

Abstract Submitted  
for the DFD12 Meeting of  
The American Physical Society

**Rarefied gas correction for the bubble entrapment singularity in drop impacts** LAURENT DUCHEMIN, IRPHE, CHRISTOPHE JOSSERAND, Institut d'Alembert — We study the non-continuous correction in the dynamics of drop impact on a solid substrate. Close to impact, a thin film of gas is formed beneath the drop so that the local Knudsen number is of order one. We consider the first correction to the dynamics which consists of allowing slip of the gas along the substrate and the interface. We focus on the singular dynamics of entrapment that can be seen when surface tension and liquid viscosity can be neglected. There we show that different dynamical regimes are present that tend to lower the singularity strength. We finally suggest how these effects might be connected to the influence of the gas pressure in the impact dynamics observed in recent experiments.

Laurent Duchemin  
IRPHE

Date submitted: 01 Aug 2012

Electronic form version 1.4