

Abstract Submitted
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Microscopic observation of dynamics and structure in microgel suspensions¹ MELAKU MULUNEH, Harvard University, JORIS SPRAKEL, Wageningen University, The Netherlands, HANS WYSS, Eindhoven University of Technology, The Netherlands, JOHAN MATTSSON, University of Leeds, UK, DAVID WEITZ, Harvard University — We use 3D confocal microscopy to understand the packing dynamics and structure of fluorescently labeled p(NIPAm-co-AAc) microgel colloidal particles. Such systems respond to changes in temperature, pH, and polymer content by changing size, morphology, and interaction behavior. We conduct experiments to understand this behavior in detail: our results show that the dynamics are dominated by attraction driven crystallization and concentration at low pH and concentration only at high pH. Crystal nucleation occurs homogeneously in the suspensions and does not appear to be restricted to geometric boundaries. The growth of crystals is nucleation-limited and can complete on the order of hours. Structural analysis of the crystals formed indicates that the stacking style is insensitive to charge, concentration, size, and stiffness of the particles and remains FCC.

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