Supporting Information for

One-Step Template-Directed Synthesis of Walnut-kernel- and Tremella-like Silica Spheres Composed of U-shaped Mesoporous Structures Based on pH-induced Colloid Aggregation

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Characterization

Field emission scanning electron microscopy (FESEM) was performed with a SUPRA™ 55 microscope at an accelerating voltage of 5 kV. Samples were deposited on the surface of silicon wafer by dropping a suspension of ground samples in ethanol that was pre-sonicated for 10 min, and then sputtered with a thin film of gold to avoid charging under the electron beam prior to examination. The morphology and pore structure of prepared products were observed by high-resolution transmission electron microscopy (HRTEM, JEM 2100) with an acceleration voltage of 200 kV. All HRTEM samples were prepared by depositing a drop of diluted suspension in ethanol on a copper grid coated with carbon film. The specific surface areas (S_{BET}), pore volumes, and pore size distributions of The sample were determined using a N_2 adsorption-desorption apparatus (Micromeritics, TriStar 3020). Samples were degassed in a vacuum at 200 °C for 3 h prior to each measurement. S_{BET} of the samples were calculated by the Brunauer–Emmett–Teller (BET) method, and he pore diameters were stimated from the desorption ranches of the isotherms based on the Barrett–Joyner–Halenda (BJH) model. The small-angle X-ray diffraction (SAXRD) patterns of the powder were recorded on a Bruker D8 Advance X-Ray diffractometer with Cu Kα radiation (40 kV, 40 mA, λ = 0.15406 nm). The data were collected from 2θ = 0.3–0.5° with a resolution step size of 0.02° and a scan step time of 5 s.

HRTEM

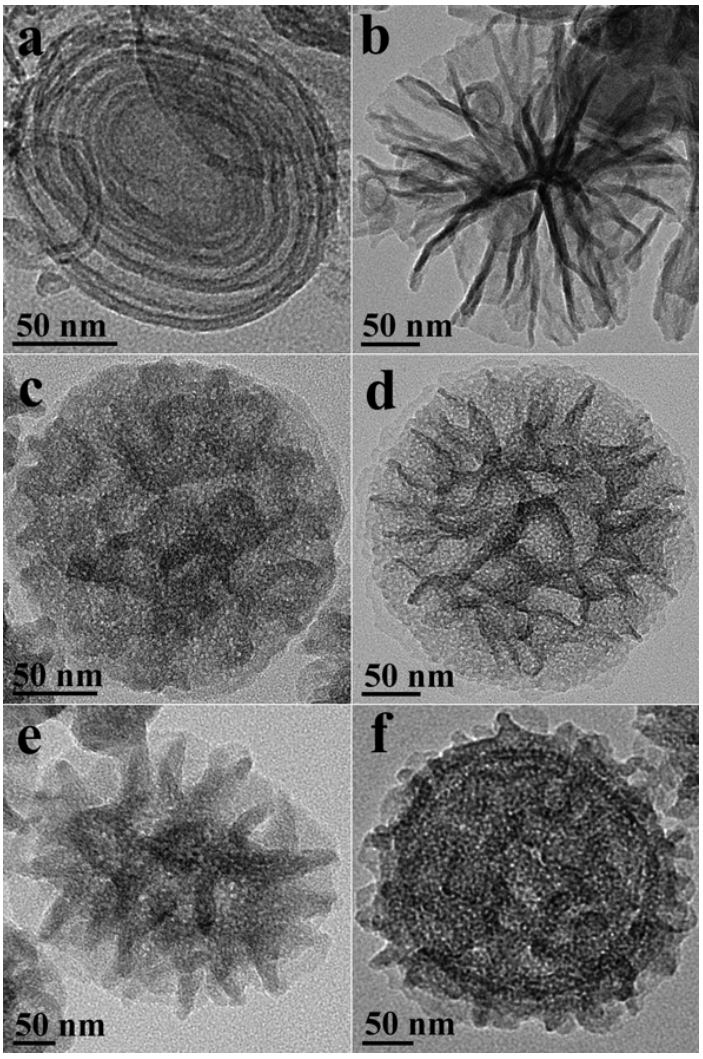

Figure S1. High magnification HRTEM images of (a) VSS, (b) SS5- TSS, (c) SS7- WKSS, (d) SS8- WKSS, (e) SS9- WKSS, and (f) SS10-Irregular WKSS.

Figure S1 sufficiently shows that the structure of (a) VSS, (b) TSS, (c, d, e) WKSS, and (f) irregular WKSS, which clearly suggests that WKSS and TSS consisted of U-shaped SiO_2.