

Abstract Submitted
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Role of corona block in molecular exchange in block copolymer micelles EN WANG, JIE LU, TIMOTHY LODGE, FRANK BATES, Univ of Minnesota - Twin Cities — Self-assembled block polymer micelles are used in a variety of applications including drug delivery and viscosity modification as additives to motor lubricants. Previous work with dilute solutions of poly(styrene-*b*-ethylene-*alt*-propylene) (PS-PEP) diblock copolymer micelle has resulted in a theoretical model that accounts for the dramatic influence of the PS core block length and dispersity on chain exchange kinetics in squalane, a selective neutral solvent for PEP. This model, which accounts for the significant effect of core block length and its polydispersity on chain exchange kinetics, does not address the role of the corona block length. This presentation will describe the consequences of varying the size of the PEP corona block at constant core molecular weight on the rate of chain exchange based on time-resolved small-angle neutron scattering (TR-SANS) measurements. These results have informed an improved model that explicitly includes a corona term.

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