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Capillary deposition of advected particles EMILIE DRESSAIRE, New York Univ NYU, AYMERIC DEBAISIEUX, ENSTA, FEDERICO GREGORI, New York Univ NYU, ALBAN SAURET, CNRS/SVI, PIF LAB TEAM — The deposition and aggregation of particles flowing through a confined environment can dramatically hinder the transport of suspensions. Yet, the mechanisms responsible for the deposition of particles in shear flow are not fully understood. Here, we use a macroscopic model system in which the attractive interactions are due to capillary effects. Floating particles are advected on the surface of a water channel and their two-dimensional trajectories can be modified by fixed obstacles. By varying the flow rate of the liquid, the wetting properties and size of the particles and obstacles, we can tune the magnitude of the capillary and hydrodynamic forces that determine the probability of capture and the position on the obstacle. We compare our results with a theoretical model that captures the trajectory of the particle before it reaches the obstacle and accounts for the inertia of the particle to determine the equilibrium position on the obstacle.

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