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Effect of particle stiffness on glassy dynamics of dense colloidal liquids RAYMOND SEEKELL, Notre Dame University, PRASAD SARANGAPANI, MedImmune, LLC, Y. ELAINE ZHU, Notre Dame University — "Fragile" glassy materials show a non-Arrhenius dependence of relaxation time with temperature close to the glass transition and have been extensively studied for molecular glass formers as model "hard-sphere" colloidal suspensions, but we lack a complete understanding of "strong" glass formers which show an Arrhenius dependence on temperature approaching the glass transition. In this work, we investigate the glassy dynamics of microgels of varied particle stiffness in dense aqueous suspensions using confocal microscopy. Poly(N-isopropylacrylamide) (PNIPAM) microgel particles of variable stiffness in aqueous media are synthesized by precipitation polymerization varying the cross-linking density to resemble "strong" glass forming liquids owing to their directional elastic interparticle interactions at increased microgel volume fraction. The fragility effect on the glassy dynamics in dense colloidal suspension is investigated as we tune the behavior from "soft-sphere" to "hard-sphere" limits. We find that dynamic heterogeneity, specifically string-like motion, is more pronounced as stiffness increases.

Raymond Seekell
Notre Dame University

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