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Hydro-dynamical interactions of moving rigid particles' cluster

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Granular systems occur in many technological applications. The overall performance of needed equipments strongly depends on the hydrodynamics of multiphase mixtures. Hydro-dynamical interactions of particles in these disperse solid-fluid systems are one of the key points for prediction of flow behavior in process apparatuses or for correct design of industrial technologies.

In this contribution we propose the hydro-dynamical interactions between moving solid particles and viscous fluid phase computing by immersed boundary method (IBM) with the open source software CFDEM. CFDEM connect together OpenFOAM (CFD solver) and LIGGGHTS (DEM solver). In our work, we focused especially on the use of local mesh refinement and parallelization of this method.

The main aim of this contribution was study of the particle's cluster. We focused on motion and interactions of the individual particles in the cluster by the evaluation of particles positions, velocities and accelerations.

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