

Abstract Submitted
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The Role of Charge Interactions in Colloidal Gelation

EMILY RUSSELL, Harvard University, JORIS SPRAKEL, Wageningen University, THOMAS KODGER, DAVID WEITZ, Harvard University — We demonstrate the gelation of a novel system of oppositely charged colloidal particles. The particles are charged by grafting a polyelectrolyte brush from the surface, and suspended in a polar solvent with added monovalent salt. Confocal microscopy allows us to study in detail the three-dimensional structure and dynamics of these binary gels as we vary the particle volume fraction, interaction strength, and relative number ratio of the two particle species, and we find a transition between a gel and a fluid state with each of these parameters. We find that the mean contact number of particles in the gel decreases as we approach the gel line, in contrast to what has been reported in the literature for depletion gels.

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