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Structure and dynamics of confined colloid-polymer mixtures

JACINTA CONRAD, Department of Chemical and Biomolecular Engineering, University of Houston, BINH TRINH, GILDARDO CEBALLOS, Department of Chemical and Biomolecular Engineering, University of Houston — Colloidal processing routes typically require attractive suspensions to be flowed through fine geometries such as microchannels, nozzles, or thin films. To elucidate the effects of confinement on attractive suspensions during processing, we use confocal microscopy to image the structure and dynamics of model colloid-polymer mixtures as a function of confinement dimensionality and thickness, colloid volume fraction, and the strength and range of the attraction. We characterize the phase behavior of the confined suspensions, and find that confinement induces non-uniform structural changes within colloidal gels.

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