

Abstract Submitted  
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**Adsorption of Core-Shell Nanoparticles at Liquid-Liquid Interfaces** EMANUELA DEL GADO, LUCIO ISA, ETH Zurich, ESTHER AMSTAD, Harvard, KONRAD SCHWENKE, PATRICK ILG, MARTIN KROEGER, ETH Zurich, ERIK REIMHULT, BOKU Wien, SURFACE TECHNOLOGY, ETH ZURICH TEAM, MICROSTRUCTURE AND RHEOLOGY, ETH ZURICH TEAM, POLYMER PHYSICS, ETH ZURICH TEAM, NANOBIO TECHNOLOGY, BOKU TEAM — The use of nanoparticles as building blocks for the self-assembly of functional materials has been rapidly increasing in recent years. In particular, two-dimensional materials can be effectively self-assembled at liquid interfaces thanks to particle localization and mobility at the interface in combination with tailoring of specific interactions. Many recent advances have been made in the understanding of the adsorption and assembly at liquid interfaces of small hydrophobic nanoparticles, stabilized by short-chain rigid dispersants, but the corresponding studies on core-shell nanoparticles sterically stabilized by extended hydrophilic polymer brushes are presently missing. Such particles offer significant advantages in terms of fabrication of functional, responsive and bio-compatible materials. We present here a combination of experimental and numerical data together with an intuitive and simple model aimed at elucidating the mechanisms governing the adsorption of iron oxide nanoparticles (5-10nm) stabilized by low molecular weight poly(ethylene glycol) (1.5-10 kDa). We show that the adsorption dynamics and the structure of the final assembly depend on the free energy of the particles at the interface and discuss the thermodynamics of the adsorpt

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