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A particle-particle collision strategy for arbitrarily shaped particles at low Stokes numbers[1] MOHSEN DAGHOOGHI, IMAN BORAZJANI, State Univ of NY - Buffalo — We present a collision strategy for particles with any general shape at low Stokes numbers. Conventional collision strategies rely upon a short -range repulsion force along particles centerline, which is a suitable choice for spherical particles and may not work for complex-shaped particles. In the present method, upon the collision of two particles, kinematics of particles are modified so that particles have zero relative velocity toward each other along the direction in which they have the minimum distance. The advantage of this novel technique is that it guaranties to prevent particles from overlapping without unrealistic bounce back at low Stokes numbers, which may occur if repulsive forces are used. This model is used to simulate sedimentation of many particles in a vertical channel and suspensions of non-spherical particles under simple shear flow.

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