

# Colloid-polymer mixtures in random confinement

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Applications of a new density functional approach to fluids adsorbed in randomly disordered porous materials are presented. The fluid components are annealed, while the porous material is described via quenched configurations of model fluids and acts as a random external field. We treat the fluid-fluid demixing phase behavior and interface structure of model colloid-polymer mixtures immersed in hard sphere matrices, investigating in detail capillary condensation of the colloid-rich fluid phase. Results for the adsorption of hard spheres in random fiber networks and random sphere packings agree well with computer simulation results, both in bulk and at surfaces of the porous medium.