Abstract Submitted
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A novel finite element framework for numerical simulation of fluidization processes and multiphase granular flow[1] JAMES PERCIVAL, ZHIHUA XIE, DIMITRIOS PAVLIDIS, Imperial College London, JEFFERSON GOMES, University of Aberdeen, CHRISTOPHER PAIN, OMAR MATAR, Imperial College London — We present results from a new formulation of a numerical model for direct simulation of bed fluidization and multiphase granular flow. The model is based on a consistent application of continuous-discontinuous mixed control volume finite element methods applied to fully unstructured meshes. The unstructured mesh framework allows for both a mesh adaptive capability, modifying the computational geometry in order to bound the error in the numerical solution while maximizing computational efficiency, and a simple scripting interface embedded in the model which allows fast prototyping of correlation models and parameterizations in intercomparison experiments. The model is applied to standard test problems for fluidized beds.

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