Supplementary Information

Facile preparation of nanoporous Ag decorated with CeO2 nanoparticles for Surface-enhanced Raman scattering

Guijing Li\*, Wenjie Feng, Xiaolong Zhang, Xueqian Fang

Department of Engineering Mechanics, Provincial Collaborative Innovation Center of Mechanics of Intelligent Materials in Hebei, Key Laboratory of Smart Materials and Structures Mechanics, Hebei Province, Shijiazhuang Tiedao University, Shijiazhuang, Hebei 050043, China. E-mail address: ligj@stdu.edu.cn.

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Figure S1 SEM image (a, b, c) of the nanoporous Ag/CeO2(5%) materials and EDX spectrum (d) from the square area in Figure S1 c.

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Figure S2 SEM image (a) and EDX spectrum (b) of the nanoporous Ag/CeO2(5%) materials

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Figure S3 Pore size distributions of the prepared nanoporous Ag, Ag/CeO2(0.5%) and Ag/CeO2(5%) materials and N2 adsorption-desorption isotherm (inset) of the Ag/CeO2(0.5%) and Ag/CeO2(5%) materials

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Figure S4 SERS spectra of R6G (10−7 M) adsorbed on nanoporous Ag/CeO2(0.5%) materials (a) and the spectra collected from solid R6G powder on glass slide (b).

TABLE I BET surface areas and the relative quantities of Ag+ ions [Ag+/(Ag0+Ag+)%], Ce3+ ions [Ce3+/(Ce3++Ce4+)%] and surface adsorbed oxygen species [Osur/(Olat+Osur)%] of the nanoporous Ag/CeO2 materials with different contents of CeO2.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Samples | *S*BET  m2g-1 | Ag+/(Ag0+Ag+)  % | | Ce3+/(Ce3++Ce4+)  % | | | Osur/(Osur +Olat)  % |
| Pure Ag | 2.32 | | 0 | - | - | | |
| Ag/CeO2  (0.5 %) | 2.99 | | 3.18 | 23.71 | | 85.50 | |
| Ag/CeO2  (1 %) | 3.49 | | 3.75 | 23.96 | | 67.82 | |
| Ag/CeO2  (2 %) | 3.90 | | 2.35 | 24.12 | | 64.25 | |