Supporting Information

Facile synthesis of ultrathin worm-like Au nanowires for highly active SERS substrates

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Experimental

1. Measurements of the electrochemically active surface area (EASA) and the roughness factor (R).

The Au nanowires modified glassy carbon electrode (GCE, 3 mm in diameter) electrode was prepared according to the Au films process. After drying in air, 3 μL or 5 μL of Nafion (0.05 wt%) was covered on the electrode surfaces and allowed drying in air again. The electrochemical measurements were conducted on a CHI660b electrochemical workstation (CH Instruments, Chenhua Co., Shanghai, China) at room temperature.

A standard three-electrode system was employed for all the electrochemical measurements, which consisted of a Pt mesh as the counter electrode, an Ag/AgCl electrode as the reference electrode, and the modified glassy carbon electrode as the working electrode.

The typical cyclic voltammogram of the Au nanowires modified electrodes was recorded in 0.5 M H_2SO_4 at a scan rate of 50 mV s^{-1}. The electrochemically active surface area (EASA) was estimated from Coulombic integration of the enhanced cathodic peak current at 0.89 V. The roughness factor (R) of the surface, the ratio of real surface to the geometric surface, was calculated.

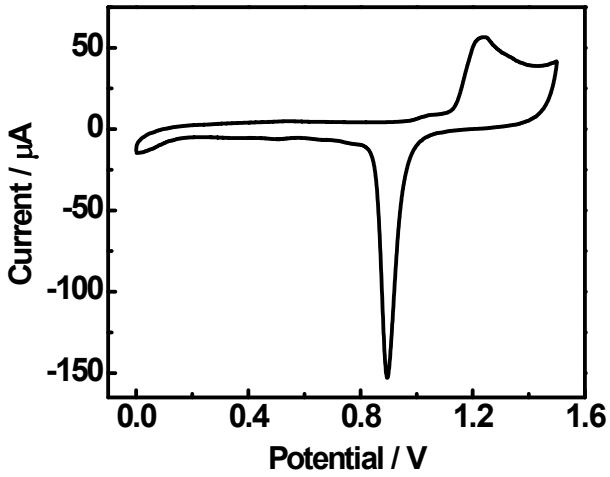

Figure S1. The cyclic voltammogram of the Au nanowires modified electrode in 0.5 M H_2SO_4 at a scan rate of 50 mV s^{-1}.

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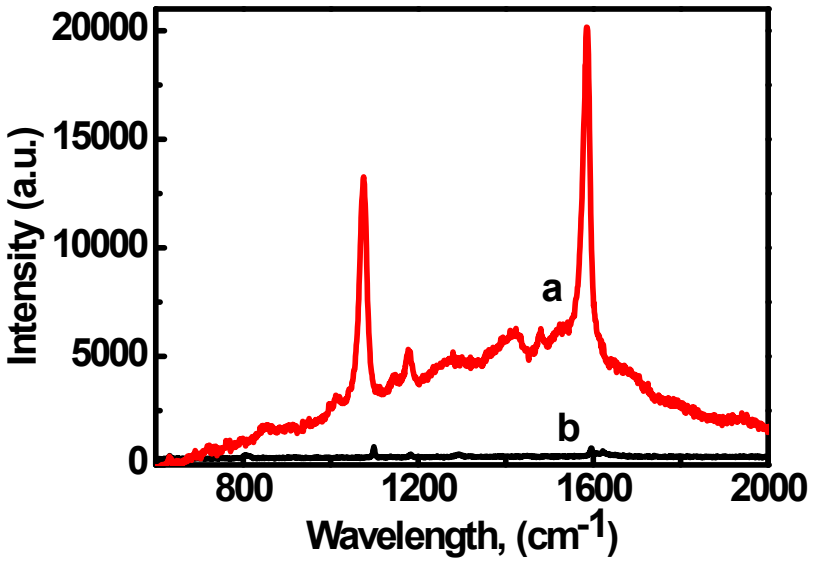

Figure S2. The SERS spectra of 4-MBA adsorbed on the Au porous film as Raman-active substrates (curve a), and Raman spectrum of 4-MBA dispersed on the quartz plate (curve b).