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Interactions between particles in a magnetocapillary self-assembly GUILLAUME LAGUBEAU, ALEXIS DARRAS, GALIEN GROSJEAN, GEOFFROY LUMAY, MAXIME HUBERT, NICOLAS VANDEWALLE, GRASP, Physics Department, University of Liège, B-4000 Liège, Belgium, GRASP TEAM
— When particles are suspended at air-water interfaces in the presence of a vertical magnetic field, dipole-dipole repulsion competes with capillary attraction. This interaction was used recently to control self-assembling particles, as well as to create low Reynolds swimming systems. Although the equilibrium properties of the magnetocapillary interaction is understood, the dynamics was unclear. In the present report, we emphasize the rich behavior of two/three particles driven by this interaction. We propose a model for describing the motion driven by an external field, being the basis for developing swimming strategies and other elaborated collective behaviors along liquid-air interfaces.

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