

Abstract Submitted
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Exploring melting transition with soft colloids¹ MANIS CHAUDHURI, TOM KODGER, School of Engineering and Applied Sciences, Harvard University, Cambridge, MA 02138,USA, EMILY RUSSEL, DAVID WEITZ², Department of Physics, Harvard University, Cambridge, MA 02138, USA, FRANS SPAEPEN, School of Engineering and Applied Sciences, Harvard University, Cambridge, MA 02138,USA — A comparative study has been made to explore melting transition for two different types of soft colloids: sterically stabilized aqueous core-shell (CS) microgels and charge stabilized PMMA particles. The shell component made of polymer network stabilize the CS suspension whereas the PMMA particle suspension is stabilized by the surface charge on each particle. Both types of particles form stable three dimensional crystal structures at higher volume fractions. We locate individual particles to construct 3D pair-correlation function and mean-square-displacements (MSD). We explore the melting transition in equilibrium for both the systems by changing the inter-particle separation i.e by changing volume fraction. Different melting criterions have been used to identify melting point. The result shows that melting transition for sterically stabilized CS microgel is fundamentally different from that of charge stabilized PMMA particles.

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