

Abstract Submitted
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Tunably Soft Colloids Synthesis and Characterization by Holographic Microscopy CHEN WANG, Department of Physics and Center for soft Matter Research, New York University, HAGAY SHPAISMAN, Department of Chemistry, Bar-Ilan University, DAVID GRIER, Department of Physics and Center for Soft Matter Research, New York University — Polydimethylsiloxane(PDMS) is an industrially important, widely used silicon-based organic polymer. Previous work showed that the addition of trivalent cross-linker transforms PDMS emulsion droplets into complied spheres, whose elasticity scales with the concentration of cross-linker. We use holographic video microscopy to characterize the synthesized PDMS with varying degree of deformability. Holographic characterization yields measurements of cross-linker concentration through the influence on the particles' sizes and refractive indices. In the performed experiments, we are able to detect the transition between liquid droplets and complied particles. and monitor the polymerization progress. The particles' compliance can be gauged in their interactions with rigid surfaces that we measure with holographic optical trapping and holographic particle characterization.

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