

Abstract Submitted  
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**Measurement of barrier potentials between colloidal particles and liquid-liquid interfaces** DAVID KAZ, RYAN MCGORTY, VINOTHAN MANOHARAN, Harvard University — We measure the repulsive barrier between micron-sized colloidal particles and liquid-liquid interfaces. Particles of polystyrene and silica (suspended in water/glycerol) are confined individually to an optical trap, and translated towards an interface between the aqueous phase and an oil (decane) phase. We fit holographic micrographs of the particles to Lorentz-Mie theory to calculate the positions of the particles within the trap, including axial displacement. Since the force between a particle and the interface is directly related to the particle's displacement from the trap center, we are able to measure the particle-interface repulsion. We compare the force profiles with those predicted by DLVO theory resulting from “image charges” in the oil phase.

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