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Scott A McKinley*, 6823 St Charles Ave, New Orleans, LA 70118. *Diffusion of foreign particle in viscoelastic fluids.*

Tracking experiments for microparticle movement in viscoelastic fluids repeatedly reveal non-Brownian statistics. Increments of particle positions often are significantly anti-correlated and the particle mean-squared displacement is typically subdiffusive. While there has been substantial success in modeling and inference for individual particles, progress for multi-particle interactions has been slow. This is, in part, because understanding correlations between distinct particles and modeling interaction forces among them requires the development of a viscoelastic fluctuating hydrodynamics framework. In this talk, I will cover recent progress in this direction (joint work with Christel Hohenegger, Utah), emphasizing both theoretical and experimental problems that lie ahead. (Received August 16, 2016)