Electronic Supplementary Material (ESI) for RSC Advances.

Ex situ Cu(0) nanoparticles mediated SET-LRP of methyl methacrylate/styrene-methyl methacrylate in biphasic toluene-water system

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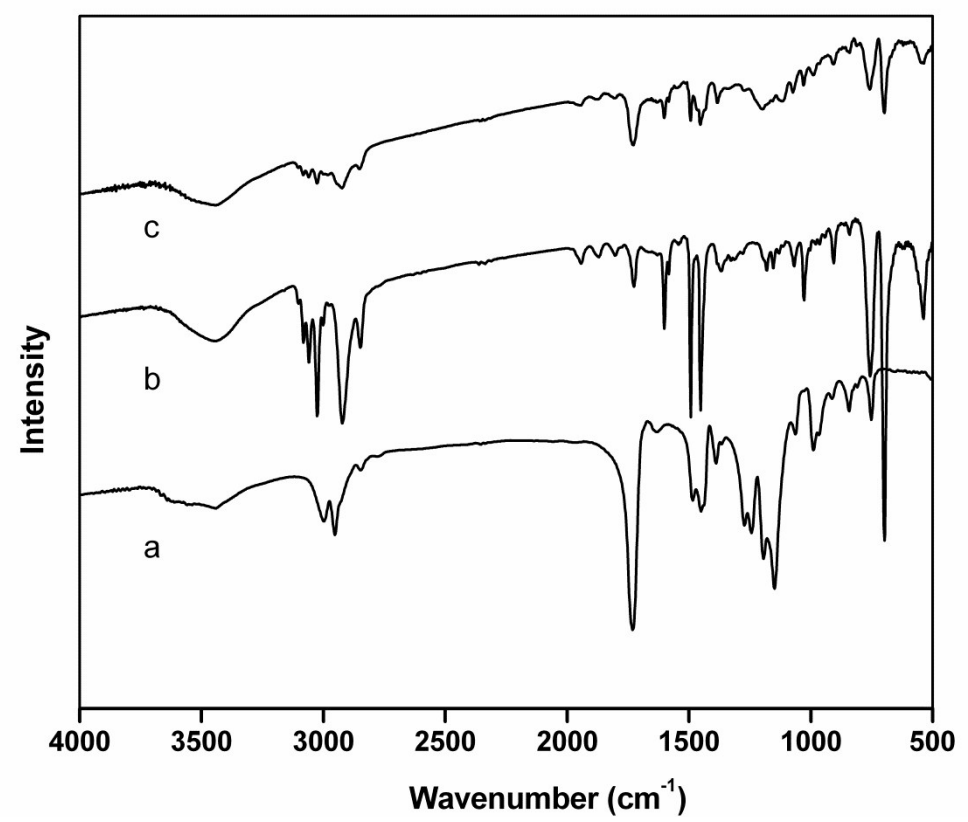

Figure S1. FTIR spectra of (a) PMMA synthesized by Cu(0) nps mediated SET-LRP. Reaction conditions: $[MMA]_0/[EBriB]_0/[PMDETA]_0$ = 100:4:5, Cu(0) nps = 28.5 ppm, MMA/toluene = 1:1 (v/v), $[MMA]_0$ = 4.70 M, Temp = 70 °C, reaction time = 45 min, monomer conversion = 11%; (b) PS for comparison; (c) PMMA-*co*-PS prepared by SET-LRP using Cu(0) nps as catalyst and PMDETA as

ligand, initiated by EBriB. Reaction conditions: $[St]_0/[MMA]_0/[EBriB]_0/[PMDETA]_0$ = 100:100:3:2, Cu(0) nps = 14.3 ppm, Temp = 70 °C, reaction time = 3 h, monomer conversion ~ 11%

FTIR spectrum of PMMA-*co*-PSt shows characteristics peaks of both MMA and St indicating the incorporation of MMA and St. Peaks at 3058 and 3025 cm^{-1} are due to aromatic =C-H of styrene, 2921 and 2849 cm^{-1} (aliphatic –C-H) of MMA and Styrene, 1491, 1448, 1600 cm^{-1} (Phenyl stretching) and peak at 1731 cm^{-1} is due to C=O of MMA.

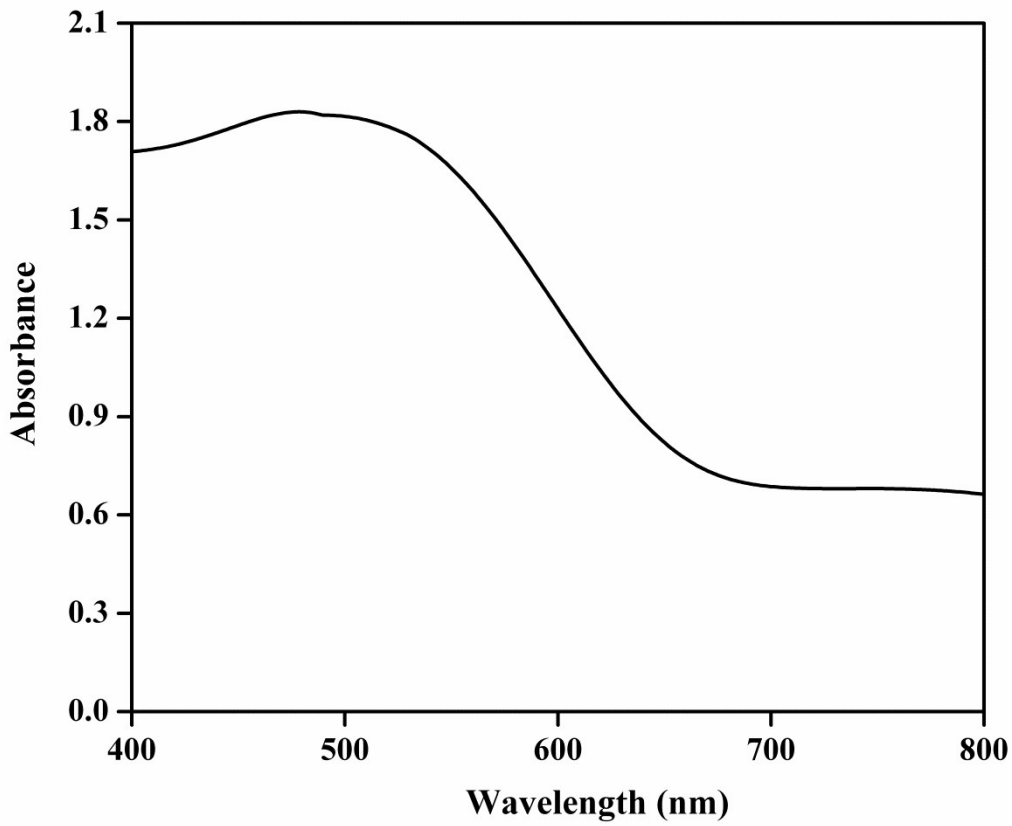

Figure S2. UV-Vis spectra of supernatant solution containing Copper(0) nanoparticles, which was obtained after centrifugation of freshly synthesized copper nanoparticles at 8000 rpm for 15 min.

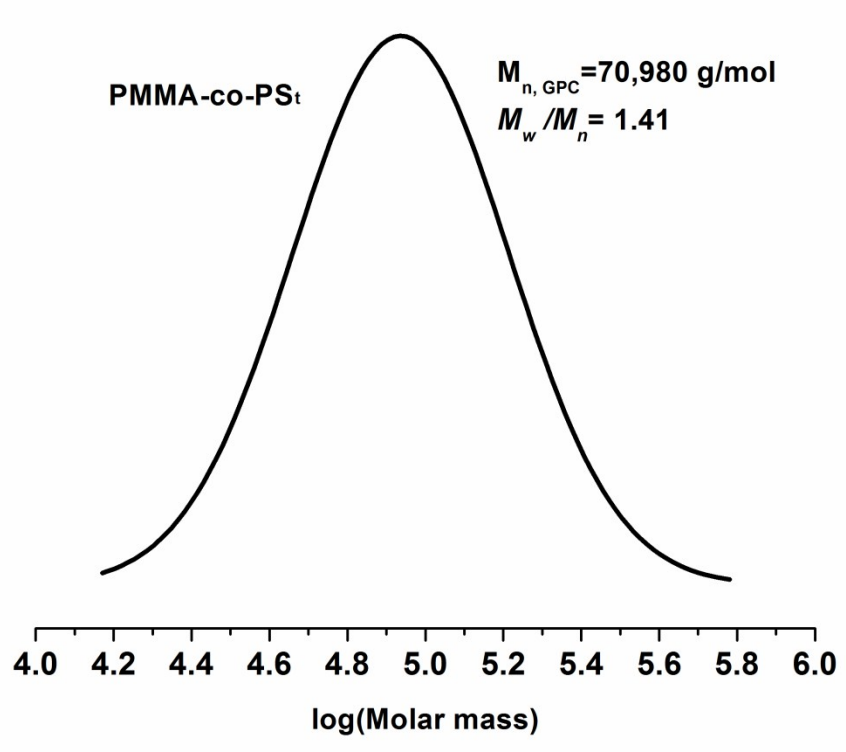

Figure S3. GPC curve of PMMA-co-PSt copolymer having narrow dispersity.