Translocation Model for Intermediate-Length Polymer Dynamics
ERICA J. SALTZMAN, MURUGAPPAN MUTHUKUMAR, University of Massachusetts - Amherst — A description is presented of polymer translocation among a series of spherical chambers separated by narrow pores. This system is a useful model for studying polymer dynamics in the intermediate molecular weight regime. A simple free energy barrier approach is adopted, and the barrier associated with large-scale chain motion is expressed in terms of the barrier for translocation of a subchain between adjacent chambers. The characteristic relaxation time and diffusion constant are calculated and exhibit a molecular weight dependence stronger than that predicted by the reptation model.

Erica J. Saltzman
University of Massachusetts - Amherst