Abstract Submitted
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Changes in Local Structure and Dynamic Heterogeneity in an Aging Glass[1] PETER YUNKER, ZEXIN ZHANG, University of Pennsylvania, KEVIN B. APTOWICZ, West Chester University, AHMED M. ALSAYED, CNRS/Rhodia, ARJUN YODH, University of Pennsylvania — Recent works have shown a connection between structure and dynamical heterogeneity in glass[12]. However, a connection between structure and aging dynamics remains elusive. To this end, we study aging in a bidisperse suspension of soft spheres. Micron-sized temperature-sensitive NIPA particles are employed in two-dimensions, and directly observed with video microscopy. After quenching from liquid to glass, the fraction of particles with crystalline order within the first coordination shell increases with time. Particles that undergo irreversible rearrangements[2], the aspect of dynamic heterogeneity most closely linked to structural relaxation, are identified. Particles with local crystalline order are observed to be very unlikely to irreversibly rearrange, and therefore more stable. This increase in stable particle configurations leads to the slowing of dynamics that is characteristic of aging. [1] A. Widmer-Cooper, H. Perry, P. Harrowell, and D. R. Reichman, Nat Phys **4**, 711 (2008) [2] K. Watanabe and H. Tanaka, Physical Review Letters **100** (2008)

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