## Abstract Submitted for the MAR06 Meeting of The American Physical Society

Damped elastic relaxation seen in glassy colloidal suspensions<sup>1</sup> ERIC R. WEEKS, DOUGLAS ANDERSON, Physics Dept., Emory University, PI-OTR HABDAS, Physics Dept., St. Joseph's University — We study concentrated colloidal suspensions, a model system which has a glass transition when the particle concentration is high. We use an optical confocal microscope to view the motion of these colloidal particles in three dimensions. We add small magnetic particles to locally "poke" the colloidal samples. We find a yield force (below which the magnetic particles are unable to move through the sample), which grows as the glass transition is approached. When a force is applied below this yield force, the sample deforms elastically, but with relaxation seen after the force is removed. This relaxation seems to behave in a nonexponential fashion. We characterize this elastic response and relaxation and study how both change as the glass transition is approached.

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