

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Interaction of a colloidal sphere near a flat boundary BHASKAR JYOTI KRISHNATREYA, New York University (NYU), DAVID G. GRIER, New York University — A colloidal sphere's diffusion is hindered near a surface due to hydrodynamic interactions. We study the hindered diffusion of a colloidal sphere near a glass surface using Digital Holographic Microscopy (DHM). Analysis of in-line holographic images of a diffusing colloidal sphere provides its three dimensional positions with nanometer resolution. We propose a general technique to determine the forces acting on the colloidal sphere near a flat boundary using Kernel Density Estimates (KDE), as a function of distance from the boundary. The results will help in understanding interactions between micron-sized colloidal particles near a boundary.

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Date submitted: 15 Nov 2013

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