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Aging and non-Gaussian dynamics in a colloidal glass GIANGUIDO C. CIANCI, ERIC R. WEEKS, Emory University — As a hallmark of the glassy state of matter, aging has attracted substantial attention, yet it remains a poorly understood phenomenon. It manifests itself by a dependence of the dynamical properties of the sample on the time elapsed since vitrification. The glassy state is also marked by dynamics that are heterogeneous in both time and space, and that exhibit non-Gaussian statistics over moderate to long timescales. We use a density and refractive index matched suspension of micron sized PMMA colloids as a model glassy material. At these length scales, laser scanning confocal microscopy allows us to follow the motion of a few thousand particles in real time and real space. We study the interplay between the timescales at which the dynamics are non-Gaussian and the age of the sample. We also analyze the spatial extent over which the dynamics are heterogeneous and examine the age dependence of this length scale.

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