

## Supporting Information

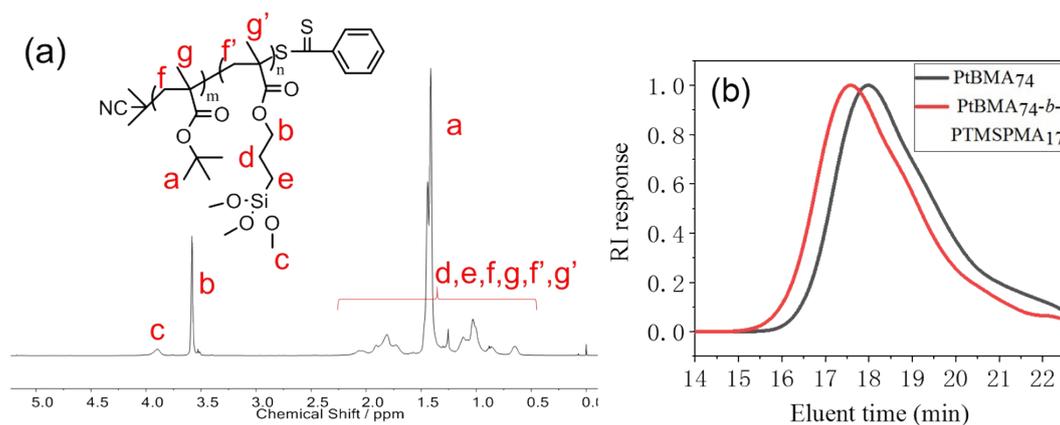
### **pH-Responsive Pickering emulsion stabilized by polymer-coated silica nanoaggregates and applied to recyclable interfacial catalysis**

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**Fig. S1** (a) <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz) spectrum of PtBMA-*b*-PTMSPMA; (b) GPC results of PtBMA macro-CTA and PtBMA-*b*-PTMSPMA

PtBMA-*b*-PTMSPMA, <sup>1</sup>H NMR (δ, CDCl<sub>3</sub>): 0.7-2.2 (CH<sub>3</sub>CCH<sub>2</sub> in backbone and COOCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Si(OCH<sub>3</sub>)<sub>3</sub> in TMSMA unit), 1.35-1.50 (COOC(CH<sub>3</sub>)<sub>3</sub> in tBMA unit), 3.50-3.65 (COOCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Si(OCH<sub>3</sub>)<sub>3</sub> in TMSMA unit), 3.80-4.10 (COOCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Si(OCH<sub>3</sub>)<sub>3</sub> in TMSMA unit).

The polymerization degrees of the PtBMA and PTMSPMA segments calculated from the <sup>1</sup>H NMR results were 74 and 17, respectively. From the GPC results, the  $M_w/M_n$  ratios of PtBMA macro-CTA and PtBMA<sub>74</sub>-*b*-PTMSPMA<sub>17</sub> were 1.09 and 1.13, respectively; the  $M_n$  of PtBMA-*b*-PTMSPMA was 16 500.

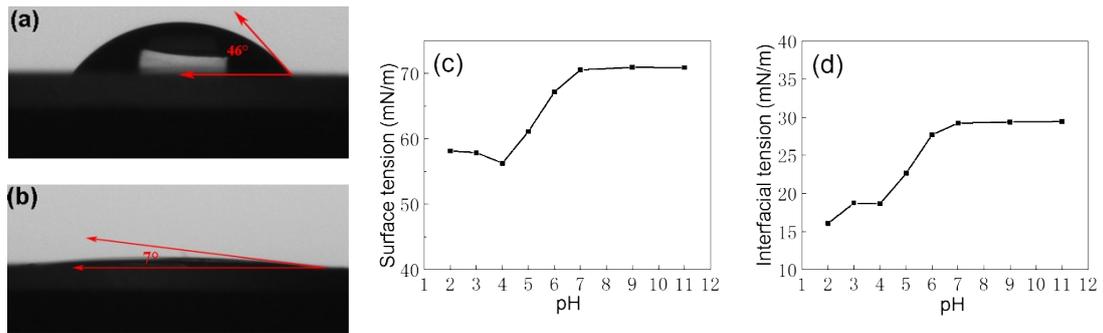
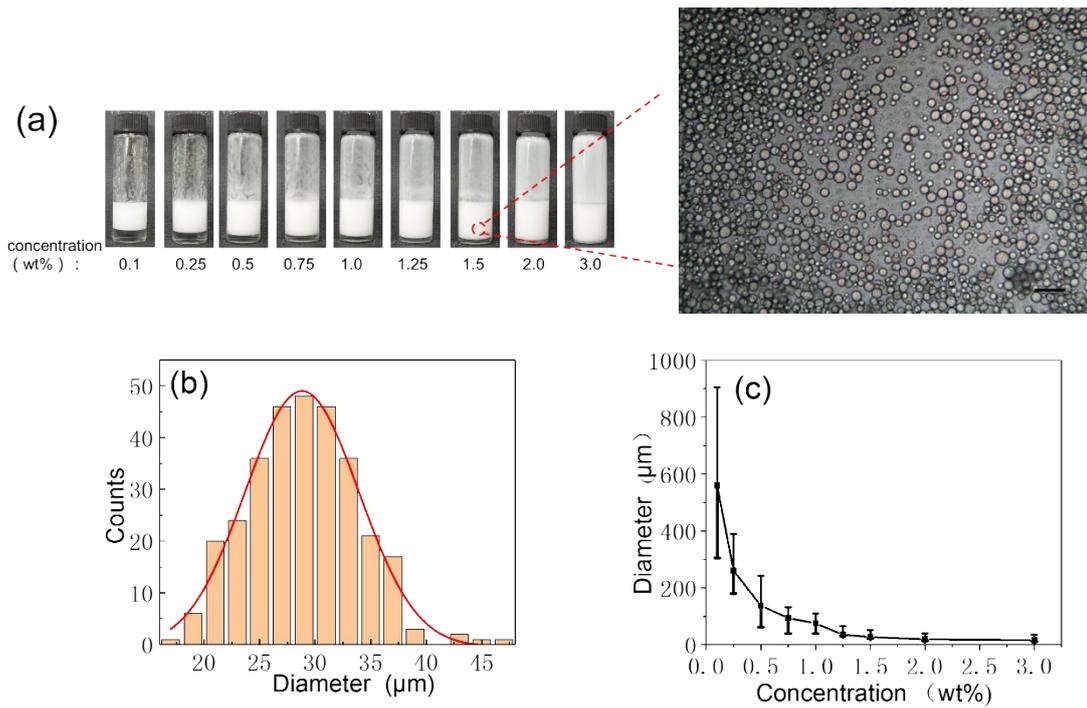


Fig. S2 (a) Contact angle of P-Si, pH=3; (b) Contact angle of P-Si, pH=9; (c) SFT of P-Si aqueous dispersion (1.0 wt%); (d) IFT between P-Si aqueous dispersion (1.0 wt%) and toluene.



**Fig. S3** (a) Pickering emulsions prepared between a P-Si aqueous dispersion (different concentration, pH 3, 2 mL) and an image of the Pickering emulsion droplets (concentration of P-Si: 1.5 wt%, scale bar: 100 μm); (b) corresponding distribution of Pickering emulsion droplet diameters; (c) relationship between the diameter of Pickering emulsion droplets and the concentration of P-Si.