

# Supporting Information for

## Entrapment of Metal Nanoparticles within Nanocages of Mesoporous Silicas Aided by Co-surfactant

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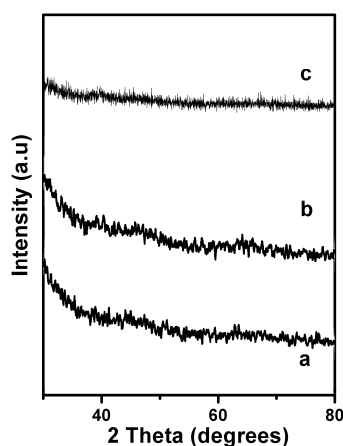


Fig. S1. Wide angle XRD patterns over the Pt/CMS with loading of (a) 0.1 wt%, (b) 0.22 wt% and (c) 0.39 wt%.

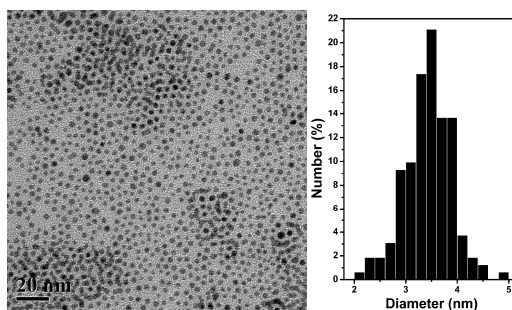


Fig. S2. TEM image of prepared thiol-stabilized Au NPs and corresponding particle size distribution.

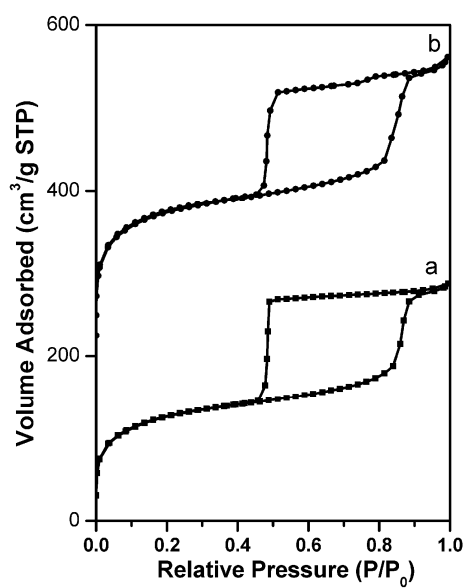


Fig. S3. N<sub>2</sub> adsorption-desorption isotherms for Au/FDU-12 (a) and parent FDU-12 (b). FDU-12 were shifted by 200 cm<sup>3</sup>/g STP,

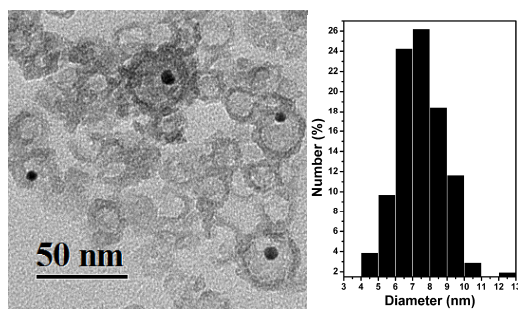


Fig. S4. TEM image of Au@SHS and corresponding particle size distribution.

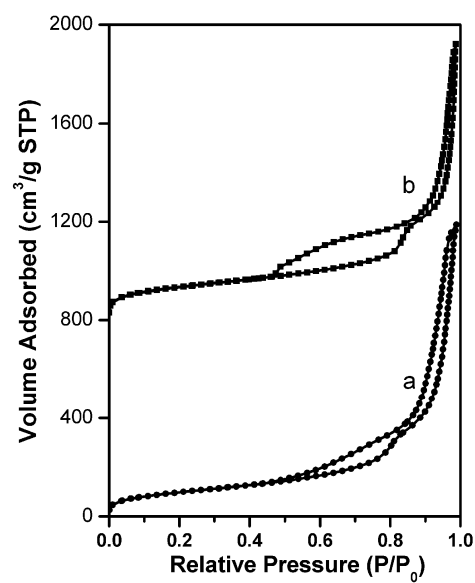


Fig. S5. N<sub>2</sub> adsorption-desorption isotherms for Au@SHS (a) and parent SHS (b). SHS were shifted by 800 cm<sup>3</sup>/g STP,

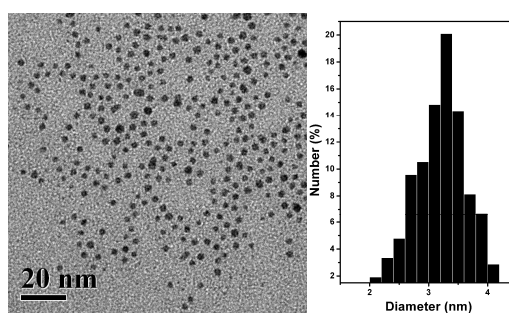


Fig. S6. TEM image of oleylamine-stabilized Au NPs and corresponding particle size distribution.

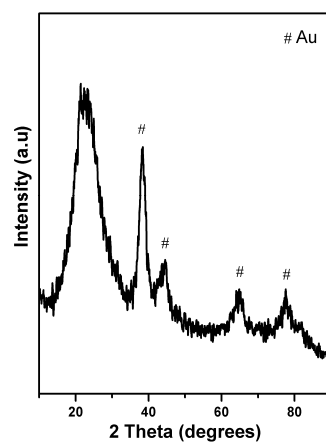


Fig. S7. Wide angle XRD pattern of Au@SHS.

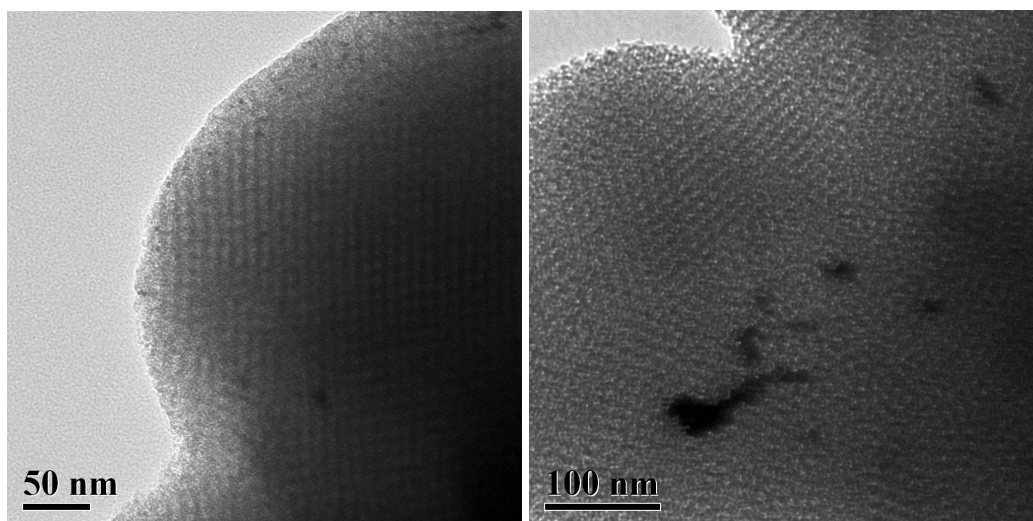


Fig. S8. The TEM images of the spent catalyst with 0.1 % Pt loading after 4 cycles.

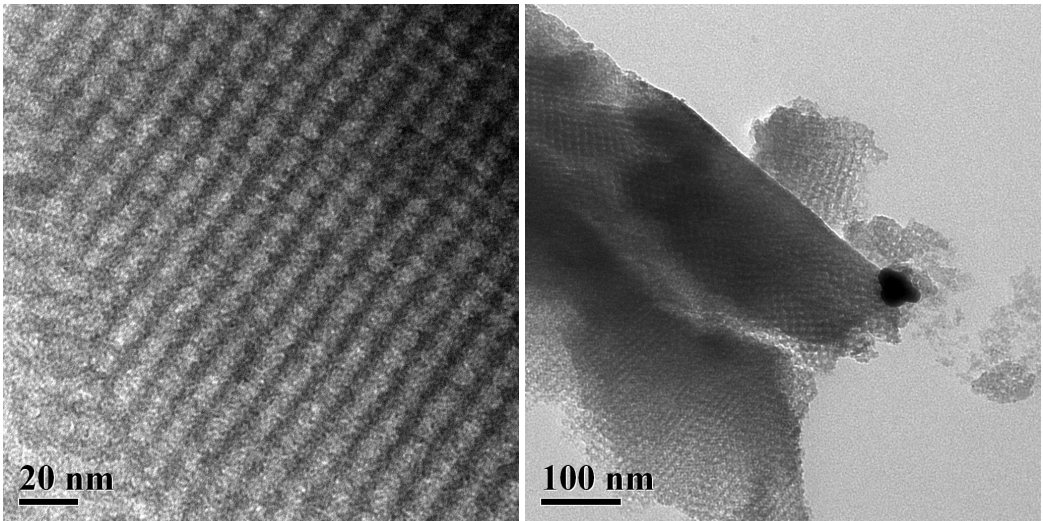


Fig. S9. TEM images of Pt/CMS -0.1%-IMG.