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Electronic Supplementary Information

Confined Synthesis of Three-Dimensionally Ordered Arrays of Multilamellar Silica Nanospheres as Gold Catalyst Support

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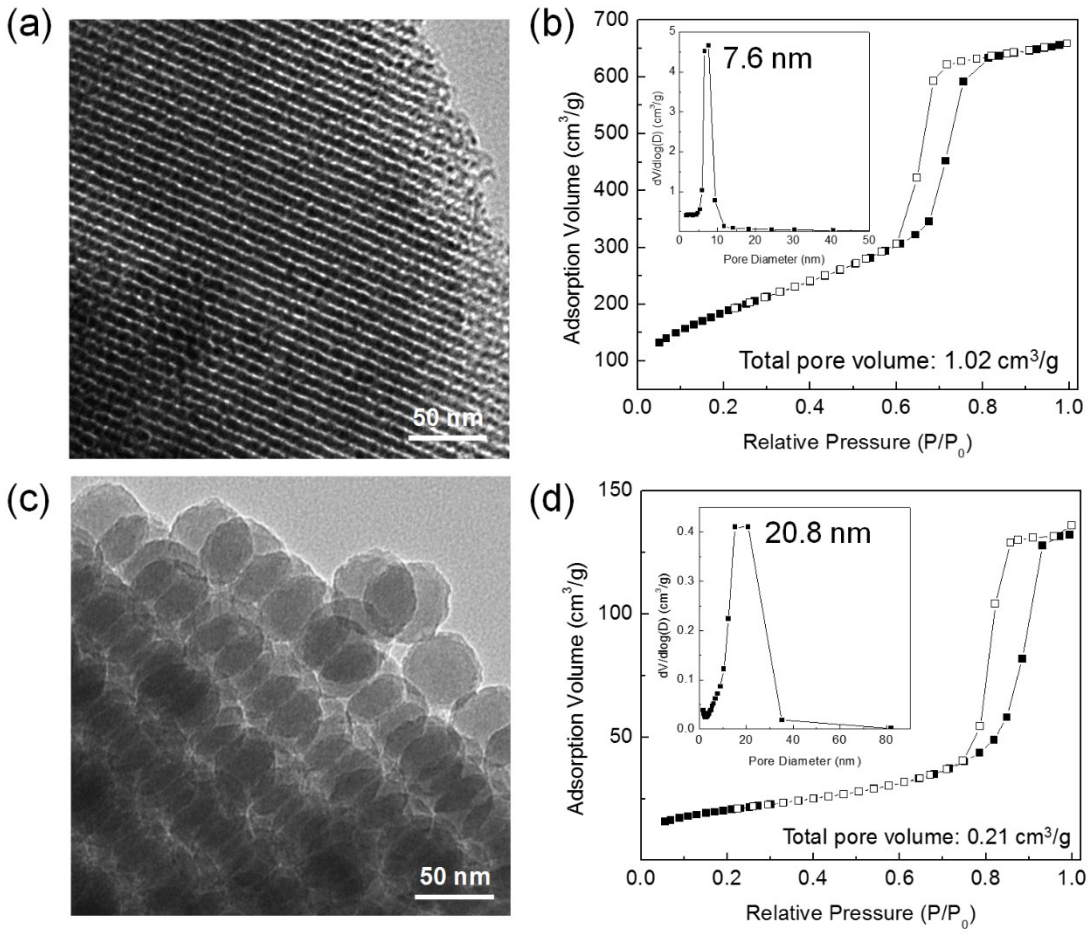

Fig.S1 SBA-15: (a) TEM image, (b) Nitrogen adsorption-desorption isotherms and pore size distribution (inset). Silica nanoparticles ca. 50 nm in size: (a) TEM image, (b) nitrogen adsorption-desorption isotherms and pore size distribution (inset).

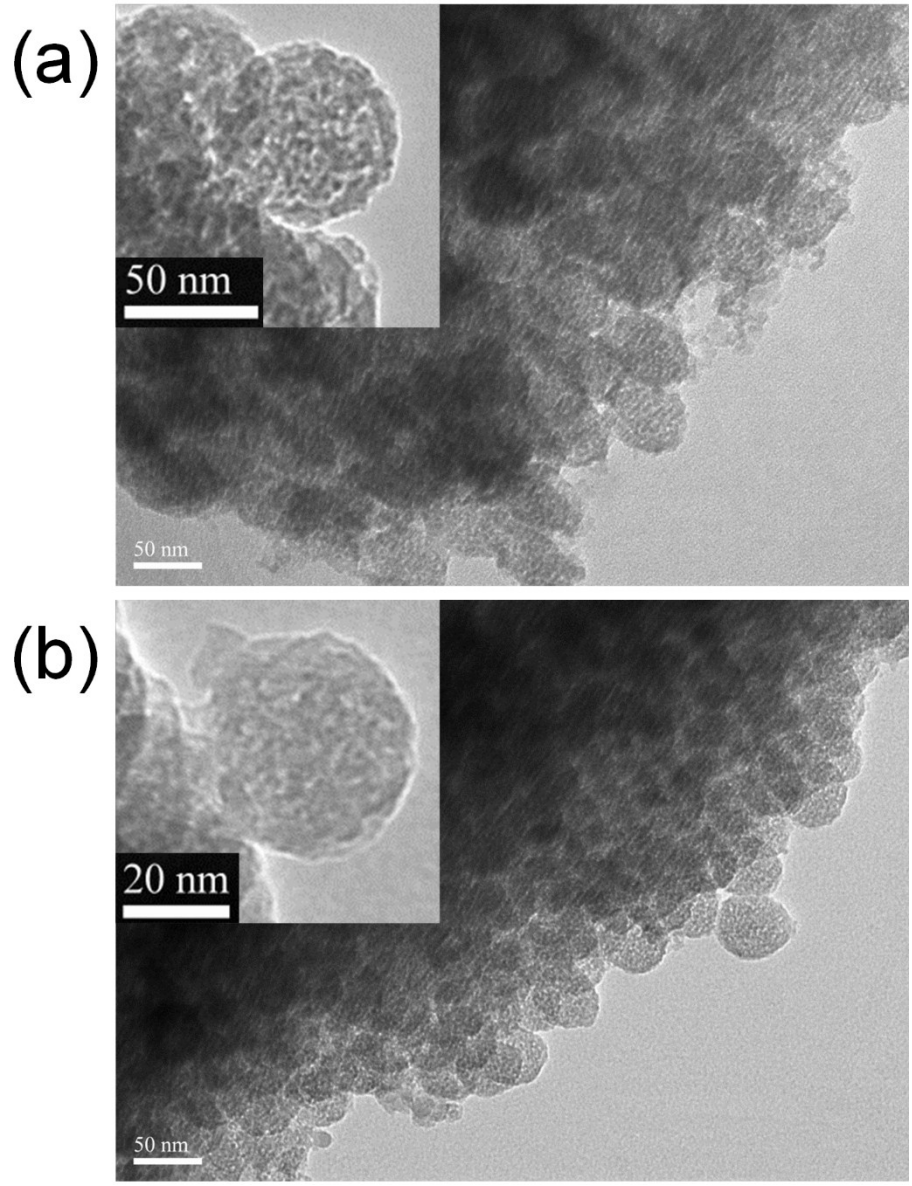

Fig.S2 TEM images of silica particles prepared by confined synthesis in porous carbon template using block copolymers (a) poly(ethylene oxide-*block*-propylene oxide-*block*-ethylene oxide) (L64, M_w 2900) and (b) poly(propylene oxide-*block*-ethylene oxide-*block*-propylene oxide) (17R4, M_w 2700) as the structure directing agents. All the experimental parameters were the same as those for preparing the MLSs except that P123 was replaced by the above-mentioned polymers.

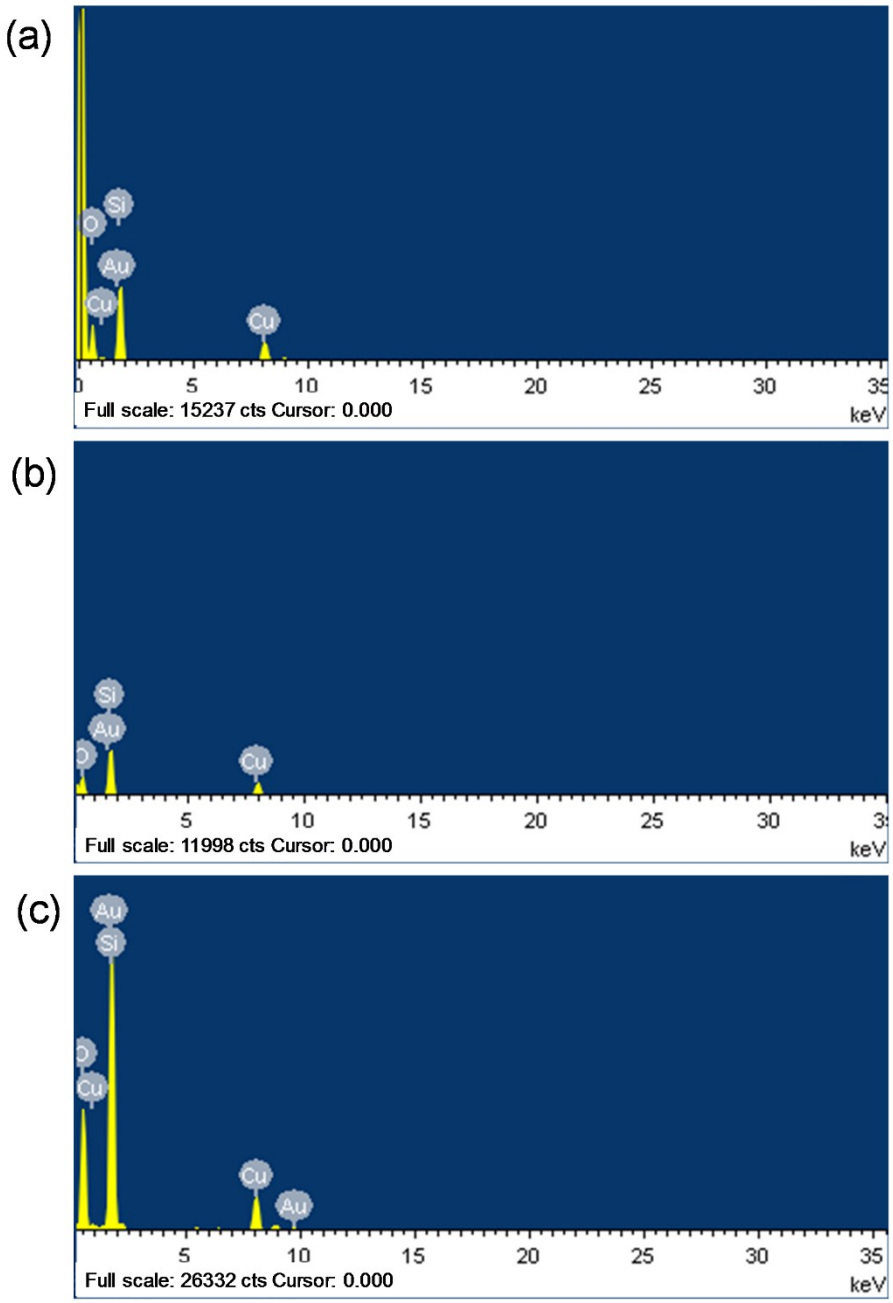

Fig.S3 EDX spectra of (a) Au-MLS-1, (b) Au-MLS-2, and (c) Au-MLS-3. Cu signal is caused by the copper grid used for TEM observations.

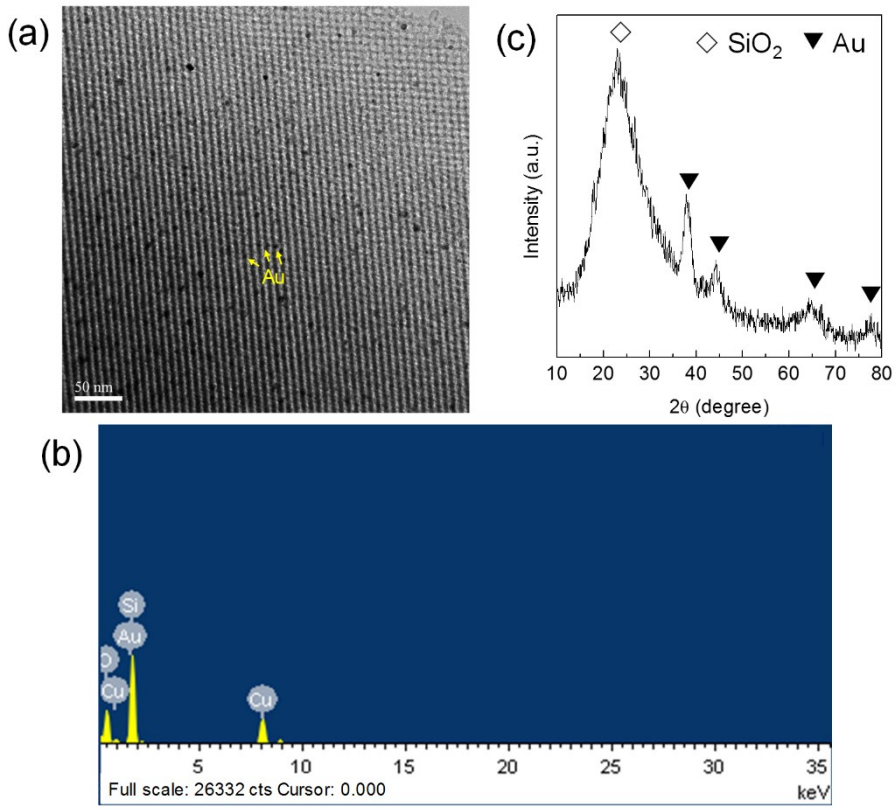

Fig.S4 (a) TEM image, (b) EDX spectrum, and (c) XRD spectra of Au-SBA-15.

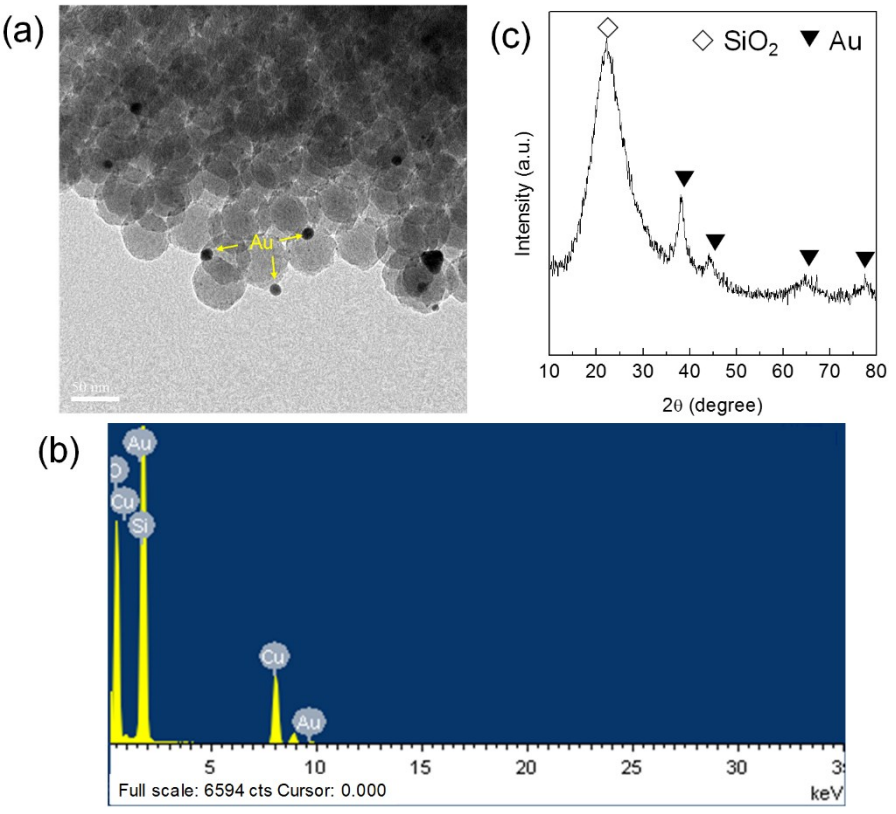

Fig.S5 (a) TEM image, (b) EDX spectrum, and (c) XRD spectra of Au-S.

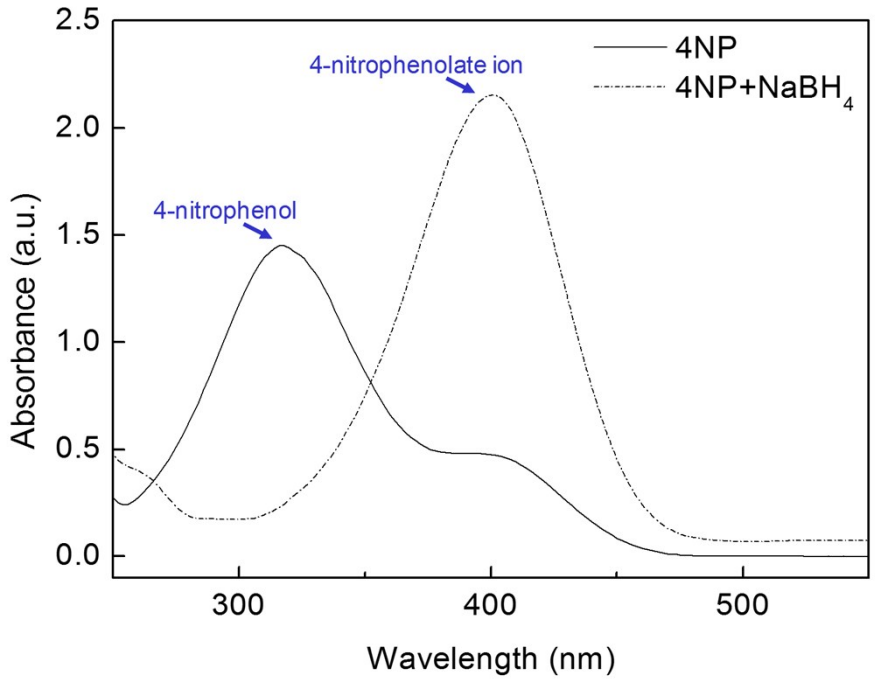

Fig.S6 UV–Vis light absorbance spectra of the aqueous solution of 4NP before (solid line) and after (dash line) the addition of $NaBH_4$.

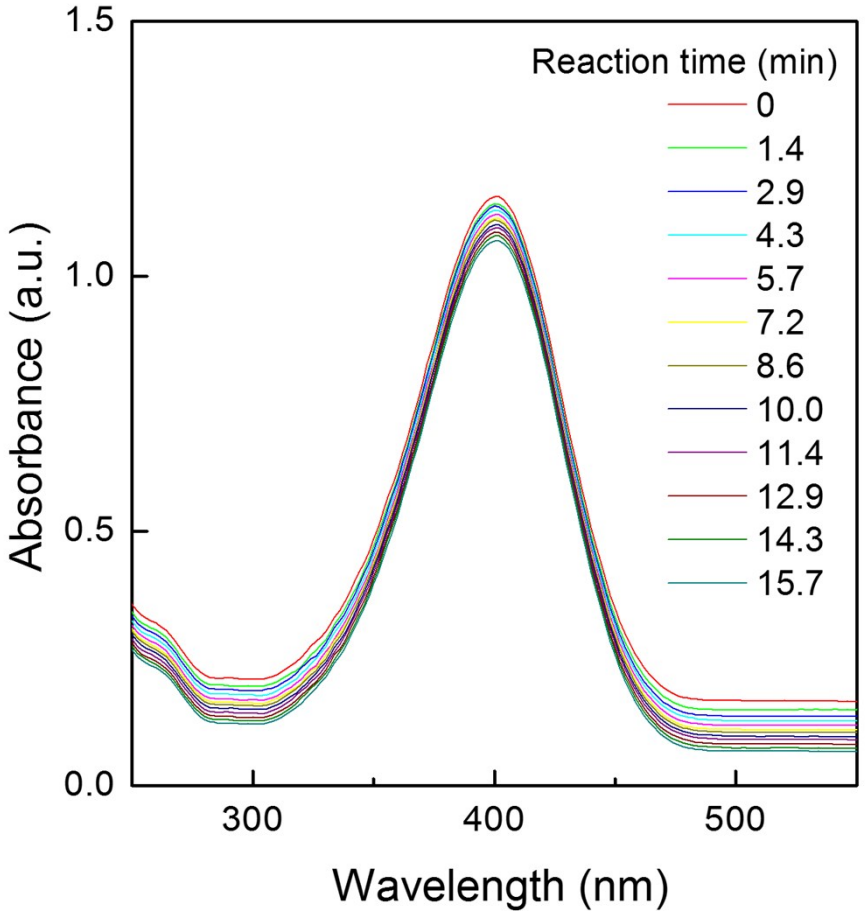

Fig.S7 UV–Vis absorbance spectra of the 4NP–$NaBH_4$ mixture solution after the addition of Au-S.

Formula: The conversion of 4NP is evaluated with the relative intensity of absorbance at 400 nm before and after reaction as follows

$$(1 - \frac{A_t}{A_0}) \times 100\%$$

wherein A_0 is the intensity of absorbance at 400 nm at t = 0, and A_t is the intensity of absorbance at 400 nm at 17.2 min, 18.1 min, 16.1 min and 18.1 min in case of Au-MLS-1, Au-MLS-2, Au-MLS-3, and Au-SBA-15, respectively.