

Abstract Submitted  
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**Probabilistic events in shock driven multiphase hydrodynamic instabilities**<sup>1</sup> WOLFGANG BLACK, University of Missouri - Columbia, NICK DENISSEN, Los Alamos National Laboratory, JACOB MCFARLAND, University of Missouri - Columbia — Multiphase flows are an important and complex topic of research with a rich parameter space. Historically many simplifications and assumptions have been made to allow simulation techniques to be applied to these systems. Some common assumptions include no particle-particle effects, evenly distributed particle fields, no phase change, or even constant particle radii. For some flows, these assumptions may be applicable but as the systems undergo complex accelerations and eventually become turbulent these multiphase parameters can create significant effects. Through the use of FLAG, a multiphysics hydrodynamics code developed at Los Alamos national laboratory, these assumptions can be relaxed or eliminated to increase fidelity and guide the development of experiments. This talk will build on our previous work utilizing simulations on the shock driven multiphase instability with a new investigation into a greater parameter space provided by additional multiphase effects; including a probabilistic particle field, various particle radii, and particle-particle effects on the evolution of commonly studied interfaces.

<sup>1</sup>Los Alamos National Laboratory LA-UR-16-25652

Wolfgang Black  
University of Missouri - Columbia

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