Abstract Submitted
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Rheology of Self-Assembling Colloidal Chains[1] KAZEM V. EDMOND, STEFANO SACANNA, ZACHARY D. FORBES, ANDREW D. HOLLINGSWORTH, DAVID J. PINE, New York University — We probe the rheology of self-assembling chains of "pacman" particles using a Zimm viscometer, a modified Couette apparatus. Pacman particles are microscopic spherical particles specially designed to have a spherical indentation on their surface. In the presence of a depletant, overlap between the indentation and another particle's surface maximizes the excluded volume between the two interacting particles, resulting in a selective attraction between them. Careful tuning of the interaction strength in a suspension of particles induces the formation of long chains. Shearing this material can twist, stretch, and break the chains, causing the material to exhibit unique rheological properties.

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Kazem V. Edmond
New York University

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