Abstract Submitted
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Colloidal Diffusion and Hydrodynamic Interactions near Boundaries BHASKAR JYOTI KRISHNATREYA, DAVID G. GRIER, Department of Physics and Center for Soft Matter Research, New York University, New York, NY 10003, CENTER FOR SOFT MATTER RESEARCH, NEW YORK UNIVERSITY TEAM — Holographic optical tweezers allow trapping of colloidal spheres in fluid in three dimensions. In-line digital holographic microscopy yields time-resolved information on the three dimensional distribution of material in a sample. Analysis of in-line holographic images of diffusing colloidal spheres provides their three dimensional positions with nanometer resolution. We studied diffusion of colloidal spheres in three dimensions as a function of distance from boundary by analyzing particle trajectories generated by blinking optical tweezers and digital holographic microscopy. From the trajectories we calculated the particle-particle and particle-wall hydrodynamic interactions 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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