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Field-theoretic study on polymer-depletion interaction between colloids in solution WEI LI, KRIS DELANEY, GLENN FREDRICKSON, Univ of California - Santa Barbara — Using field-theoretic simulations, we study the depletion interaction between colloidal particles in a solution of free block copolymers. Our system consists of two solid non-adsorbing plates and polymer solution in between. A field theory model formulated in the grand canonical ensemble is used for our simulations, and the potential of mean force between two colloids is computed by means of Derjaguin approximation. We begin the investigation with solvent that is neutral to the copolymer blocks. Several effects on the depletion interaction are considered, including surface affinity of the plates to the copolymer, and block copolymer architecture and composition.

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