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Rotational perturbations of colloidal suspensions near the colloidal glass transition. PIOTR HABDAS, Dept. of Physics, Saint Joseph's University, ERIC R. WEEKS, Dept. of Physics, Emory University — By increasing the concentration of small solid particles in a liquid (colloidal suspension) a colloidal glass transition is approached. This is due to the fact that the system becomes increasingly crowded and when it reaches the glass transition it becomes essentially jammed. Therefore, a colloidal suspension is a model system that exhibits a glass transition. There are a few ways of locally perturbing a colloidal suspension. For example, one of the colloidal particles can be dragged through the colloidal suspension or a dimer made out of two small particles can be rotated. To perform the latter, we mix a small number of paramagnetic beads with dense PMMA particles. Some of the beads form dimers which can be put into rotation by rotating an external permanent magnet. Using confocal microscopy we study response of the system to such local perturbation. In particular, we investigate average spatial range of these perturbations and how it varies with the rotational rate and sample concentration.

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