

Two-dimensional micelle formation of polystyrene-poly(vinylpyridine) diblock copolymers on mica surfaces

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Abstract. We have used atomic force microscopy to study the adsorption of PolyStyrene-Poly(VinylPyridine) (PS-PVP) block copolymers from a selective solvent onto atomically smooth mica surfaces. At certain copolymer concentrations, we observe a highly regular array of spherical surface micelles covering macroscopic areas of the substrate surface. Evidence is given for a thin homogeneous layer underneath the micelles which is probably due to adsorption of free copolymer chains and brush formation prior to the formation of the micellar structures. We discuss the quality of the self-assembled structures regarding different types of defects and try to identify means for improving the long range periodicity of the structures.