

Porous Gold Nanobelts Templated by Metal-Surfactant Complex Nanobelts

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Supporting Information

Part S1

Analysis of the XRD pattern of the metal-surfactant complex formed from the mixed solution of 0.25 mM N-C₁₂-NBr₂ and 0.2 mM HAuCl₄.

The X-ray powder diffraction pattern is indexed with the structure-analysis program Powder-X.¹

Indexing result is shown below:

Crystal system: Monoclinic Lattice Type: P

Lattice Parameter: $a = 11.70838 \text{ \AA}$ $b = 10.34623 \text{ \AA}$ $c = 7.901129 \text{ \AA}$

Lattice Parameter: Alpha = 90° Beta = 94.4° Gama = 90°

HKL	2 θ (OBS)	2 θ (CALC)	DIFF.
100	7.576	7.567	-0.009
010	8.550	8.539	-0.011
001	11.210	11.223	0.013
-101	13.065	13.052	-0.013
011	14.163	14.119	-0.044
200	15.199	15.168	-0.031
020	17.116	17.127	0.011
-201	18.214	18.188	-0.026
201	19.652	19.603	-0.049
021	20.471	20.523	0.052
-121	21.569	21.593	0.024
300	22.837	22.836	-0.001
301	26.301	26.299	-0.002
321	31.511	31.553	0.042
302	33.598	33.579	-0.019
-132	35.036	35.014	-0.022

Note: OBS = Observation, CALC = Calculation, DIFF. = Difference

(1) (a) Dong, C. *J. Appl. Cryst.* **1999**, 32, 838. (b) Dong, C.; Wu, F.; Chen, H. *J. Appl. Cryst.* **1999**, 32, 850.

Part S2
Supplementary figures

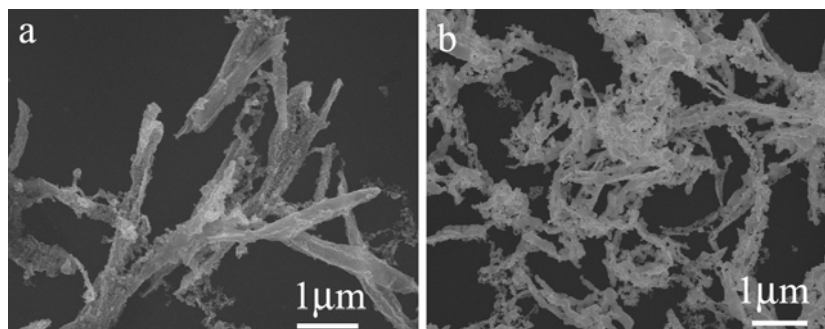


Figure S1. SEM images of gold products obtained from metal-surfactant complex precursor formed at different HAuCl_4 concentrations: (a) 0.02mM (b) 1mM. $[\text{N-C}_{12}\text{-NBr}_2] = 0.2 \text{ mM}$.

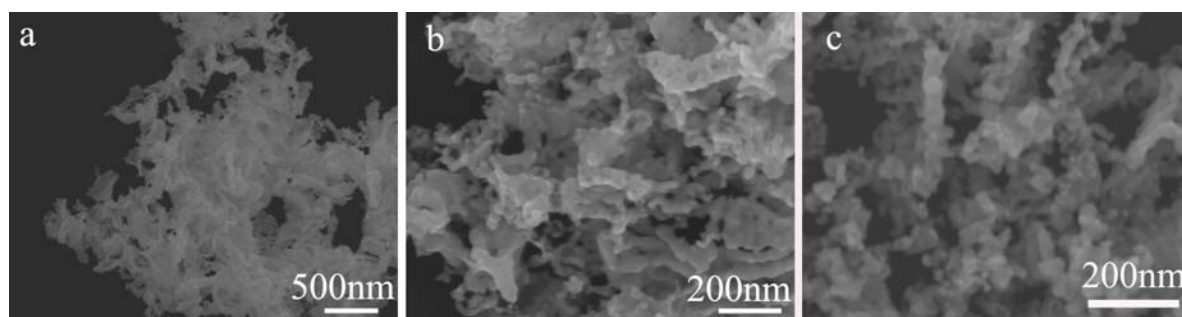


Figure S2. SEM images of gold products obtained in the presence of $\text{C}_{12}\text{-NBr}$ with different concentrations: (a) 0.1mM (c) 0.25mM (d) 1mM. $[\text{HAuCl}_4] = 0.2 \text{ mM}$.

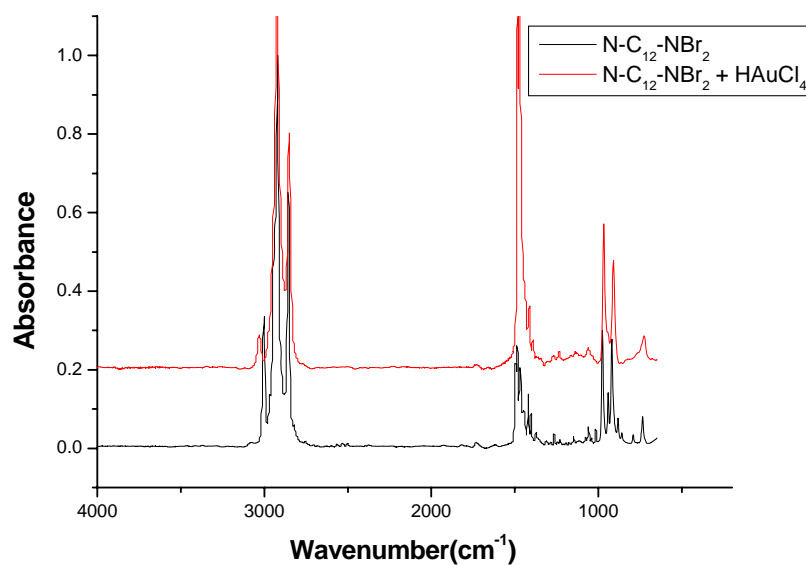


Figure S3. FTIR spectra of pure $\text{N-C}_{12}\text{-NBr}_2$ surfactant and metal-surfactant complex precursor formed from 0.25 mM $\text{N-C}_{12}\text{-NBr}_2$ and 0.2 mM HAuCl_4 .

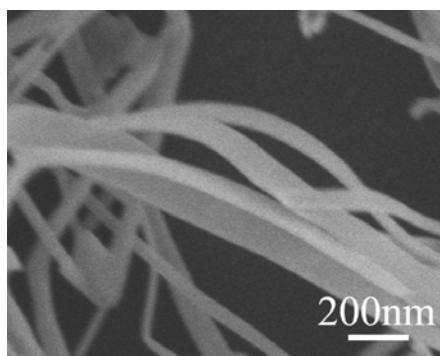


Figure S4. SEM images of solid gold nanobelts obtained in the presence of CTAB and SDS at 4 °C following the reported procedure [Zhao, N.; Wei, Y.; Sun, N.; Chen, Q.; Bai, J.; Zhou, L.; Qin, Y.; Li, M.; Qi, L. *Langmuir* **2008**, *24*, 991]. [CTAB] = 6.5 mM, [SDS] = 1 mM, [HAuCl₄] = 2 mM, [ascobic acid] = 6 mM.