Abstract Submitted
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Plastic restructuring in compressed colloidal glasses[1] DANIEL BLAIR, DAVID WEITZ, Harvard University — We report the observation of localized plastic restructuring in compressed colloidal glasses. By placing a expanding bulk hydrogel in contact with the colloidal glass, we can drive the system above the glass transition volume fraction, $\phi = 0.58 \rightarrow 0.64$. We measure the local strain tensor using three dimensional confocal microscopy and particle tracking techniques. The increase in volume fraction exhibits a smooth exponential increase. However, local irreversible transformations exhibit strong fluctuations that are correlated to the local free volume. We will elucidate the mechanisms for these localized relaxation events, and make comparisons to recent models of sheared amorphous solids.

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Daniel Blair
Harvard University

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