

Supporting Materials

Tailored Core-Shell-Shell Nanostructures: Sandwiching Gold Nanoparticles between Silica Cores and Tunable Silica Shells

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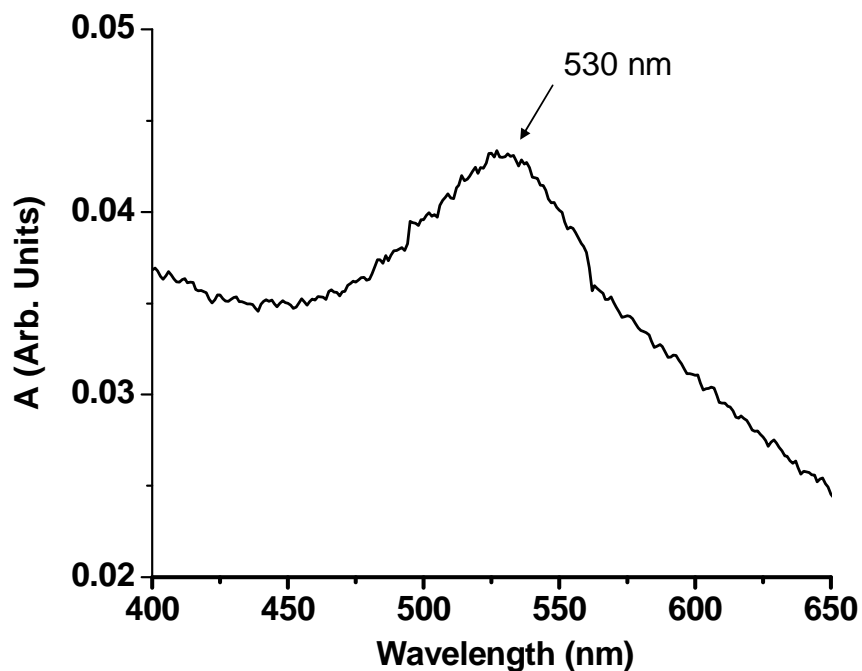


Figure S1. UV-Vis diffuse reflectance spectrum of silica/Au/silica core-shell-shell nanoparticles with core size of 450 nm diameter and silica shell thickness of 100 nm.

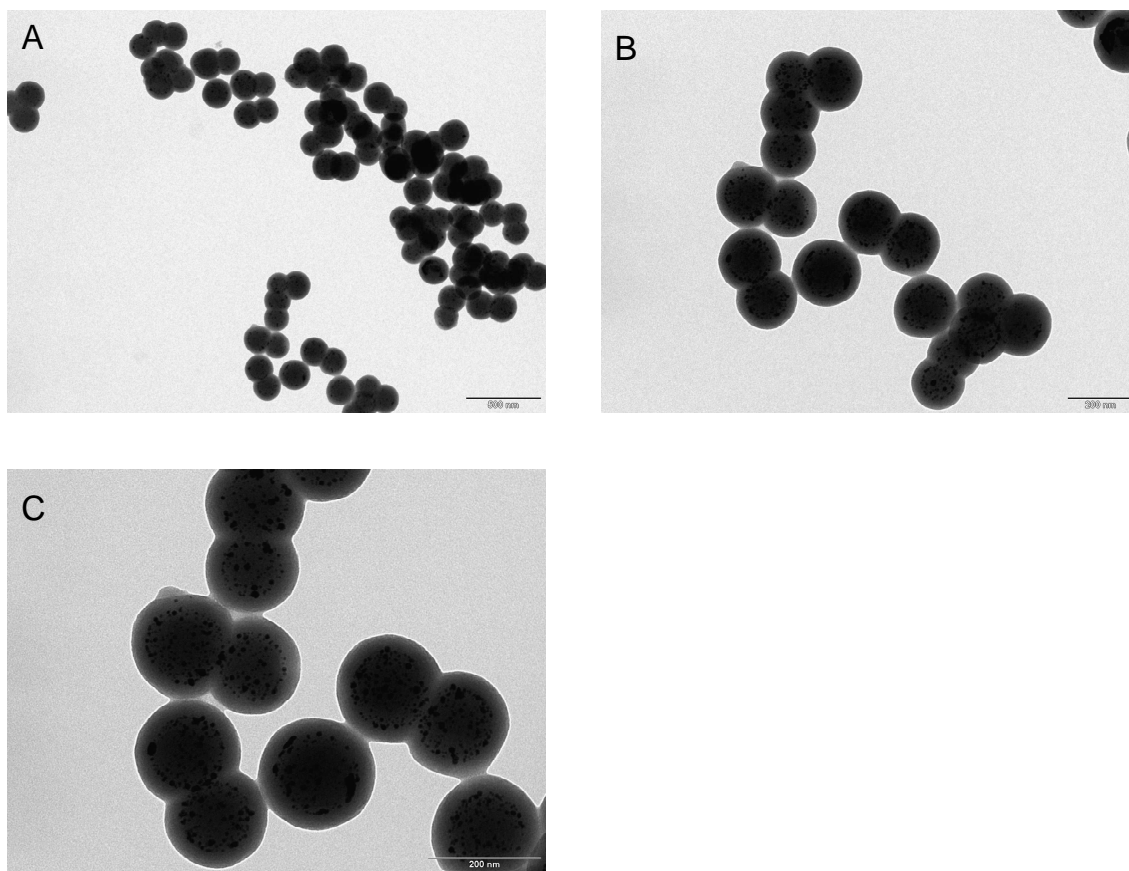


Figure S2. Large area (A) and magnified TEM images (B,C) of core-shell-shell nanoparticles with silica cores of ~ 110 nm diameter after having been coated with large numbers of Au nanoparticles, followed by silica shells. The images showed aggregate and twin core-shell-shell nanostructures. (Scale bars = 500, 200, and 200 nm for A, B and C, respectively)

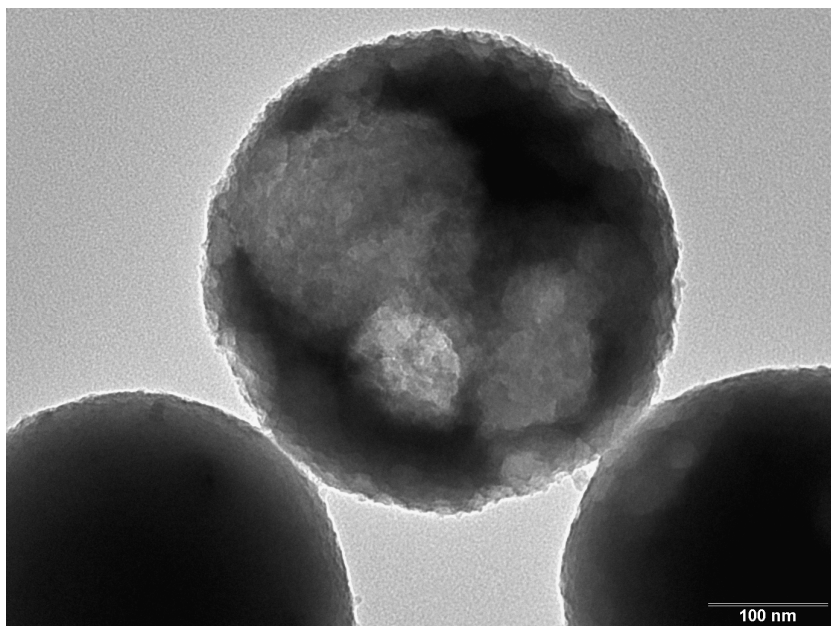


Figure S3. TEM image of silica/Au nanoparticles/silica core-shell-shell nanospheres with core size of 450 nm and silica shell thickness of 25 nm after having been etched with 0.03 M KCN solution for 12 h.

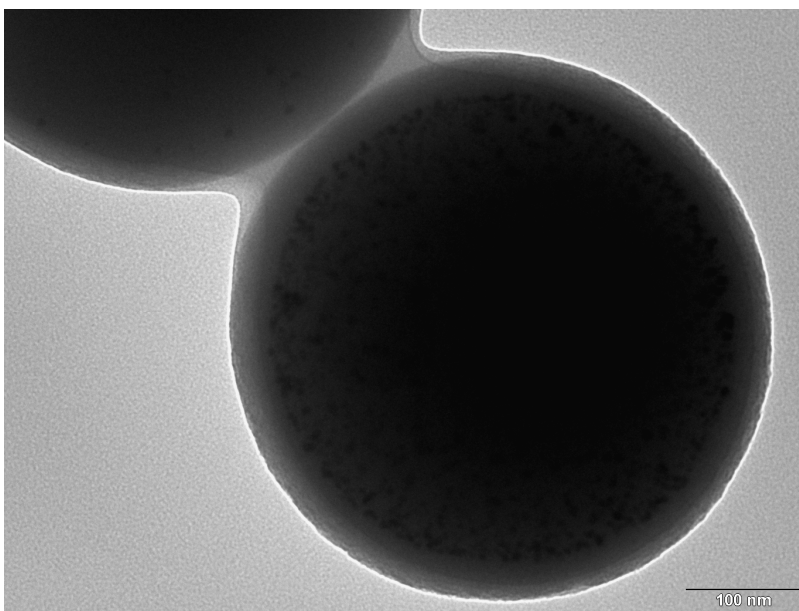


Figure S4. Magnified TEM image of silica/Au/silica core-shell-shell nanoparticles with a silica core of 450 nm diameter and silica shell thickness of 45 nm after having been etched with 0.006 M KCN solution for 12 h. (Scale bar = 100 nm).

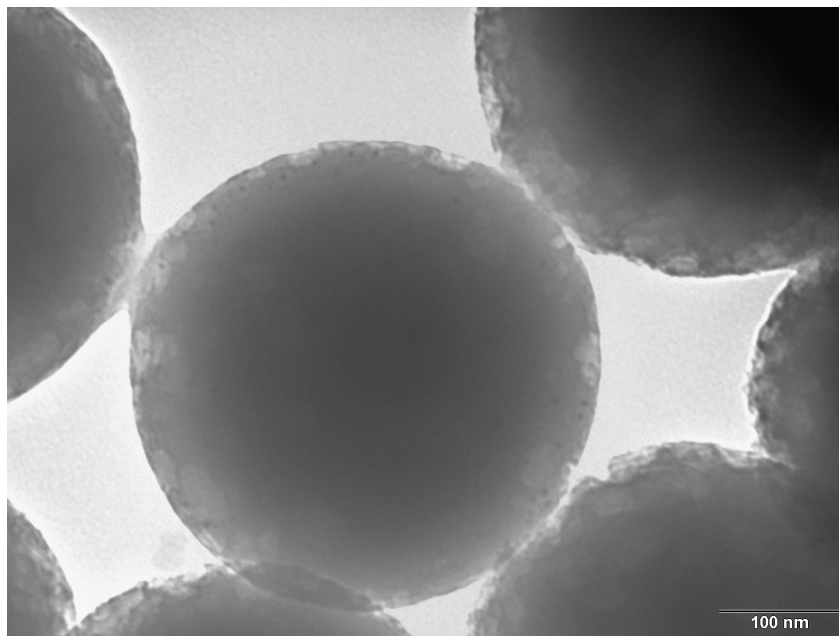


Figure S5. Magnified TEM image of silica/Au/silica core-shell-shell nanoparticles with a silica core diameter of 450 nm and a silica shell thickness of 25 nm after having been etched with 0.006 M KCN solution for 12 h.

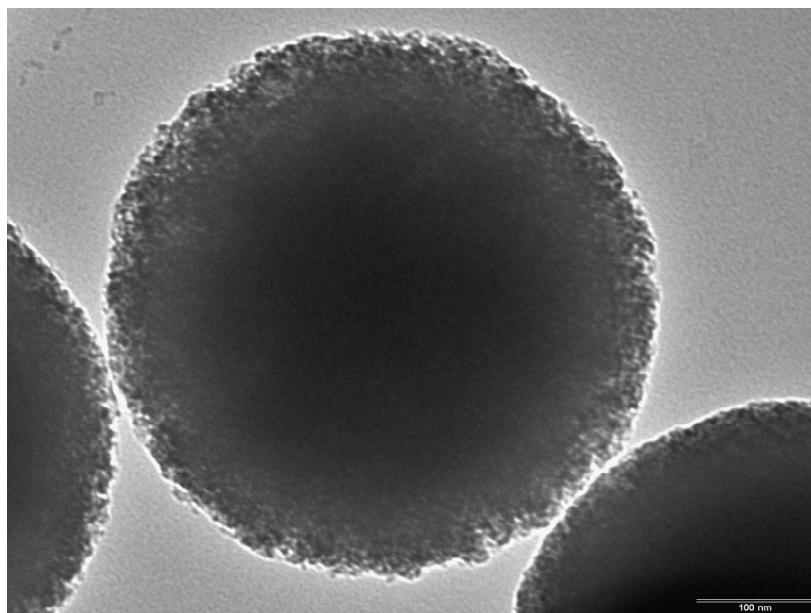


Figure S6. TEM image of silica nanospheres synthesized by the Stöber method after having been etched by 0.03 M KOH solution (the same concentration as the high KCN concentration (0.03 M) we used in the studies). (Scale bar = 100 nm)

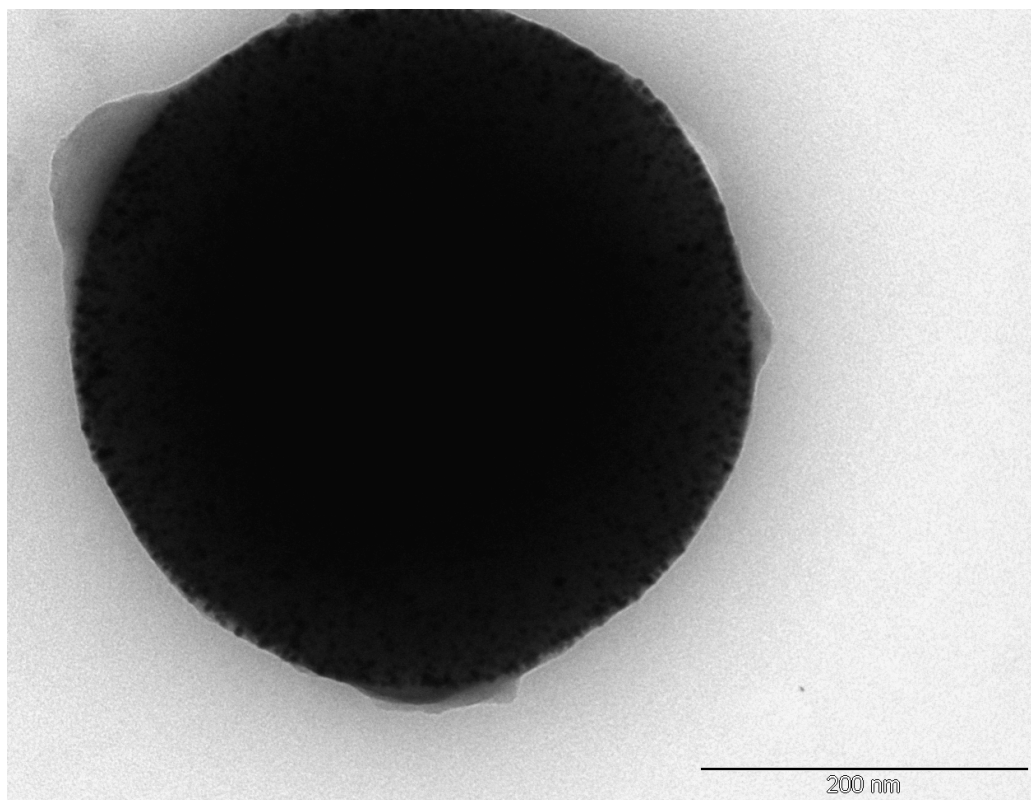


Figure S7. Magnified TEM image of silica/Au/silica core-shell-shell nanoparticles with a core diameter of 450 nm, gold nanoparticles shell and a porous silica shell (~ 10 nm) coated around the gold nanoparticles by using sodium silicate solution.