

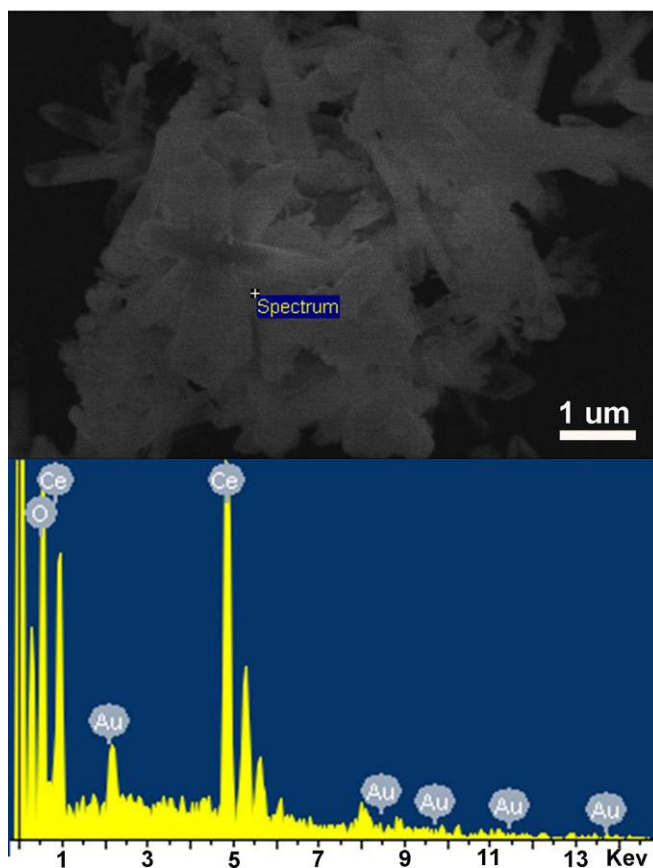
## Supplementary Information

### ***In Situ* Growth of Au@CeO<sub>2</sub> Core-Shell Nanoparticles and CeO<sub>2</sub> Nanotubes from Ce(OH)CO<sub>3</sub> Nanorods**

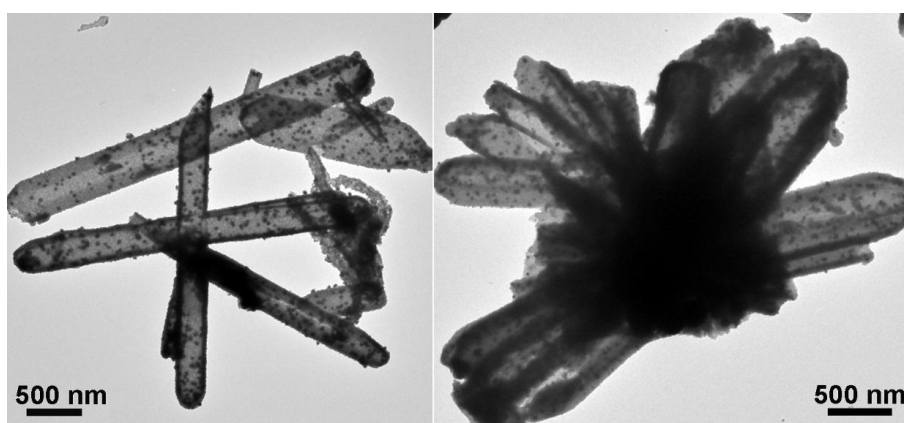
Fenfen Zhu,<sup>a</sup> Guozhu Chen,<sup>\*a,b</sup> Sixiu Sun<sup>a</sup> and Xuan Sun<sup>\*a</sup>

<sup>a</sup>Key laboratory of Colloid and Interface Chemistry, Ministry of Education, School of Chemistry and Chemical Engineering, Shandong University, Jinan 250100, P. R. China. Fax: 86- 531- 88564464; Tel: 86-531- 88362326; E-mail: [sunxuan@sdu.edu.cn](mailto:sunxuan@sdu.edu.cn)

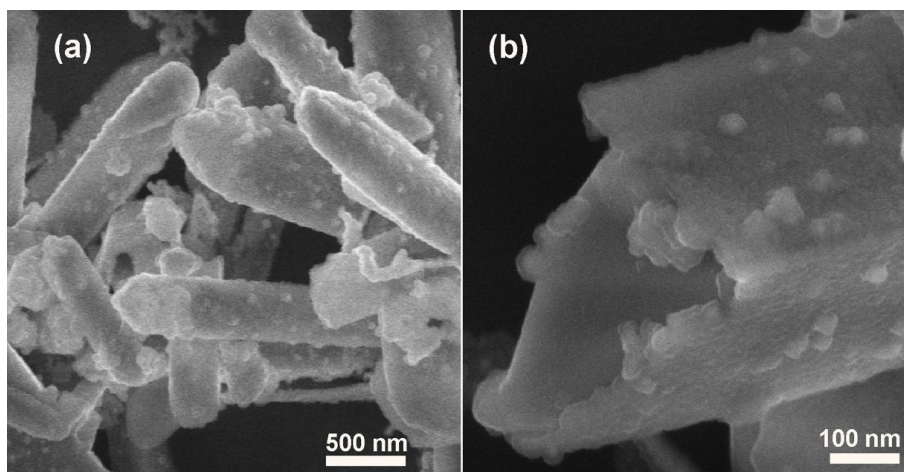
<sup>b</sup>Institut National de la Recherche Scientifique (INRS), 1650 Boulevard Lionel Boulet, Varennes, Québec, J3X 1S2, Canada. Fax: 1-5148750344 Tel: 1-5142286983; E-mail: [chen@emt.inrs.ca](mailto:chen@emt.inrs.ca)



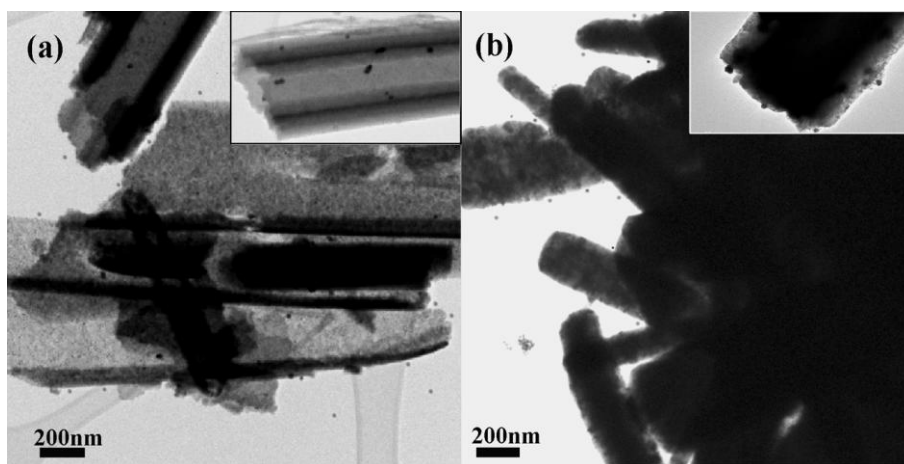
**Fig. S1** EDS pattern of the as-prepared Au@CeO<sub>2</sub> CS NP-CeO<sub>2</sub> NT nanocomposite.



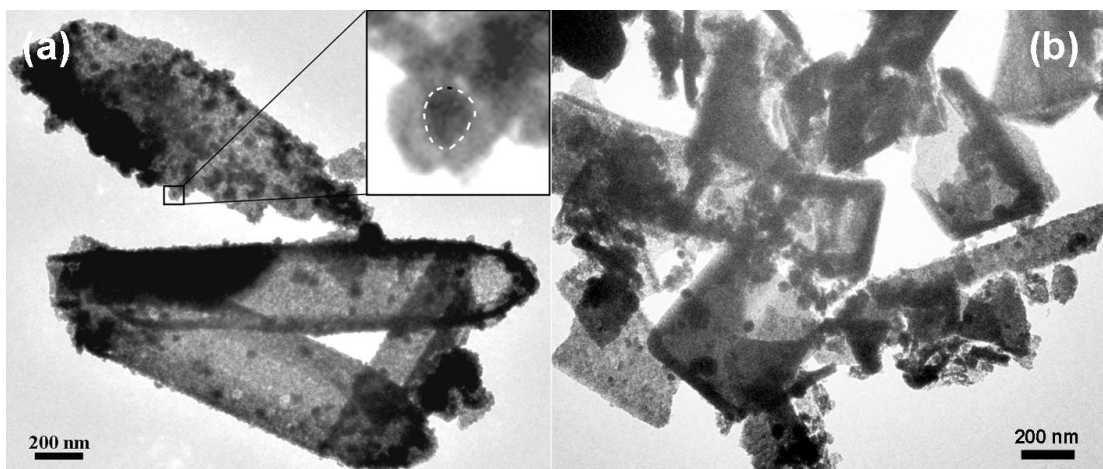
**Fig. S2** TEM images of the as-prepared Au@CeO<sub>2</sub> CS NP-CeO<sub>2</sub> NT nanocomposite.



**Fig. S3** SEM images of Au@CeO<sub>2</sub> CS NP-CeO<sub>2</sub> NT nanocomposite (a) and a ruptured one (b).



**Fig. S4** TEM images of Au-CeO<sub>2</sub> NT (a) and Au-CeO<sub>2</sub> nanorod (b) nanocomposites. Insets are the typical, individual NT or nanorod.



**Fig. S5** TEM images of Au@CeO<sub>2</sub> CS-CeO<sub>2</sub> NT (a) and Au-CeO<sub>2</sub> NT (b) nanocomposites after 3 run catalytic tests. Inset in (a) is the magnified NP denoted with bracket.