

Abstract Submitted
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A Fluctuating Immersed Boundary Method for Brownian Suspensions of Rigid Particles¹ ALEKSANDAR DONEV, Courant Institute of Mathematical Sciences, New York University — I will describe how to model Brownian suspensions of passive or active particles and rigid bodies using an immersed boundary (IB) approach. I will first discuss minimally-resolved models in which each suspended spherical particle is represented by a single IB marker [F. Balboa Usabiaga and R. Delgado-Buscalioni and B. E. Griffith and A. Donev, *Computer Methods in Applied Mechanics and Engineering*, 269:139-172, 2014; and S. Delong, F. Balboa Usabiaga, R. Delgado-Buscalioni, B. E. Griffith and A. Donev, *J. Chem. Phys.*, 140, 134110, 2014]. More complex rigid bodies suspended in fluid can be represented with different degrees of fidelity by enforcing a rigidity constraint for each partially- or fully-resolved body [B. Kallemov, A. Bhalla, A. Donev, and B. Griffith, in preparation]. Thermal fluctuations and thus Brownian motion can be consistently modeled by including a fluctuating (random) stress in the momentum equation, as dictated by fluctuating hydrodynamics.

¹Joint work with multiple collaborators, with special thanks to Boyce Griffith, UNC.

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