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Beyond the Point Particle: LES-Style Filtering of Finite-Sized Particles. BROOKS MOSES, CHRIS EDWARDS, Stanford University — Multiphase LES-style spatial filtering provides a rigorous means of modeling flow over computationally-unresolved particles and droplets, without recourse to the point-particle limit. As such, it can be used to investigate the validity of point-particle models for particles of finite sizes, and to provide refinements to point-particle models. We present results for the specific case of solid spherical particles, illustrating that the significant deviations from the point-particle assumption occur even for quite small particles, and that the addition of a dipole component to the standard single-point force provides a substantially improved model.

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