter

(invited) Hydrodynamics and phase behaviour of active suspensions

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We simulate a suspension of active squirming disks over the full range of volume fractions from dilute to close packed, with full hydrodynamics in two spatial dimensions. Doing so, we show that "motility induced phase separation" (MIPS), recently proposed to arise generically in active matter, is strongly suppressed by hydrodynamic interactions. We give an argument for why this should be the case, and support it with counterpart simulations of active Brownian disks in a parameter regime more closely suited to hydrodynamic suspensions than in previous studies. Time permitting, another project concerning the rheology of active suspensions will also be outlined, discussing results obtained within continuum models of active nematohydrodynamics.