Describing bicomponent coagulation of charged particle using Monte Carlo simulation

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Particle charging is widely used in material science and engineering. The behavior of charged particle is significantly different from the neutral particle. We describe bicomponent charged coagulation using charge asymmetry factor. and To calculate them, we used constant-N Monte Carlo simulation. Our findings suggest that symmetric particle charging increases the coagulation rate and results large aggregates. but highly asymmetric bipolar charging (nearly unipolar charging) decrease the coagulation rate, because interparticle interaction for coagulation is dominated by the electrostatic repulsion.