Abstract Submitted
for the DFD13 Meeting of
The American Physical Society

Dynamic levitation of droplets ANAIS GAUTHIER, CHRISTOPHE CLANET, DAVID QUERE, Physique et Mecanique des Milieux Heterogenes, CNRS, ESPCI, Paris France & Ladhyx, CNRS, Ecole Polytechnique, Palaiseau, France — We discuss how levitation can be induced for a liquid sitting on a plate in movement. In order to create the motion, we use a polished aluminum plate with a controlled rotational speed. As the surface reaches a critical velocity (between 1 and 10 m/s depending on the nature of the fluid), a drop gently deposited on the plate does not wet it but instead keeps a quasi-spherical shape, flying above the plate. We investigate experimentally the parameters that affect the value of the threshold speed between wetting and levitation, such as the nature of the fluid or the radius of the droplets. We also present a simple model to explain the existence of the levitation threshold.

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Date submitted: 23 Jul 2013 Electronic form version 1.4