Abstract Submitted
for the DFD07 Meeting of
The American Physical Society

Low viscous droplets bouncing on a vibrated high viscous bath[1]

DENIS TERWAGNE, TRISTAN GILET, NICOLAS VANDEWALLE, STEPHANE DORBOLO, University of Liege, GRASP TEAM — Bouncing mechanisms of a droplet on a vertically vibrating high viscous bath are investigated experimentally. The minimal acceleration required for bouncing is measured as a function of the forcing frequency for various viscosities and sizes of the droplet. An analytical model is developed in order to explain the bouncing phenomenon and the obtained acceleration threshold curves. The droplet deformation is shown to play a key role in the process. A large low viscous droplet can experience a cascade of partial coalescences until it reaches a size suitable for bouncing. The vibrated bath works in the same way as a sieve : the experimentalist selects only droplets smaller than a critical size.

[1]TG/SD thank the FRIA/FNRS for financial support

Tristan Gilet
University of Liege

Date submitted: 03 Aug 2007 Electronic form version 1.4