

Abstract Submitted  
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**Mesoscale Computations of Shock-Particle Interaction In Near-Wall Proximity**<sup>1</sup> FADY NAJJAR, Lawrence Livermore National Laboratory — Understanding shock-particle interactions is fundamental for a variety of physics and engineering problems. Particle response to the shock-induced flow acceleration results in a large uncertainty, hindering the computational capability to predict such complex flow. The key parameters are the forces on the particle, its motion and speed. These effects are further complicated when the particles are in the proximity of the wall and a shock interacts with them. We will present results from 3D hydrodynamics simulations performed to study the interaction of shock waves with metal particles under various shock loading conditions. Initial validation study is performed for shock-particle interaction. The particles speed and its motion, as well the generated drag and lift forces, will be calculated. Such computations will provide important inputs to develop advanced drag and lift models for relevant multiphase flows.

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