Shape Engineering of Polystyrene Particles from Spherical to Raspberry-like to Hollow Flower-like via One-Step Soap-free Emulsion Polymerization of Styrene in Ethanol-water Mixtures

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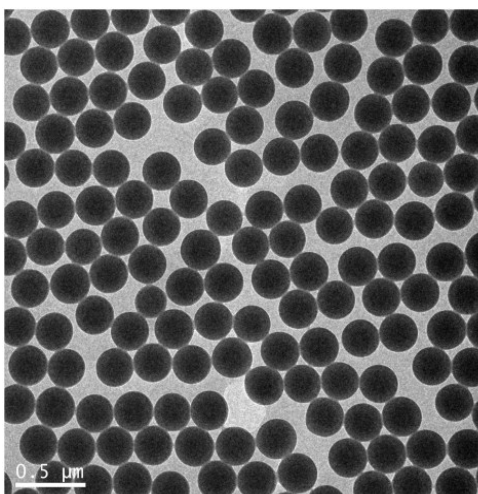E-mail: qmchen@chem.ecnu.edu.cn, syma@chem.ecnu.edu.cn

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Fig . S1.† TEM of PS particles prepared with R= 1/15.03/17.86 (V_M:V_I=1:0.15) at 250 rpm.
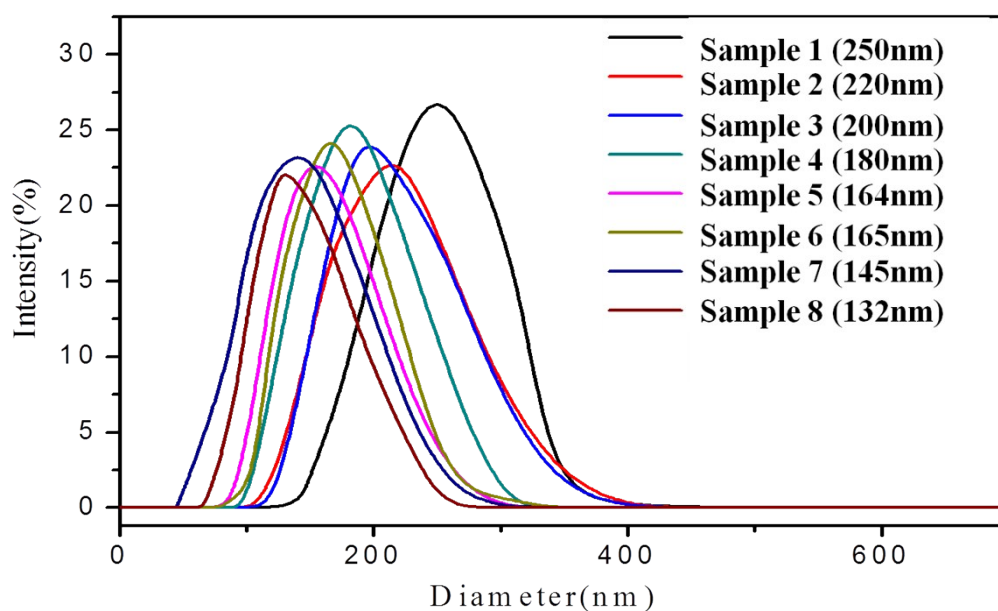

Fig. S2.† DLS results for the as-prepared PS particles.

Fig. S3.† TEM images of the PS particles prepared with V_M:V_I=1:9 in different systems: (a) styrene/water/methanol ternary system; (b) styrene/water/ isopropanol ternary system; (c) styrene/water/ tert-butanol ternary system.
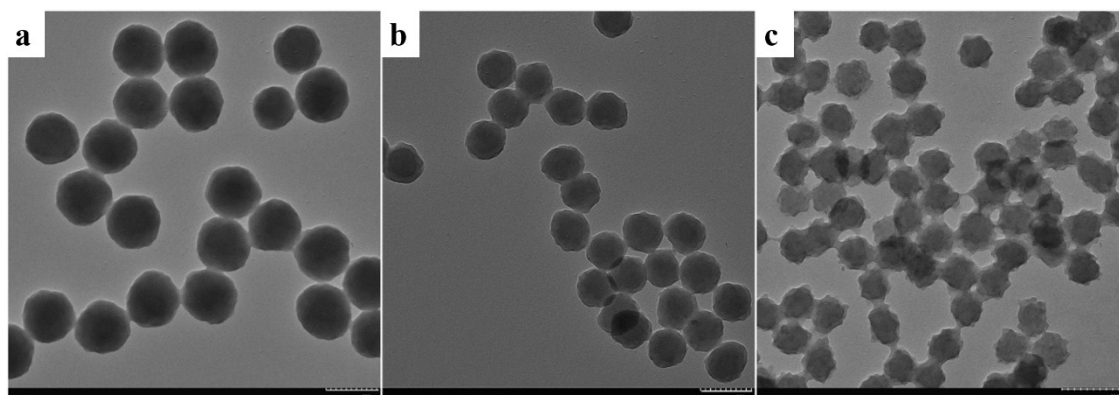
Fig. S4.† TEM images of the PS particles prepared with $V_M:V_I=1:15$ in different systems: (a) styrene/water/methanol ternary system; (b) styrene/water/ isopropanol ternary system; (c) styrene/water/ tert-butanol ternary system.
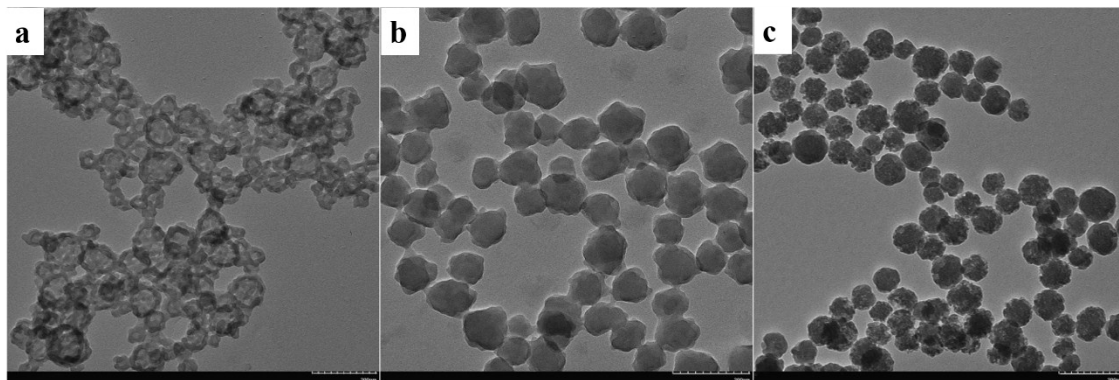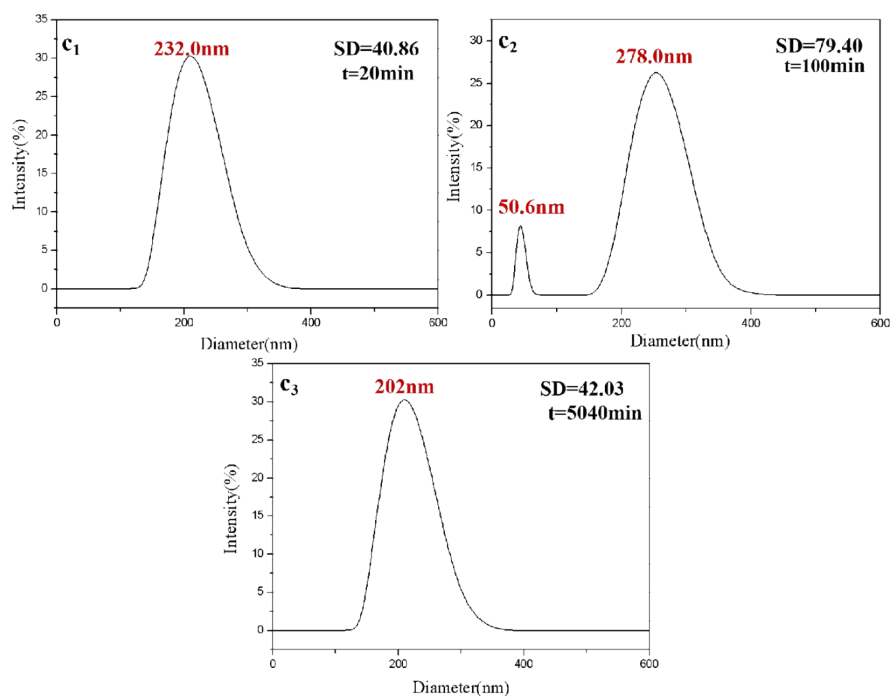

Fig. S5.† DLS results for oil droplets in the system with $V_M:V_E=1:13$ at different aging times.
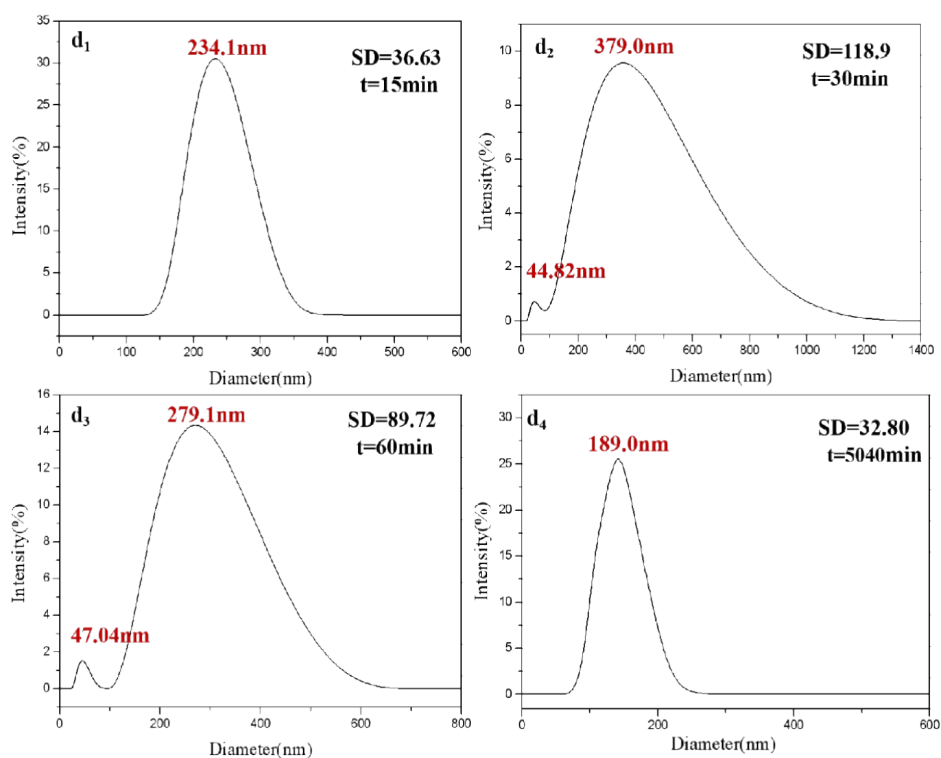
Fig. S6.† DLS results for oil droplets in the system with V_M:V_E=1:15 at different aging times.
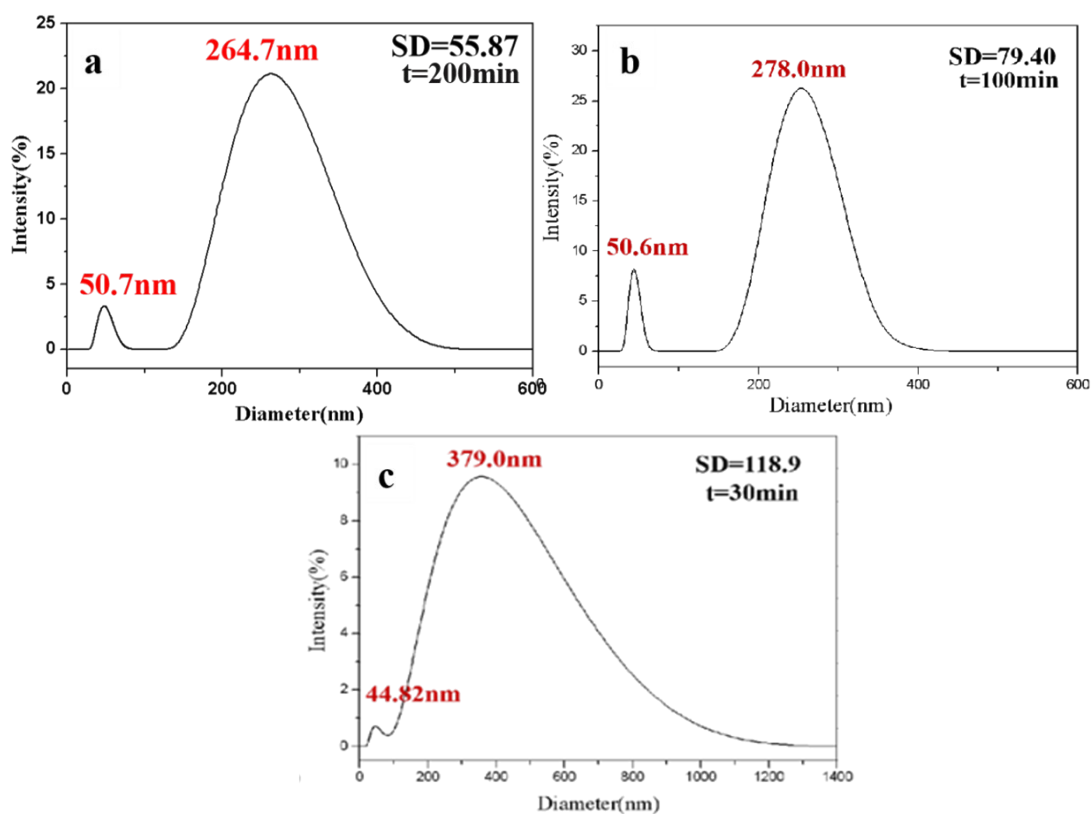
Fig. S7.† DLS results of the time corresponding to the small peak appeared in systems with different ratios of V_M to V_I: (a) V_M:V_I=1:9; (b) V_M:V_I=1:13; (c) V_M:V_I=1:15.