Supporting Information

Tunable plasmons in shallow silver nanowell arrays for directional surface-enhanced Raman scattering

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Angle-resolved SERS spectra of \( p \)-ATP on the nanowell array without nanoparticles

Figure 3s (a) shows the 2D resolved spectra of \( p \)-ATP on the nanowell array without nanoparticles. The strong SERS signal was obtained when the detection angle was smaller than 25 degree. It indicates that the SERS on the nanowell array is directional. This is beneficial to improve the SERS collection efficiency. In Figure 3s (b), the 3D SERS radiation pattern of \( p \)-ATP on the silver nanowell array was shown. The pattern was almost as same as Figure 8 (a).

![UV-visible extinction spectrum of the silver colloid.](image)

**Figure 1s.** UV-visible extinction spectrum of the silver colloid.
Figure 2s. (a) and (b) show the angle-resolved reflectivity spectra of the optimized SERS substrates before and after assembling the silver nanoparticles, respectively.

Figure 3s. 2D (a) and 3D (b) angle-resolved spectra of p-ATP on the nanowell array without silver nanoparticles. The concentration of p-ATP was $10^{-3}$ mol/L and the gain factor of ICCD was 255, which enhanced the signal as the fold of more than 700 times.