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Adsorption kinetics of binary mixtures on carbon nanotube bundles SEYOUM TSIGE, JARED BURDE, MERCEDES CALBI, Dep. of Physics, Southern Illinois Univ. Carbondale — We examine kinetic selectivity effects that take place during the adsorption of a binary mixture on one-dimensional chains. After reaching equilibrium at the same chemical potential, the species with the higher binding energy will enjoy the greatest coverage. However, the weaker-binding species has faster adsorption kinetics and is able to reach a coverage higher than its equilibrium value before the stronger species can adsorb significantly. The result of this process is an 'overshoot' in the fractional coverage of the weaker species that is reached at a time long before the system equilibrates. We analyze the appearance of this overshoot as a function of the temperature, chemical potentials, and energy parameters of the system.

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