

Abstract Submitted
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A model for restricted diffusion in complex fluids¹ JOHN DE BRUYN, Western University, JONATHAN WYLIE, City University of Hong Kong — We use a model originally due to Tanner [1] to study the diffusion of tracer particles in complex fluids both analytically and through Monte-Carlo simulations. The model consists of regions through which the particles diffuse freely, separated by membranes with a specified low permeability. The mean squared displacement of the particles calculated from the model agrees well with experimental data on the diffusion of particles in a concentrated colloidal suspension [2] when the membrane permeability is used as an adjustable parameter. Data on a micro-phase-separated polymer system [3] can be well modeled by considering two populations of particles constrained by membranes with different permeabilities.

[1] J. E. Tanner, *J. Chem. Phys.* 69, 1748 (1978).

[2] E. R. Weeks and D. A. Weitz, *Chem. Phys.* 284, 361 (2002).

[3] N. Yang, J. L. Hutter, and J. R. de Bruyn, *J. Rheol.* 56, 797 (2012).

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