

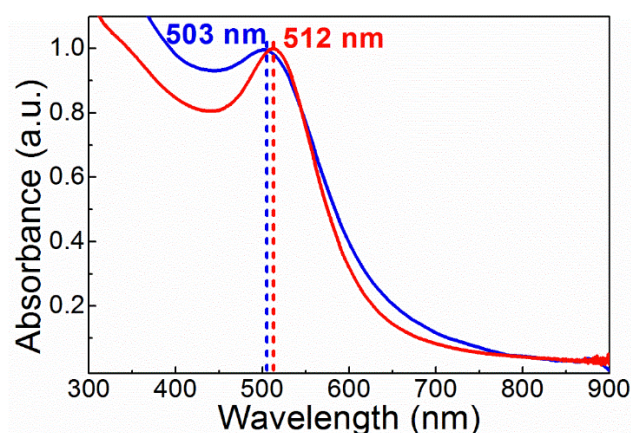


Article

# Seed-mediated electroless deposition of gold nanoparticles for highly uniform and efficient SERS enhancement

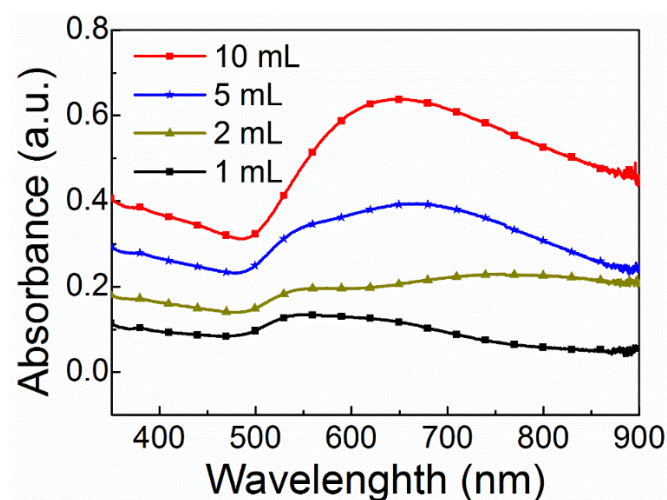
Junqi Tang <sup>1,2</sup>, Quanhong Ou <sup>1</sup>, Haichun Zhou <sup>1</sup>, Limin Qi <sup>2</sup> and Shiqing Man <sup>1,\*</sup>

## 1. UV-vis spectra of Au seed solutions



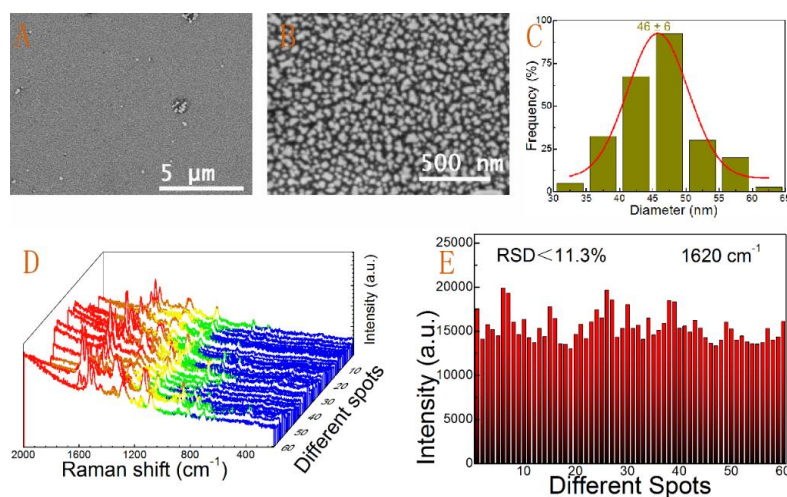
**Figure S1.** UV-vis spectra of Au seed solutions, blue curve) seed I, red curve) seed II. Both are normalized at the LSPR peak maximum.

## 2. UV-vis spectra of Au nanoparticle films



**Figure S2.** UV-vis spectra of the Au nanoparticle films formed by adding different amounts of reaction mixture after the substrates were activated with seed I.

## 3. SERS performance of Au nanoparticle films formed by seed I activation and with 2 h of immersion



**Figure S3.** SEM images (A, B) and size distributions (C) of Au nanoparticle films formed by seed I activation and with 2 h. of immersion. D) Uniformity of SERS spectra of CVs collected on the randomly selected 60 spots of the whole substrate. E) The intensities of the main vibrations at 1620  $\text{cm}^{-1}$  calculated according to the SERS spectra shown in (D).

#### 4. Relative standard deviation of the major peaks of the SERS spectra

**Table S1.** RSD values for the major peaks of the SERS spectra for the substrate obtained with 2 h of immersion.

Peak Position ( $\text{cm}^{-1}$ )	1620	1589	1377	1183	917	807
RSD values	0.113	0.095	0.085	0.077	0.067	0.056