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Rotational Diffusion of Colloidal Clusters JAKUB OTWINOWSKI, KAZEM EDMOND, KEN DESMOND, ERIC R. WEEKS, Emory University — We synthesize fluorescent PMMA particles and form them into clusters of several particles. We separate the clusters and make dilute suspensions of identical clusters in an index and density matched solvent. We scan the suspensions with a high-speed confocal microscope in 3D over time. For each cluster we determine the position and orientation with modified particle tracking software, and we follow the translational and rotational motion in time. The diffusion coefficients for translational and rotational motion agree with the Stokes-Einstein and the Stokes-Einstein-Debye relations.

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