Abstract Submitted
for the DFD09 Meeting of
The American Physical Society

A computational study of high speed droplet impact TOSHIYUKI SANADA, Shizuoka University, KEITA ANDO, TIM COLONIUS, California Institute of Technology — When a droplet impacts a solid surface at high speed, the contact periphery expands very quickly and liquid compressibility plays an important role in the initial dynamics and the formation of lateral jets. Impact results in high pressures that can damage the surface. In this study, we numerically investigated a high speed droplet impacts on a solid wall. The multicomponent Euler equations are computed by a FV-WENO scheme with an HLLC Riemann solver [Johnsen & Colonius, J. Comp. Phys. (2006)] that accurately captures shocks and interfaces. Stiffened equation of state is employed to model of gas, liquid and solid components. In order to compare the available theory and experiments, 1D, 2D and axisymmetric solutions are obtained. The generated pressures, shock speeds, and the lateral jetting mechanism are investigated. In addition, the effect of target compliance is evaluated.

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Date submitted: 03 Aug 2009 Electronic form version 1.4