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Sedimentation dynamics in the presence of polymer SHMUEL M. RUBINSTEIN, Department of Physics and Harvard School of Engineering and Applied Sciences, Harvard University, Cambridge, Massachusetts 02138, USA, MAHESH M. BANDI, TOM KODGER, Harvard School of Engineering and Applied Sciences, Harvard University, Cambridge, Massachusetts 02138, USA, DAVID A. WEITZ, Department of Physics and Harvard School of Engineering and Applied Sciences, Harvard University, Cambridge, Massachusetts 02138, USA — We study the sedimentation of colloidal particles in polymer supplemented solution. The polymers enrich the dynamics of sedimentation by adding both particle attraction (caused by depletion interactions) and an elastic component to the flow. The sedimentation dynamics are governed by the formation, sedimentation and consequent breakup of poroelastic clusters of many particles. By making use of a custom built laser sheet microscope we are able to track Brownian one-micron particles at single particle resolution within a large (∼cm sized) cell. This way we can resolve between bulk and boundary effects.

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