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Effective potentials in concentrated colloid-polymer mixtures with competing interactions MARCO LAURATI, NESTOR VALADEZ PEREZ, Universidad de Guanajuato, RONJA CAPELLMANN, STEFAN EGELHAAF, University of Düsseldorf, RAMON CASTAÑEDA-PRIEGO, Universidad de Guanajuato — We determine the effective potentials describing the interactions between colloidal particles in concentrated colloid-polymer mixtures in which depletion attraction competes with electrostatic repulsion. To obtain the potentials, the method of Monte-Carlo inversion is applied to experimental pair distribution functions obtained by confocal microscopy. Both fluid and gel states are investigated. We compare the results of the inversion method with those obtained by describing the interactions using a combination of a square well potential for the attractive component and a Yukawa potential for the repulsive component. This allows us to test the validity range of the one-component pair-potential.

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