Supporting Information for

Adsorption of p-nitrothiophenol on mesostructured polyoxometalate-silicate-surfactant composites containing Au nanoparticles: study of surface-enhanced Raman scattering activity

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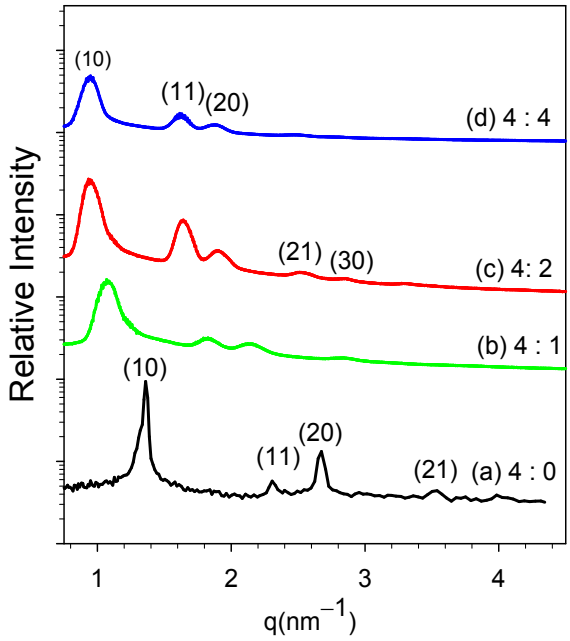

Figure S1. GISAXS data for the EPSS templates prepared at the air–water interface, with the ratio of CTAB:TiPB as indicated. It can be seen that the interplanar spacing $d_{(10)}$ increases significantly as the amount of TiPB increases. The sample prepared using a CTAB:TiPB ratio (1 to 0) of unity exhibited a $d_{(10)}$ spacing of 4.3 nm to 6.6 nm in the presence of TiPB. Their spacing increased and the structural ordering decreased as the amount of TiPB in the synthesis gel increased. As shown in the figure, the sample (c) exhibited excellent structural ordering.

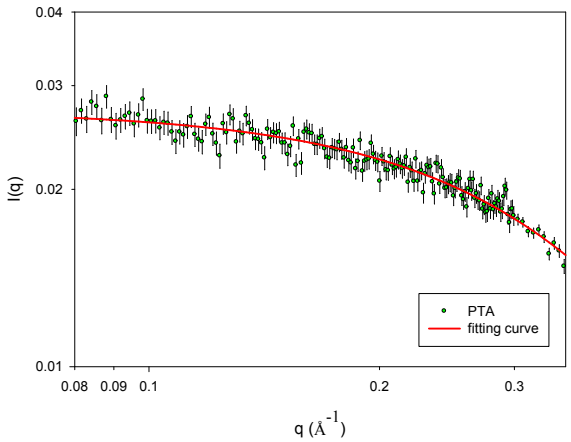

Figure S2. SAXS data for the PTA (8.0 μM) solution. The data can be fitted (red curve) reasonably well using a model of spheres with a mean particle size of 1.2 nm.

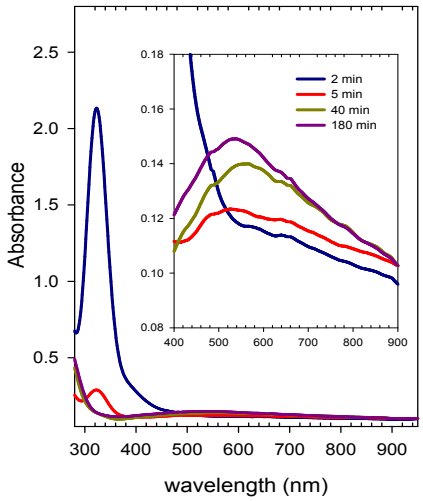

Fig. S3. Time-resolved UV-Vis spectra measured for a film of EPSS/$HAuCl_4$ upon UV irradiation for in situ reduction of Au NPs. Inset shows the gradually increased 530 nm band with the UV-vis irradiation time, corresponding to the formation of Au NPs.

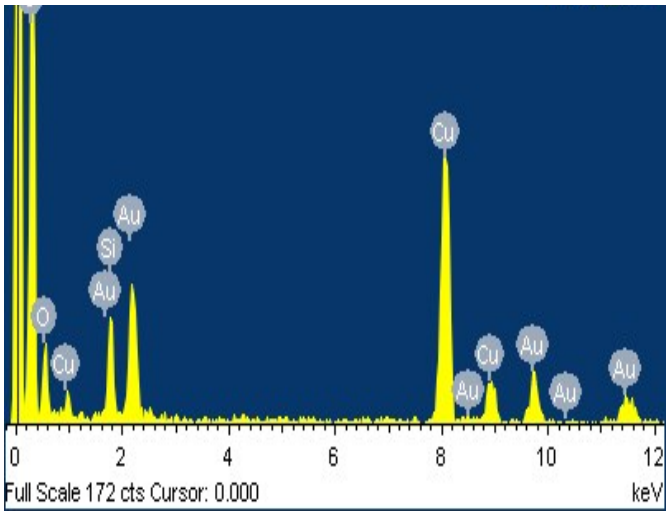

Figure S4. Representative EDX spectrum showing the presence of Au throughout the Au-NPs@EPSS film.

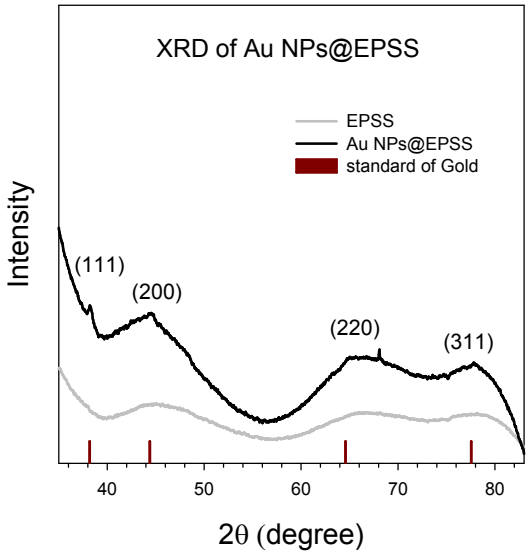

Figure S5. X-ray diffraction profiles for EPSS and Au-NPs@EPSS. The broad humps in the XRD data correspond to the FCC diffractions (with the 2θ positions marked by the lines) of gold crystallites.