Abstract Submitted
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Strong Shock Propagating Over A Random Bed of Spherical Particles[1] YASH MEHTA, University of Florida, KAMBIZ SALARI, Lawrence Livermore National Laboratory, THOMAS L. JACKSON, S. BALACHANDAR, SIDDHARTH THAKUR, University of Florida — The study of shock interaction with particles has been largely motivated because of its wide-ranging applications. The complex interaction between the compressible flow features, such as shock wave and expansion fan, and the dispersed phase makes this multi-phase flow very difficult to predict and control. In this talk we will be presenting results on fully resolved inviscid simulations of shock interaction with random bed of particles. One of the fascinating observations from these simulations are the flow field fluctuations due to the presence of randomly distributed particles. Rigorous averaging (Favre averaging) of the governing equations results in Reynolds stress like term, which can be classified as pseudo turbulence in this case. We have computed this "Reynolds stress"term along with individual fluctuations and the turbulent kinetic energy. Average pressure was also computed to characterize the strength of the transmitted and the reflected waves.

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