

Abstract Submitted
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Large Scale Brownian Dynamics of Confined Suspensions of Rigid Particles¹ ALEKSANDAR DONEV, Courant Institute, New York University, BRENNAN SPRINKLE, McCormick School of Engineering, Northwestern University, FLORENCIO BALBOA, Courant Institute, New York University, NEELESH PATANKAR, McCormick School of Engineering, Northwestern University — We introduce new numerical methods for simulating the dynamics of passive and active Brownian colloidal suspensions of particles of arbitrary shape sedimented near a bottom wall. The methods also apply for periodic (bulk) suspensions. Our methods scale linearly in the number of particles, and enable previously unprecedented simulations of tens to hundreds of thousands of particles. We demonstrate the accuracy and efficiency of our methods on a suspension of boomerang-shaped colloids. We also model recent experiments on active dynamics of uniform suspensions of spherical microrollers.

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