Supporting Information

Fast Swelling Strategy for Flower-Like Micro-Sized Colloidal Surfactants with Controllable Patches by Regulating the Tg of Seed Particles

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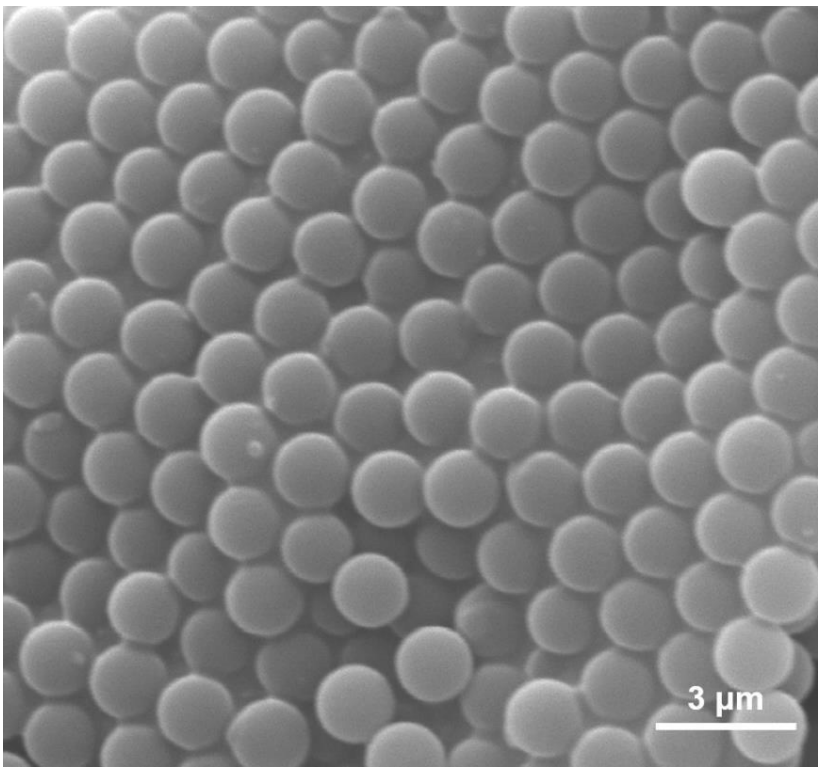


Figure S1. SEM image of P(GMA-*co*-*n*BA)$_{5\%}$ seed particles.

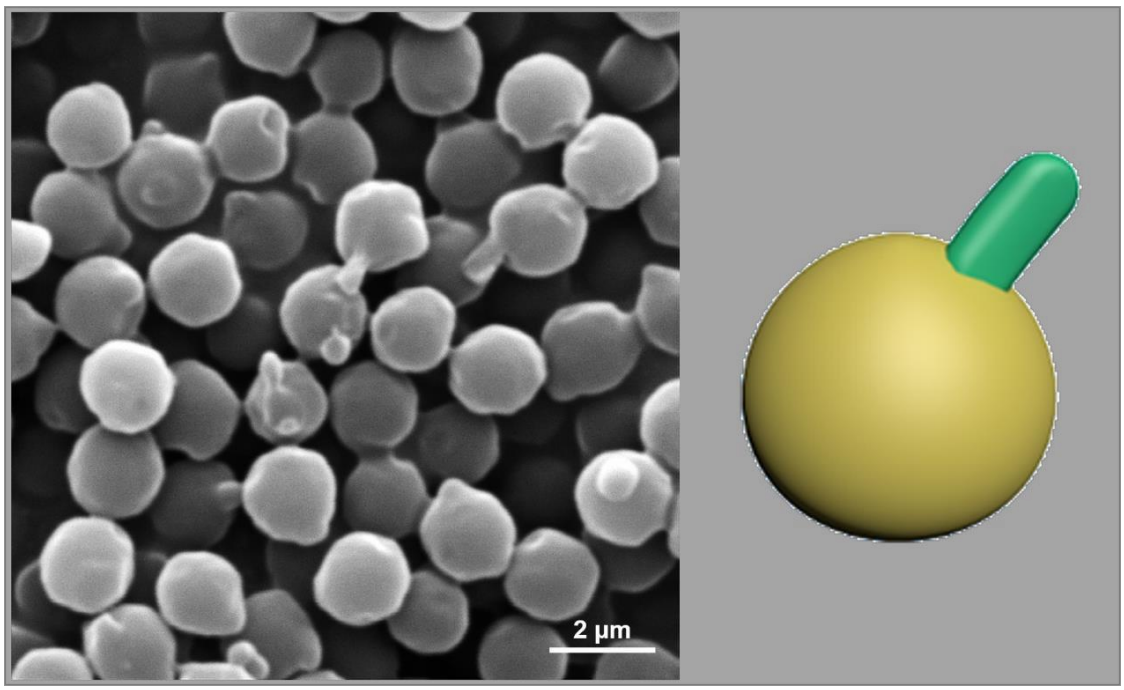


Figure S2. SEM image of P(GMA-*co*-*n*BA)$_{20\%}$ seed particles with a horn structure.

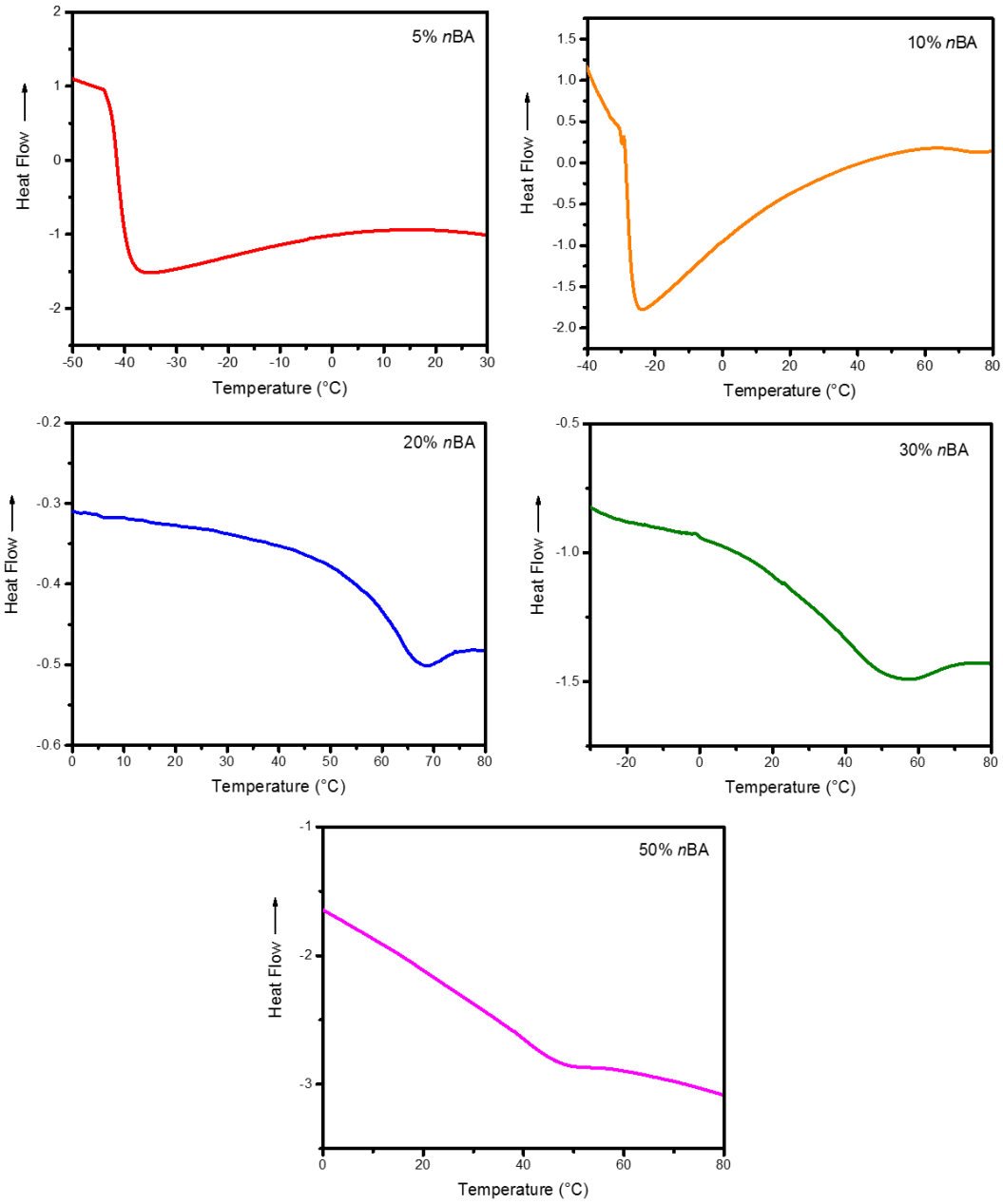


Figure S3. DSC traces of P(GMA-co-*n*BA) seed particles with different amount of *n*BA (5, 10, 20, 30, 50wt%).

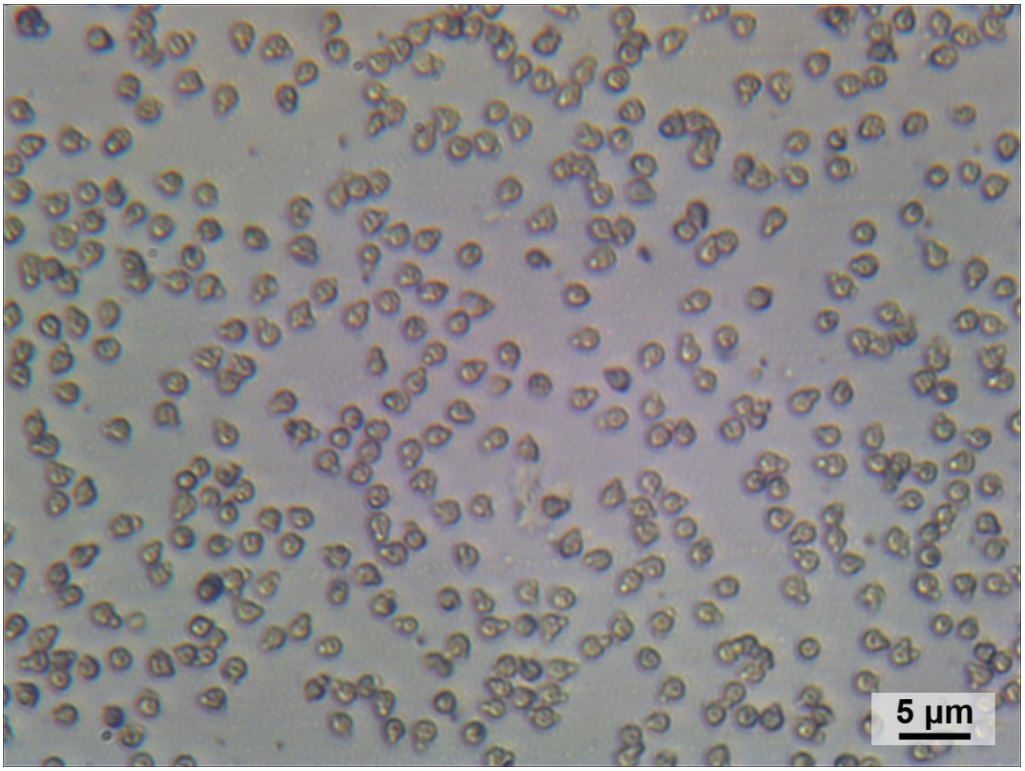


Figure S4. OM image of badminton-shaped Janus MSSs using P(GMA-*co*-*n*BA)$_{20\%}$ as seed particles.

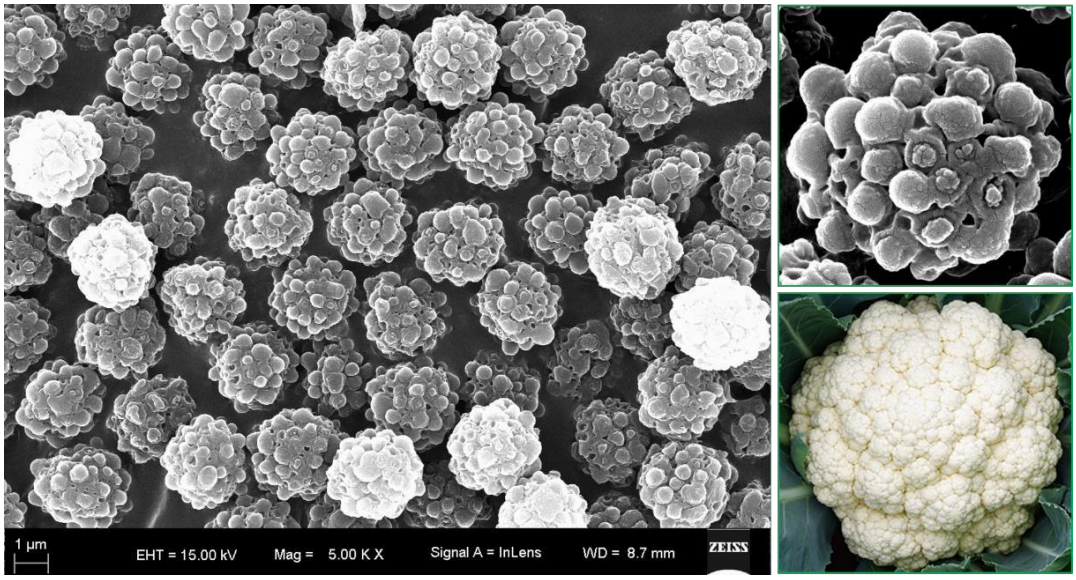


Figure S5. SEM images of flower-like patchy microparticles prepared by P(GMA-*co*-*n*BA)$_{10\%}$.

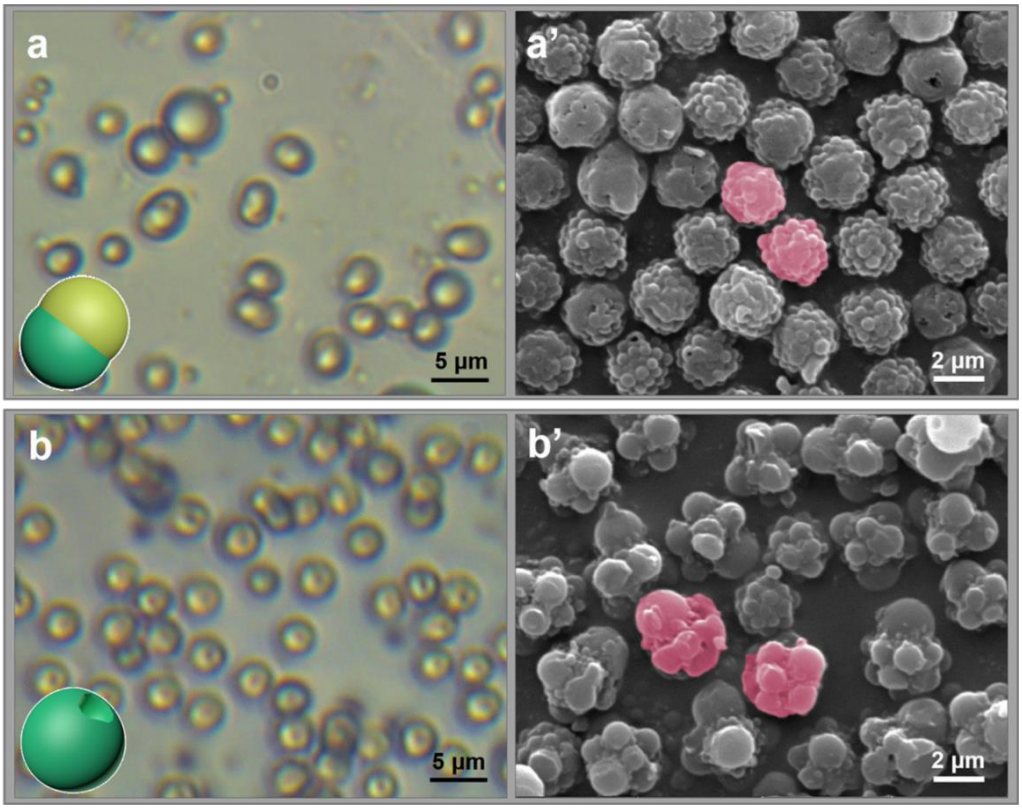


Figure S6. (a, a') OM and SEM images of swollen seed particles by toluene, and prepared patchy microparticles. (b, b') OM and SEM images of swollen seed particles by hexadecane, and prepared patchy microparticles.

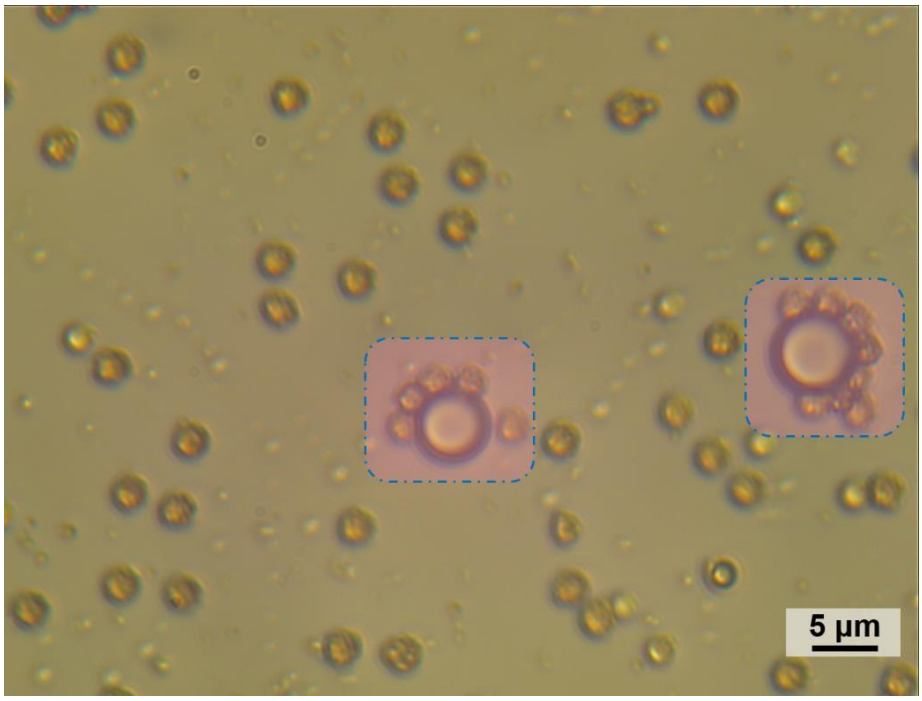


Figure S7. OM image of flower-like patchy microparticles prepared with Ss: 2.5, Sp: 1.0.

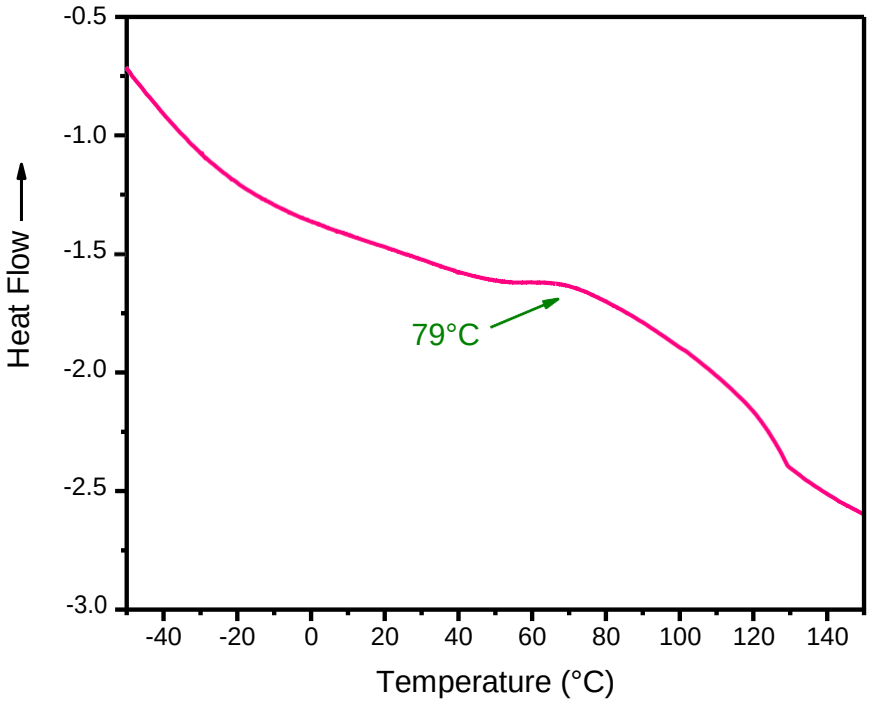
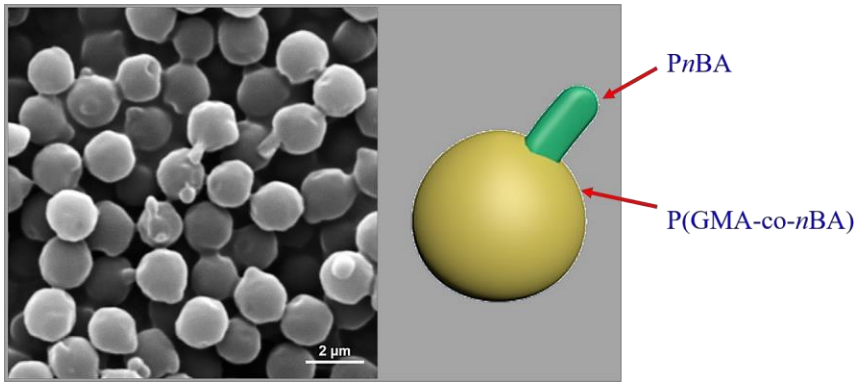


Figure S8. DSC curve of as-prepared flower-like patchy microparticles.

Formation mechanism of the horns on the seed P(GMA-co-*n*BA) particles:

The horn on the P(GMA-co-*n*BA) seed particles is a new phenomenon we have not described in other places. In the dispersion polymerization of GMA and *n*BA, the polymerization rates of monomers are different. Therefore, the phase separation of P*n*BA and P(GMA-co-*n*BA) will occur to form the horn on seed particles.



The mechanism for the transition from the horn to holes/dimples:

We synthetized P*n*BA particles by dispersion polymerization. Then the particles are dissolved in DBP (swelling agent) and St (swelling monomer) which were appeared in our swelling system. From the picture, P*n*BA can be dissolved in St. So the hole was formed once P(GMA-co-*n*BA) seed particles were added into the swelling system (Figure 3). With the swelling of monomer, the holes increased constantly.