

# Transient formation of bcc crystals in suspensions of pNIPAM-based microgels

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We present a small angle X-ray scattering study of crystals formed by temperature-sensitive, swollen microgel particles consisting of poly(N-isopropylacrylamide) co-polymerized with acrylic acid and 5 mol% of cross-linker. As for hard spheres, the random hexagonal close packed structure is predominant during crystal growth and slowly transforms towards the face-centered cubic structure. However, a transient phase of body-centered cubic crystal is observed in an intermediate range of effective volume fractions. We estimate that the studied suspensions are close to a transition from fcc to bcc structure that can be understood by the tendency of the system to maximize excluded volume and minimize the contact area between the particles.

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