

Abstract Submitted
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Translation-rotation coupling in concentrated colloidal suspensions MINSU KIM, Physics, UIUC, STEPHEN ANTHONY, Chemistry, UIUC, STEVE GRANICK, material science and engineering, UIUC — Single-particle tracking has been used to contrast translational and rotational diffusion in monodisperse colloidal suspensions. Visualization of angular motion reveals that rotation has different properties from translation. Collective motions of particles lead to subdiffusive rotation. Deviations from Fickian motion increase as the volume fraction increases above 50%. Translational and rotational coupling of a single particle is measured directly for the first time and its dependence on the volume fraction is discussed.

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