

Abstract Submitted
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Optical tweezer based study of the motion of a sphere in an oscillatory boundary layer SHANKAR GHOSH, PRERNA SHARMA, SHOBO BHATTACHARYA, TIFR, Mumbai, India, CONDENSED MATTER PHYSICS AND MATERIALS SCIENCE, TATA INSTITUTE OF FUNDAMENTAL RESEARCH TEAM — Drag forces on a single polystyrene sphere in the vicinity of an oscillatory plate have been measured using an optical tweezer. The phase of the sphere is found to be a sensitive probe of the dynamics. The evolution of the phase from an inertia-coupled regime to a velocity-coupled regime is explored. The frequency dependence of the response is found to be characteristic of a damped oscillator with an effective inertia which is orders of magnitude greater than that of the bare sphere.

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