

Abstract Submitted
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Low-Frequency Vibrational Modes and Rearrangements in a Colloidal Glass Subject to Point Expansion¹ KEVIN APTOWICZ, MATTHEW COLAGRECO, RYAN MARGOLIS, West Chester University, PETER YUNKER, KE CHEN, ARJUN YODH, University of Pennsylvania — We conduct experiments on two-dimensional packings of colloidal thermosensitive hydrogel particles. The packing fraction of the colloidal suspension is tunable from liquid to deeply jammed by varying the global temperature of the sample. In addition, by tightly focusing an infrared laser on the sample, point expansion of the colloidal glass is induced via thermophoretic forces. We utilize displacement correlation matrix techniques employed in recent papers, and we employ video microscopy to derive the vibrational modes. The response of the sample to induced point expansion is analyzed over a range of packing fractions, with particular focus on the correlation between quasi-localized low-frequency vibrational modes and regions of rearrangements.

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