

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Adsorption kinetics of random copolymers with tunable monomer sequences onto flat surfaces¹ YOUNG JHON, JAMES SEMLER, NCSU, IGAL SZLEIFER, Purdue U., JAN GENZER, NCSU — We report on the adsorption kinetics of heteropolymers with adjustable monomer sequences (HAMS) on flat substrates. Poly(styrene-co-4-bromostyrene) (PBr_xS) HAMS, where x denotes the mole fraction of 4-bromostyrene (4-BrS), have been prepared by brominating parent polystyrene chains. By adjusting the solvent quality during the bromination reaction a series of PBr_xS HAMS has been prepared that possess random (good solvent) or random-blocky (poor solvent) distribution of 4-BrS units. We studied the adsorption of PBr_xS HAMS from various solvents onto flat silica surfaces, where the 4-BrS units possess strong affinity towards silica while the interaction between styrene and the surface is nearly athermal. For a given solvent, the amount of PBr_xS HAMS adsorbed onto the surface increases with increasing the 4-BrS content and the blockiness in the monomer distribution. Concurrently, the amount of PBr_xS HAMS on the substrate also increases with decreasing the quality of the solvent from which the copolymer is adsorbed.

¹supported by the NSF

Jan Genzer
NCSU

Date submitted: 22 Dec 2006

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