Supporting Information

Mesoporous Au nanotube-constructed three-dimensional films with excellent SERS performance based on the nanofiber template-displacement reaction strategy

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Figure S1. XRD pattern of the sample shown in Figure 2b.
Figure S2. A low magnified FESEM image in the edge region of the sample shown in Figure 2b. The circle-marks correspond to the end parts of the fibers, showing tublar structure.
Figure S3. TEM image of the product by intense ultrasonic cleaning of the sample shown in Figure 3a. The mesoporous hollow nanoparticles are similar in shape to those shown in Figure 3c.
Figure S4. FESEM images with different magnifications of the sample from reaction in 1 mM HAuCl₄ solution (under the same other experimental conditions as those in Figure 3). Obviously, the mesopores are much smaller than those in Figure 3.
Figure S5. FESEM images of the typical samples corresponding to (a) 10 min-Ag-sputtering (about 60 nm in thickness) and (b) 10 mM HAuCl₄ solutions, respectively (the other experimental conditions are the same as those of the sample shown in Figure 3).
Figure S6. FESEM images of the products prepared by immersion of the sample shown in Figure 2b in HAuCl₄ solutions (without NaCl) with different concentrations for 10 h. (a) 0.5 mM. (b) 1 mM. (c) 5 mM. (d) 10 mM.
Figure S7. FESEM image of the sample corresponding to the reaction solution with 0.5 M NaCl (under the same other experimental conditions as those in Figure 3). The inset: a local magnified image.
Figure S8. FESEM images of (a) the Ag hollow sphere array and (b) the corresponding mesoporous Au hollow sphere array, obtained by using monolayer template of 200 nm polystyrene spheres under the same other experimental conditions as those in Figure 3.
Figure S9. FESEM images with different magnifications of the mesoporous Au hollow sphere array, obtained by using monolayer template of 1000 nm polystyrene spheres under the same other experimental conditions as those in Figure 3.
Figure S10. FESEM image of the 15 min-sputtering deposited Ag film on Si substrate (without using PNs) after reaction under the same experimental conditions as those in Figure 3.
Figure S11. Raman spectra of $10^{-9}$ M R6G collected from 9 randomly selected sites on the porous film shown in Figure 3. Data integration time = 5 s.