



The Physics of Soft and Biological Matter

P.19 Effective interaction between a colloid and a soft interface near criticality

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Within mean-field theory we determine the universal scaling function for the effective force acting on a single colloid located near the interface between two coexisting liquid phases of a binary liquid mixture close to their critical consolute point. Our semi-analytical approximation illustrates that from knowing only the profile of the interface, the force and the free energy can be accurately described. For a range of temperatures and capillary sizes, we find that for a colloid located more than 5 correlation lengths away the effective force between the particle and the fluid interface deviates less than 2% with that of a planar, rigid interface.