

Abstract Submitted
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Bouncing drops in water DOMINIQUE LEGENDRE, IMFT, CLAUDE DANIEL, Rhodia-France, PASCAL GUIRAUD, INSA - France, INTERFACE TEAM — The behaviour of millimetric toluene drops rising in water and bouncing under an horizontal plate is studied using a high-speed video camera. The position and velocity of the centre of mass of the drops, as well as their deformation are analysed. Bouncing is found to be very dissipative, almost 80% of the energy being lost during the first impact with the wall. The deformation of drop is governed by the balance between its inertia and capillary effects and evolve like a dissipative mass-spring system where inertia comes from both the particle inertia and the added mass, the springiness comes from the surface energy and the dissipation is mainly attributed to the fluid pushed by the drop parallel to the wall resulting in the formation of a lubrication film. The coefficient of restitution is found to follow the same general behaviour as observed in many experiments of bouncing for different type of solid particles in different fluids.

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