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Lubrication Corrections for Brownian Suspensions Above a Wall¹ BRENNAN SPRINKLE, ALEKSANDAR DONEV, YIXIANG LUO, Courant Institute of Mathematical Sciences — Lubrication effects play an important role in the dynamics of dense suspensions of passive or active microscale particles. In order to quantitatively measure bulk properties in these types of suspensions, the near–field lubrication flows must be accurately resolved. We present an efficient numerical method to simulate dense Brownian suspensions of many particles above a bottom wall. Our method includes lubrication effects while maintaining a computational complexity which scales linearly in the number of particles. Examples to demonstrate the effectiveness of our method include: the sedimentation of particles over an inclined plane, as well as collective motion in a suspension of magnetic 'rollers'.

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