

Electronic Supplementary Information

Fine tuning of silica nanosphere structure by simple regulation of the volume ratio of co-solvents

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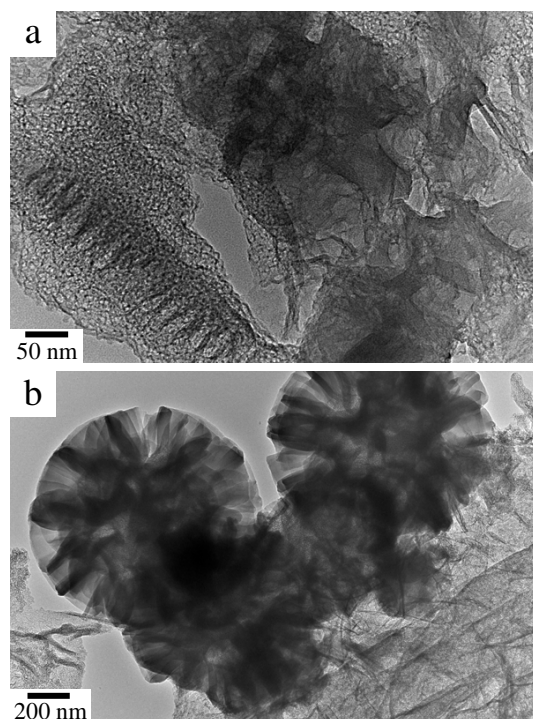


Figure S1 TEM images of S0 silica sample fabricated at 0 °C.

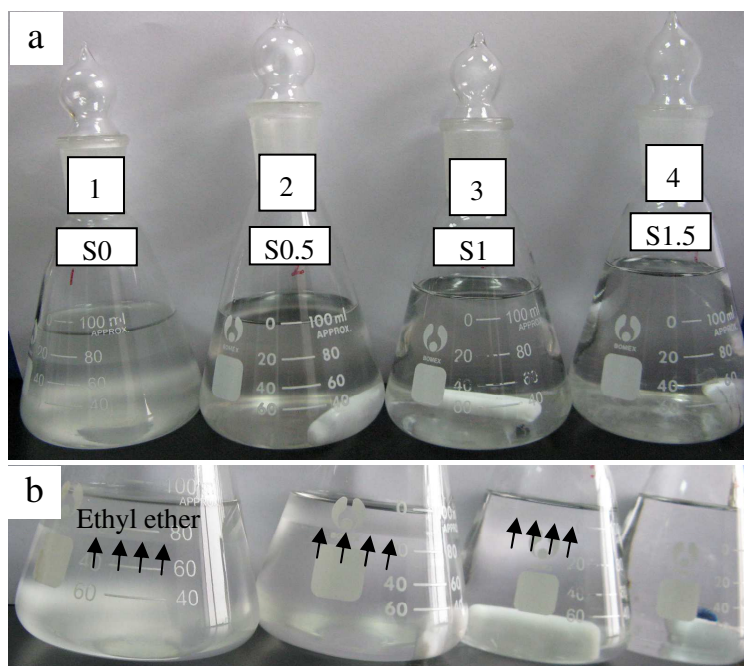


Figure S2 Digital images (a) (front view) and (b) (side view) of four different emulsion systems: (1) $r = 0$, (2) $r = 0.5$, (3) $r = 1$, (4) $r = 1.5$. Other components, including H_2O (70 mL), CTAB (0.5 g), aqueous ammonia (0.8 mL), are identical in four emulsion systems. These emulsion systems were first vigorously stirred in the closed conical flasks (100 mL) for ca. 30 min, and then kept under static conditions. The pictures were taken after being kept under static conditions for 15 min. (a) shows that only emulsion (1) was still a little milk-white caused by immiscibility of a little ethyl ether in water (the solubility of ethyl ether in water at 20 °C is 6.9 g/100 mL). (b) exhibits that the upper ethyl ether phase gradually became thinner from emulsion (1) to emulsion (3) (Black arrows in (b) point the interface of two phases), and it disappeared in emulsion (4). These results indicate that the addition of ethanol increased the dissolution of ethyl ether in water.

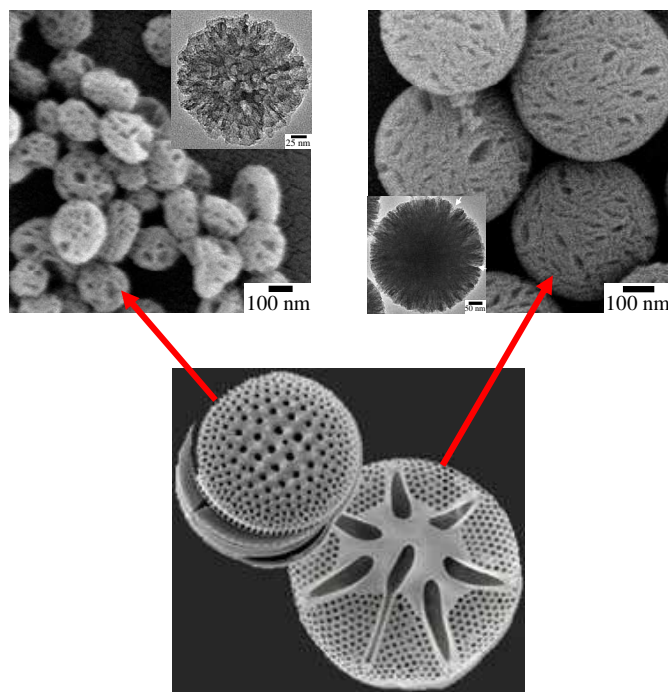


Figure S3 The fabricated silica nanospheres with hierarchical mesopores (S0.5 and S1) exhibit similar morphologies and structures as some diatoms in nature. Although the pores are basically non-ordered, they look like the diatoms regarding the hierarchy. Therefore, we added an image of the diatoms simply for comparison.