

Abstract Submitted  
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**Wall effects on the motion of an approaching solid sphere** FU-LING YANG, MELANY HUNT, California Institute of Technology — As a solid sphere approaches a stationary wall, the motion of the sphere is retarded by the presence of the wall. The slowdown is more pronounced for the cases of small particle Stokes numbers where the particle possesses less inertia. Based on our experiment observations for immersed particle-on-wall collisions, this wall effect becomes non-negligible when the gap is roughly of sphere radius. To describe this phenomenon, an equation of motion for a single solid sphere moving towards a solid wall is proposed. In our model, viscous drag, added mass force and history force are considered with proper modifications for the presence of the solid wall. The predicted sphere motion is compared with experiment data for moderate and small particle Stokes numbers.

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