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Monte Carlo Simulations of the Selective Adsorption of Heteropolymers on Heterogeneous Surfaces JESSE ZIEBARTH, JENNIFER WILLIAMS, YONGMEI WANG, University of Memphis — Lattice Monte Carlo simulations are used to study the selective adsorption of self-avoiding walk heteropolymers on heterogeneous surfaces near the critical adsorption point, the point at which polymer chains just become adsorbed to a surface. The critical adsorption point, determined as the polymer-surface interaction energy for which adsorption is least dependent on chain length, is identified for several different copolymer chain sequences on several surfaces with different site distributions. Selective adsorption is defined as the ability of a surface to more strongly adsorb chains with a certain sequence over chains with other chain sequences. It is found that highly patchy and alternating surfaces are able to selectively adsorb blocky and alternating chains, respectively, while surfaces with a random distribution of sites do not selectively adsorb any chains. Additionally, it is shown that adsorption is most selective for low chain concentrations and relatively weak adsorption energies.

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