

Abstract Submitted
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Controlled Clustering of Oxide Nanoparticles using Block Copolymers for Coating and Biomedical Applications JEAN-FRANCOIS BERRET, CNRS — During the past years, we have investigated the complexation between nanocolloids and oppositely charged polymers. The nanocolloids examined were ionic surfactant micelles and inorganic oxide nanoparticles. For the polymers, we used homopolyelectrolytes or block copolymers with linear and comb architectures. The attractive interactions between oppositely charged species are strong and in general the simple mixing of disperse solutions yield to a precipitation, or to a phase separation. We have developed means to control the electrostatically-driven attractions and to preserve the stability of the mixed solutions. With these approaches, we designed novel core-shell nanostructures, as those obtained recently with polymers and cerium and iron oxide nanoparticles (Berret et al., J. Am. Chem. Soc. 2006, 128, 1755). In this presentation, we show that electrostatic complexation can be used to tailor new functionalized nanoparticles and provide examples related to surface coating and biomedical applications.

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