

Supplementary Information

The preparation by true liquid crystal templating of mesoporous silicates containing nanoparticulate metals

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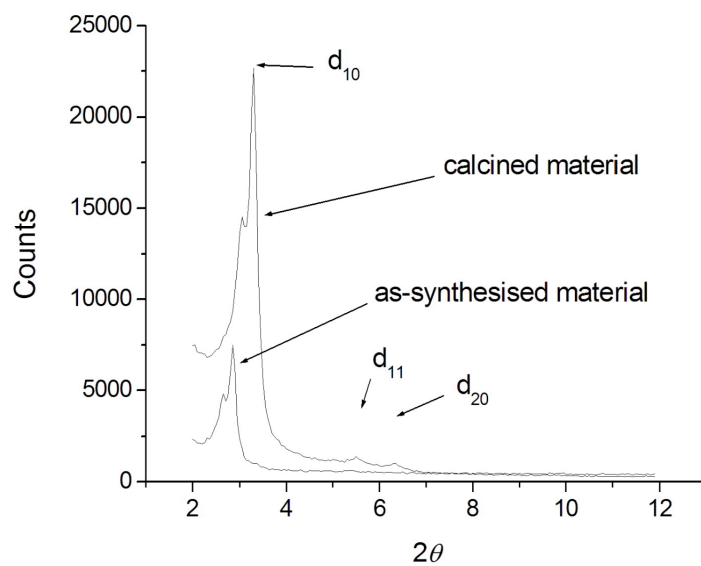
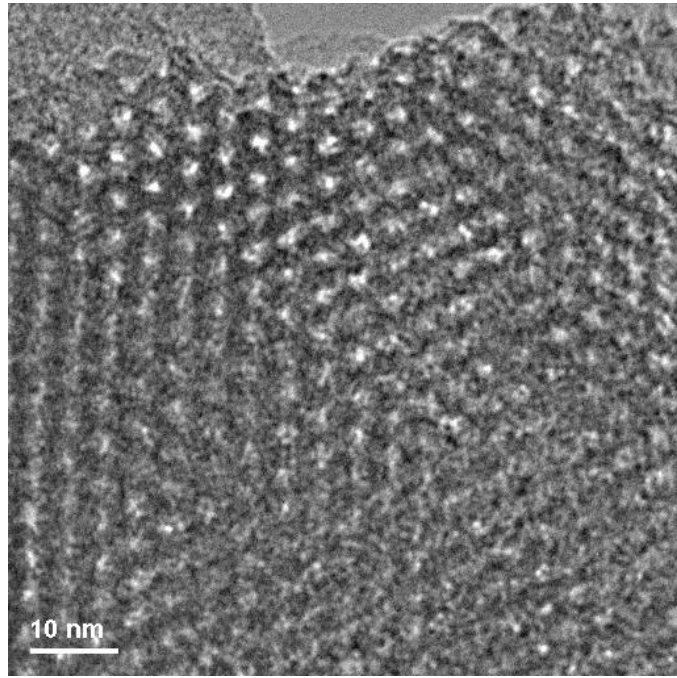
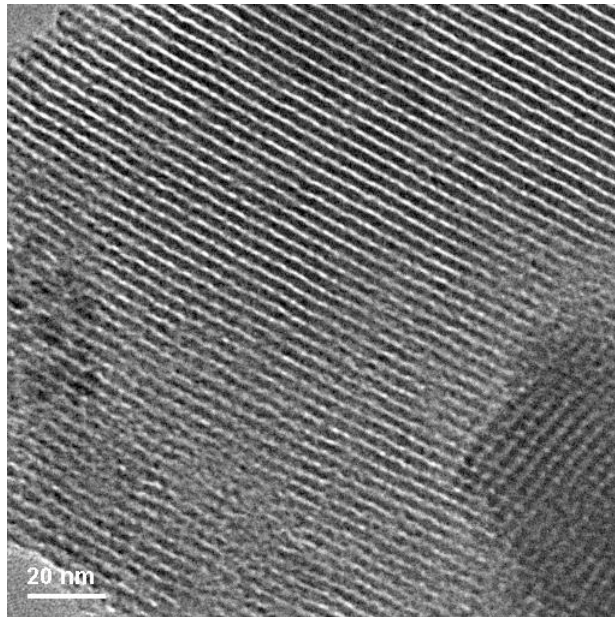


Figure S 1 Low-angle X-ray scattering pattern for Fe-containing silicate



(a)



(b)

Figure S 2 TEM image of (a) Au-containing mesoporous silicates viewed down the pore direction and (b) Fe-containing mesoporous specimen viewed down the [100] zone axis, showing a long length of the pores.

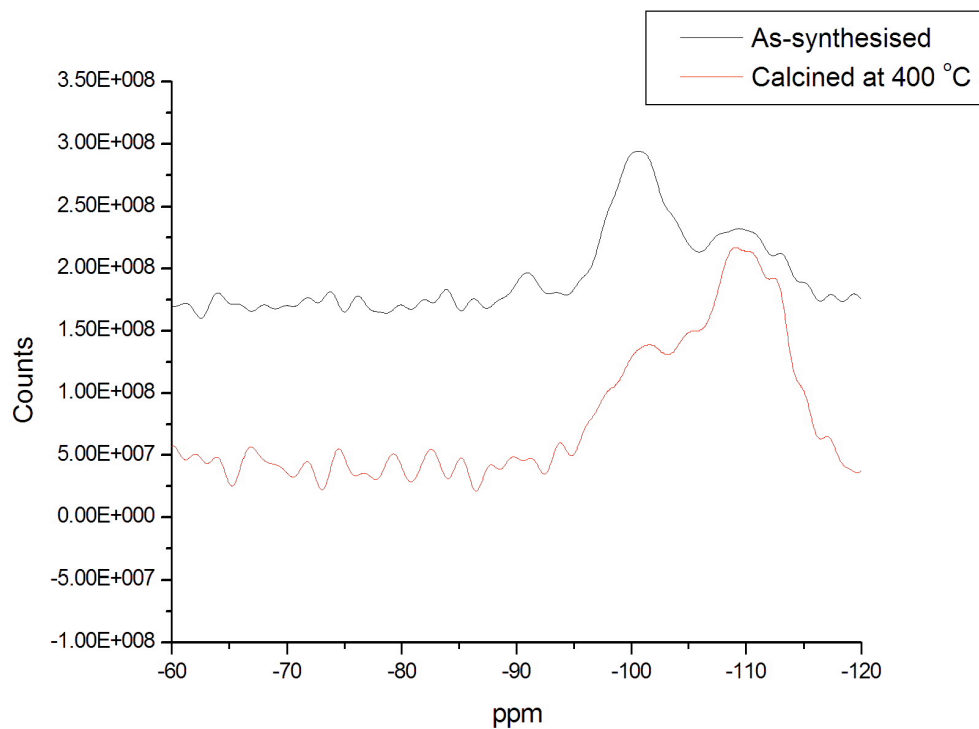


Figure S 3 $^{29}\text{Si}\{^1\text{H}\}$ MAS-NMR spectra of the palladium silicate before and after calcination at 400 °C. Use other metals give the same result.

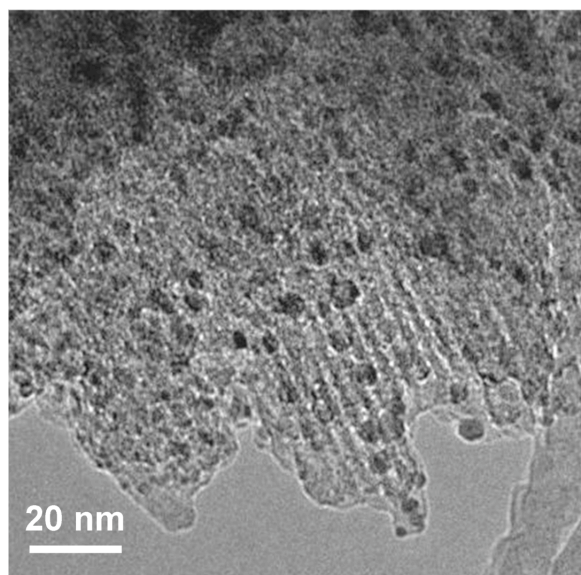


Figure S 4 TEM images of mesoporous silicates containing Au. The black dots are metallic nanoparticles inside the pores.

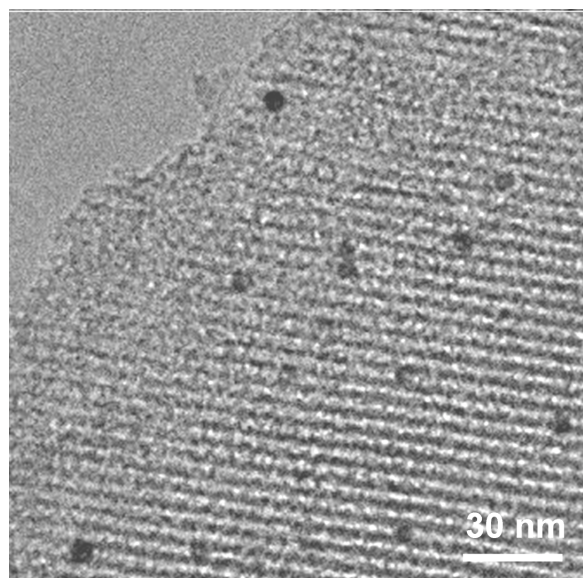


Figure S 5 TEM images of mesoporous silicates containing Pt. The black dots are metallic nanoparticles inside the pores.

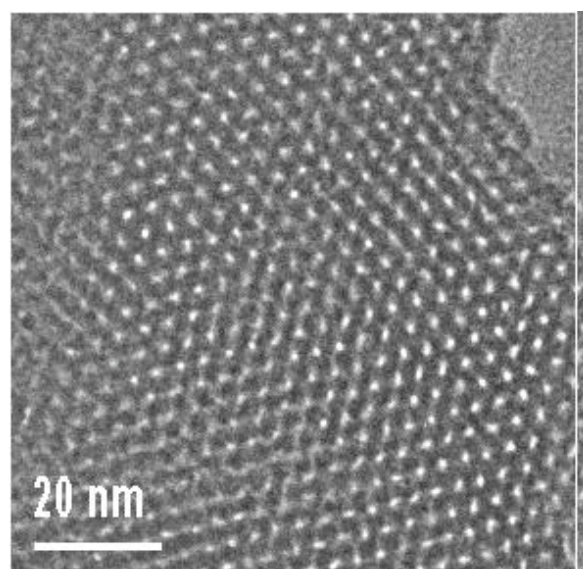


Figure S 6 TEM images of Fe-containing sample viewed down the pore axis.

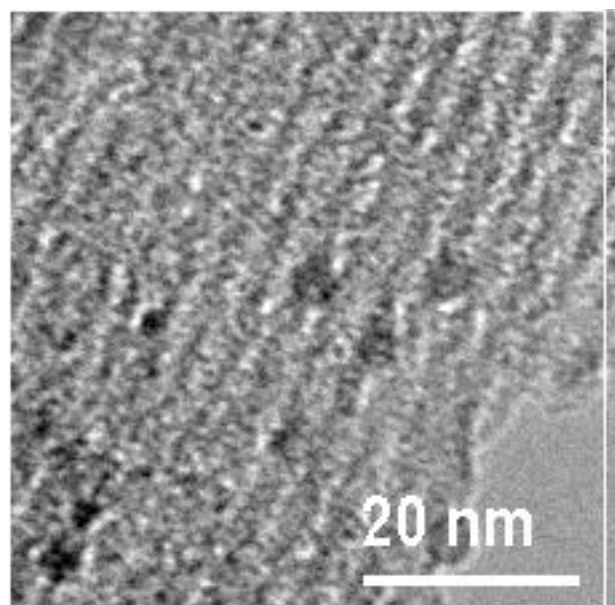


Figure S 7 TEM images of Co-containing sample with small and large Co nanoparticles inside the channels.

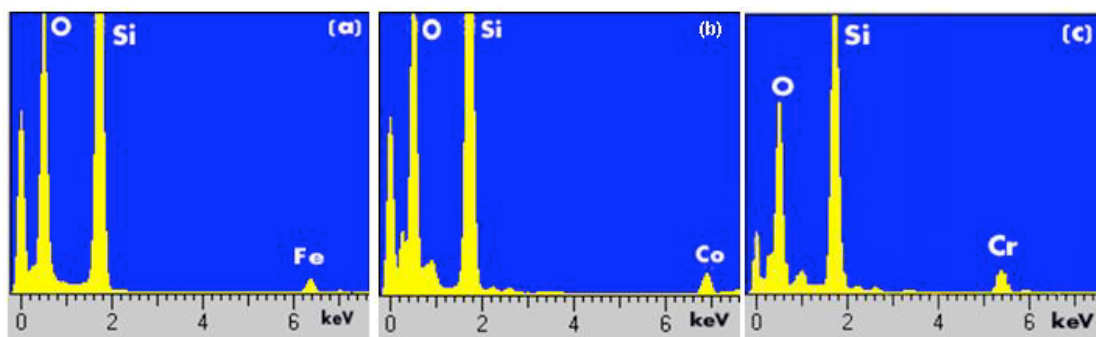


Figure S 8 EDX spectra of the metal-containing mesoporous silicates, (a) Fe-containing, (b) Co-containing, and (c) Cr-containing.

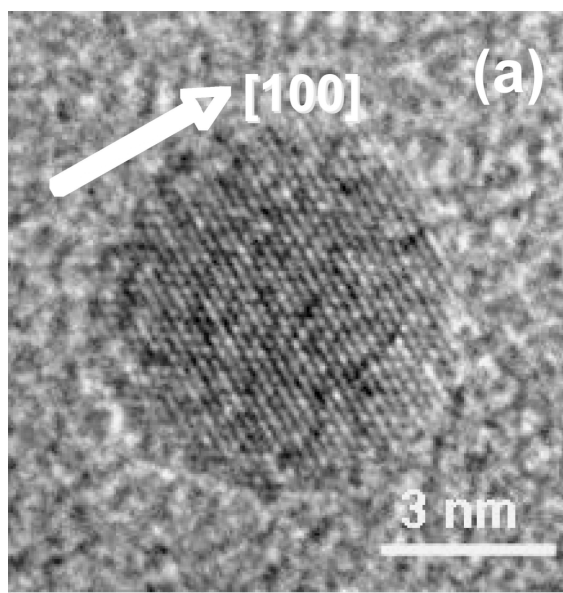


Figure S 9 HRTEM images of a typical Au nanoparticle from the specimens.

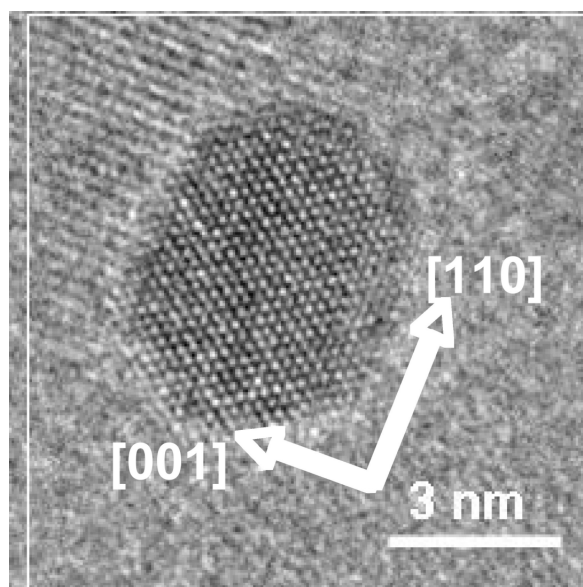


Figure S 10 HRTEM images of a typical Au nanoparticle from the specimens.

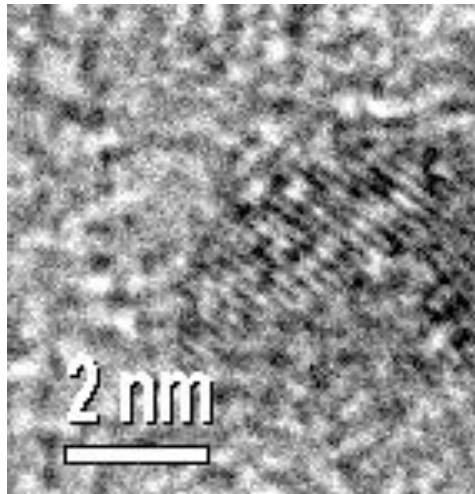


Figure S 11 HRTEM images of a typical Fe nanoparticle from the specimens.

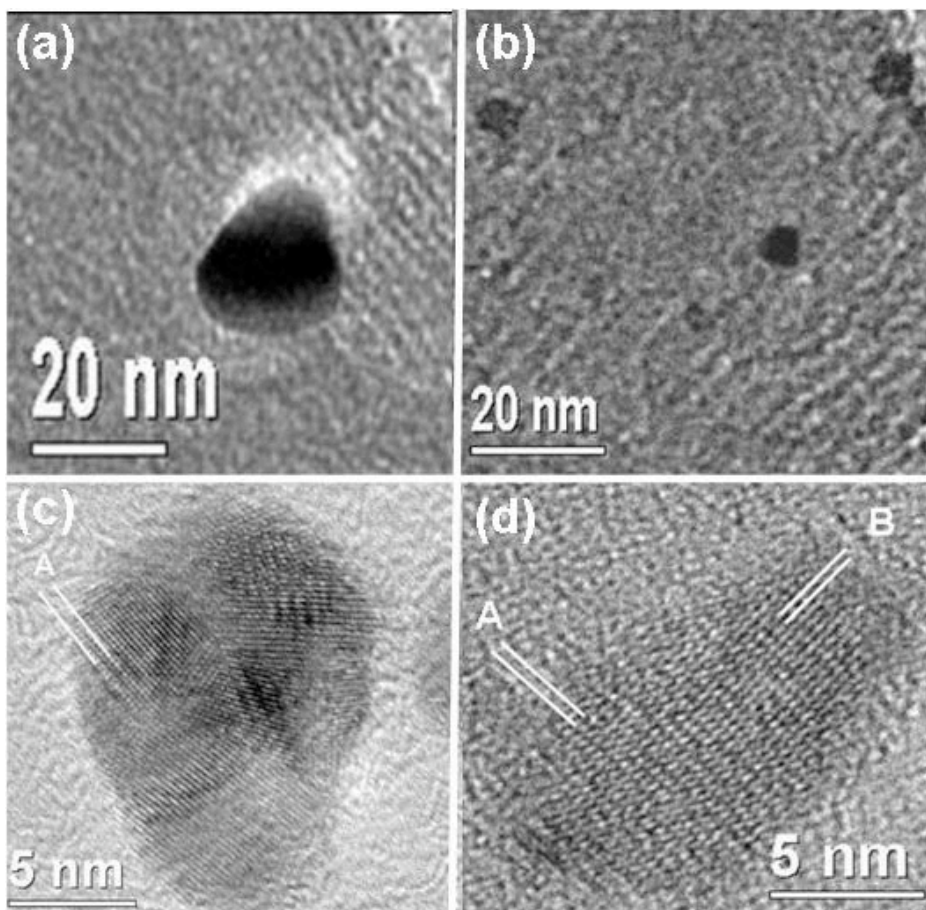


Figure S 12 (a), (b) TEM and (c), (d) HRTEM images of large Fe₃O₄ particles with a cubic structure. The d-spacing of A in (c) is 0.575 nm, corresponding to the (110) planes. The d-spacings of A and B in (d) are 0.285 and 0.465 nm, corresponding to the (220) and (111) planes.