Supplementary Materials: Gold Incorporated Mesoporous Silica Thin Film Model Surface as a Robust SERS and Catalytically Active Substrate

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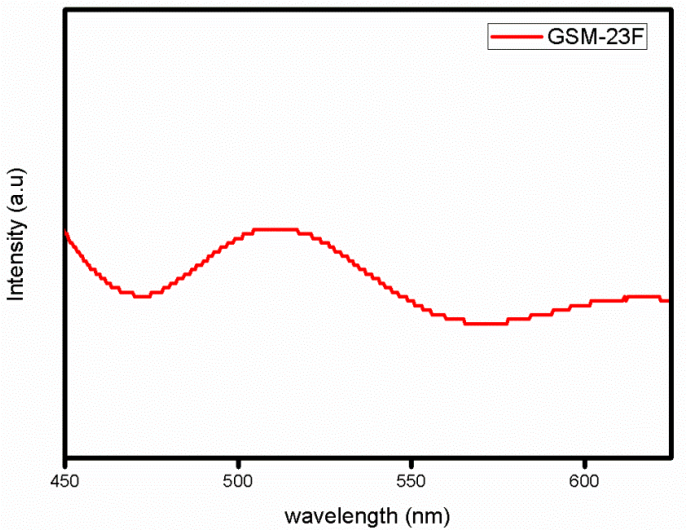

Figure S1. Solid state UV-Vis spectra of the GSM-23F thin film synthesized on an FTO plate.

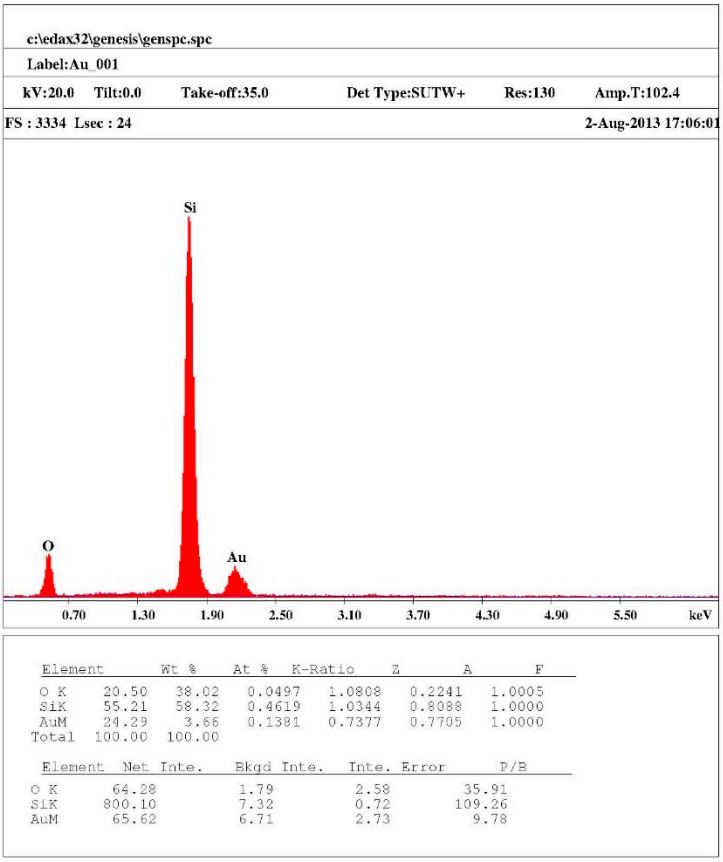

Figure S2. EDX analysis data of the GSM-23F thin film showing the loading of approximately 25 wt % of gold in our thin films which matches well with the ICP-AES analysis.

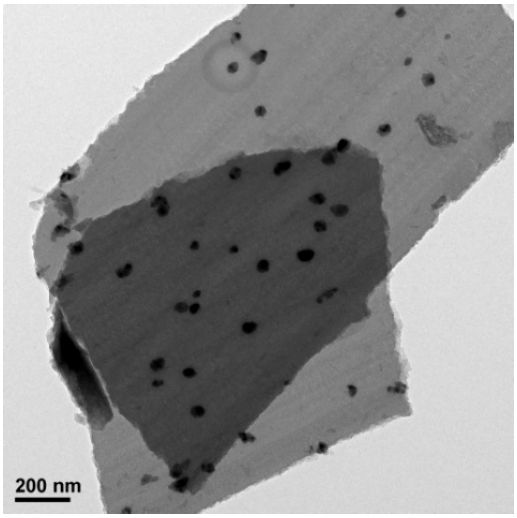

Figure S3. Transmission Electron microscopy image of the GSM-23F thin film showing completely flat film surface with larger gold crystallites.

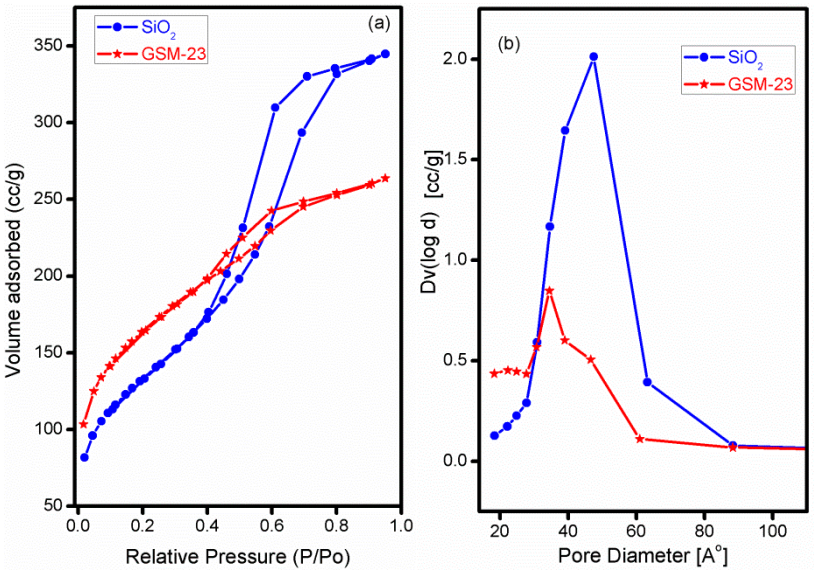

Figure S4. Surface area (**a**) and pore size distribution (**b**) of the bulk counterparts of mesoporous silica and the GSM-23 [1].

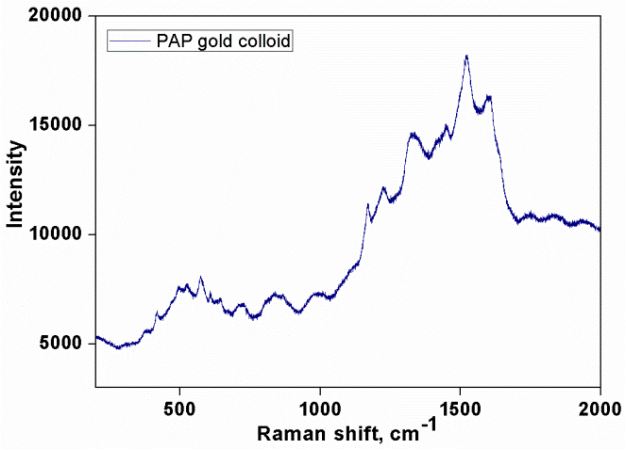

Figure S5. Raman spectral data of 4-aminophenol with Au nanoparticle colloid under 633 nm laser source.

Reference

1. Sunil Sekhar, A.C.; Sivaranjani, K.; Gopinath, C.S.; Vinod, C.P. A simple one pot synthesis of nano gold–mesoporous silica and its oxidation catalysis. *Catal. Today* **2012**, *198*, 92–97.