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The dependence of chain exchange in copolymer micelles on the chi parameter TIMOTHY LODGE, YUANCHI MA, University of Minnesota — Chain exchange kinetics in diblock copolymer micelles with a lower critical micellization temperature (LCMT) were investigated using time-resolved small-angle neutron scattering (TR-SANS). In TR-SANS, a contrast-matching strategy was used to study the chain distribution in micelles as a function of time, and a relaxation function was defined to quantify the degree of chain exchange. In this work, the chain exchange rate among micelles was studied with respect to the Flory-Huggins interaction parameter between the solvent and the core block. Previous TR-SANS experiments have been interpreted in terms of an activation barrier for chain escape that increases linearly with chi. The results to be presented here, plus some further analysis, indicate that a more elaborate dependence is required.

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