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# Mixed anionic surfactants-templated mesoporous silica nanoparticles for fluorescent detection of $Fe^{3+}$

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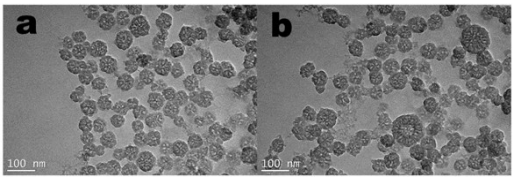


Fig.S1 (a) and (b) at different stirring reaction rates, (b) suggested that the nucleation process could form bigger nanoparticles

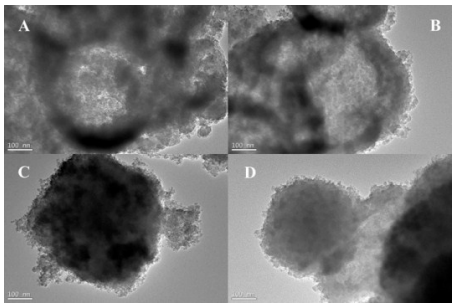


Fig.S2 (a) and (b) SDS-templated big vesicle without APTS($2.5\times10^{-4}$mol of SDS, 8.75mL of $H_2O$ and 0.5g HCl (0.1M)mixed together in a vail, after stirring for half an hour, added with 0.375mL of TEOS, and keep stirring for 4h ), (c) and (d) SDBS and silica precursor formed big blocks of silica gel without APTS($2.5\times10^{-4}$mol of SDBS, 8.75mL of $H_2O$ and 0.5g HCl (0.1M) mixed together in a vail, after stirring for half an hour, added with 0.375mL of TEOS, and keep stirring for 4h)

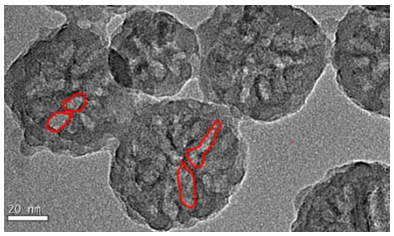


Fig.S3 The mark of mesopores on TEM image (the red line)

$Fe^{3+}$ sensing experiment condition and the selectivity detection details:

1. selective detection of $Fe^{3+}$: the concentration of each cation is 10 ppm
2. The selectivity and the $Fe^{3+}$ sensing experiment have been proposed in the neutral condition with the pH around 6-7 tested by pH paper, the distilled water have been used to avoid the influence of anions