

Abstract Submitted
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Falling to Floating Transitions of Solid Spheres in a Bubbly Fluid

MICHAEL HIGLEY, ANDREW BELMONTE, W. G. Pritchard Labs, Dept of Mathematics, Penn State — We present experimental observations of the trajectories and average velocities of solid spheres falling through a curtain of rising bubbles in water. For the quiescent case (no bubbles), the Reynolds numbers are on the order of 1,000, and the average terminal velocity is determined by the form (inertial) drag. The main effect of the bubbles is to slow down the spheres. In some regimes (larger or heavier spheres), the paths followed by the spheres in the bubble stream are nearly indistinguishable from their paths without bubbles. In other regimes (smaller or lighter spheres), an apparently random lateral motion is the dominant feature.

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