

## Heteroaggregation of Microgels

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Microgel particles are colloids that respond to external triggers, swelling in size. We use poly-vinyl pyridine (pvp) as a positively charged particle. These swell in acidic conditions, to a degree controlled by the amount of cross-linking. Negatively charged particles are poly n-iso propyl acrylamide (pnipam). These swell at temperatures below 32 °C. When one of the microgels is swollen there is no Van der Waals attraction, giving a system primarily dependent on electrostatics.

Heteoaggregation of these microgels is followed by a number of techniques. Small angle light scattering gives the fractal dimension of the resulting structures, and the dynamics is followed with PCS and UV.

Using collapsed pvp and swollen pnipam the small angle light scattering shows scattering only off the collapsed particles. Results show a fractal structure, with the positive particles randomly distributed within flocs. There is no salt dependence of the fractal dimension. The dynamics of aggregation shows a marked slowdown at particular salt concentrations, where the Debye length is comparable with the length of polymer segments at the edge of particles.