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**Numerical Investigation of Explosive Particle Jetting** CALVIN YOUNG, P-24 Plasma Physics, Los Alamos National Laboratory, JONATHAN REGELE, XCP-4 Continuum Models and Numerical Methods, Los Alamos National Laboratory, YASH MEHTA, T-3 Fluid Dynamics and Solid Mechanics, Los Alamos National Laboratory, JACOB MCFARLAND, Texas AM University — A blast wave traveling through a region of particulate matter has been observed to produce distinct clusters and jets of particles expanding with the flow. This phenomenon has yet to be fully explained, and as such particle interaction models may be improved upon by further numerical investigation. A series of 2D simulations using the adaptive-wavelet compressible flow code AWESUMM are performed in order to investigate this phenomenon qualitatively. Particles in this code are modeled as fully resolved cylinders via a volume penalization method. Phase interactions are captured by two-way particle-gas coupling and particle-particle collisions and momentum transfer. In this set of simulations, an incident planar shock is passed through a particle field, and the resulting flow field is allowed to evolve. Particle fields are varied in initial distribution in area fraction along the height of the domain, and in coefficient of restitution between particles. Particle trajectories and field area fractions are used to characterize evolution of the system over time. Further work will serve to shed more light on the mechanisms of jetting and validate particle models in use with other applications. LA-UR-20-25844

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