

Abstract Submitted
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The effect of hydrodynamic interactions on the Brownian diffusion of spheroidal particles in a suspension NAVANEETH KIZHAKKE MARATH, NORDITA, JOHN WETTLAUFER, NORDITA, Yale University and University of Oxford — Batchelor (1976) determined the effect of hydrodynamic interactions on the diffusivity of rigid spheres in a suspension. In general, the particles in a colloidal suspension are anisotropic, interact with each other hydrodynamically and exhibit both translational and rotational diffusivities, which underlie the estimates of the particle size and shape from dynamic light scattering experiments. Unlike spheres, the translation of a spheroid is coupled to its rotation. We calculate the effect of hydrodynamic interactions on the rotational and translational diffusivities of rigid spheroids in a suspension in terms of a correction to the diffusivities of rigid spheroidal particles in a suspension to $O(nL^3)$, where n is the number density of the spheroids and L is their characteristic length.

Reference: G. K. Batchelor, Brownian diffusion of particles with hydrodynamic interaction, *J. Fluid Mech.* **74**, 1-29 (1976).

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