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Adsorption of particles at fluid interfaces: Jamming, structure control, and rheology

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Various types of particles readily adsorb at the interface between two immiscible liquids or at the surface of a liquid. Such particles bear some similarity to conventional molecular surfactants. However, unlike surfactants, particles adsorb almost irreversibly at interfaces - a fact that can lead to interesting phenomena such as the stability of non-spherical jammed drops, spontaneous climbing of particle films, and particle-bridged emulsions. Similar phenomena - albeit with important differences - can be observed in polymeric systems and may lead to interesting new materials. This talk will review some of these phenomena, with a particular focus on the jamming of fluid interfaces due to particles, and discuss applications for controlling the structure of two-phase polymer systems such as polymer blends and foams.