

Abstract Submitted
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The hydrodynamic boost factor for walking droplets¹ JOHN BUSH, ANAND OZA, JAN MOLACEK, MIT — It has recently been demonstrated that droplets walking on a vibrating fluid bath exhibit several dynamical features previously thought to be peculiar to the microscopic realm. Such “walkers,” consisting of droplet plus guiding wave field, are spatially extended objects. We here examine the dependence of the walker mass and momentum on its velocity. Doing so indicates that in certain parameter regimes, the walker dynamics may be described in terms of the inviscid mechanics of a particle with a speed-dependent mass. Drawing an analogy with relativistic mechanics, we define a hydrodynamic boost factor for these walking droplets, consideration of which provides rationale for the anomalous radii of walkers executing circular orbits.

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John Bush
MIT

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