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The energetics of bouncing droplets SAM TURTON, Department of Mathematics, Massachusetts Institute of Technology, JAN MOLACEK , Max Planck Institute for Dynamics and Self-Organization, JOHN BUSH, Department of Mathematics, Massachusetts Institute of Technology — We present the results of a theoretical investigation of the energetics of droplets bouncing on the surface of a vertically vibrating bath. We first assess the relative magnitudes of the kinetic, surface and gravitational potential energies of both the droplet and its wave field. We then seek to rationalize the transitions between the various bouncing and walking states that arise as the vibrational forcing is increased. Our results are compared with prior theoretical and experimental work.

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