

Supplementary Information

Highly uniform indicator-mediated SERS sensor platform for the detection of Zn²⁺

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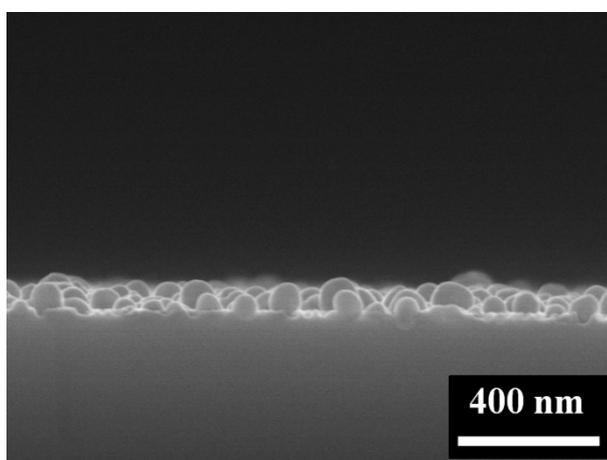


Fig. S1 SEM image of the side view of AgNP-Si substrate.

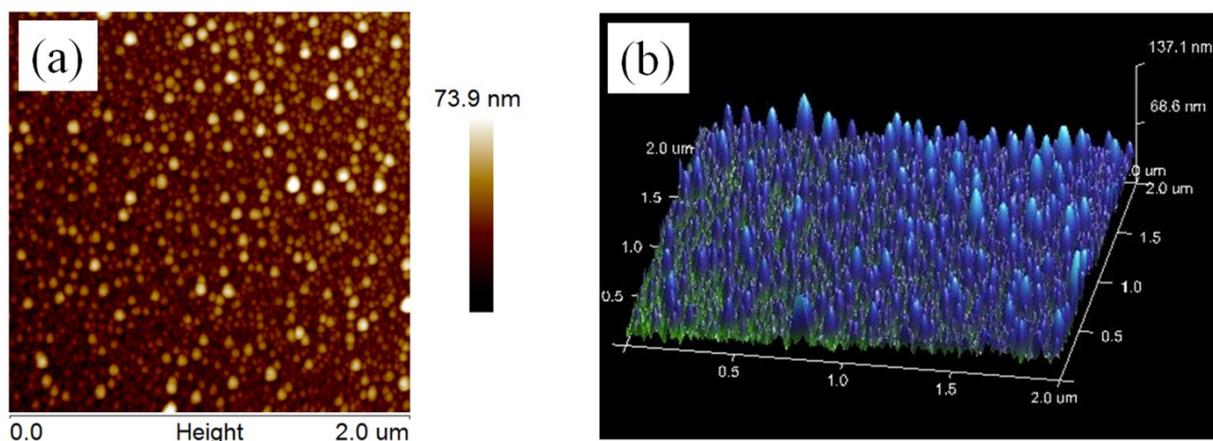


Fig. S2 AFM 2D and 3D images (a and b) of AgNP-Si substrate

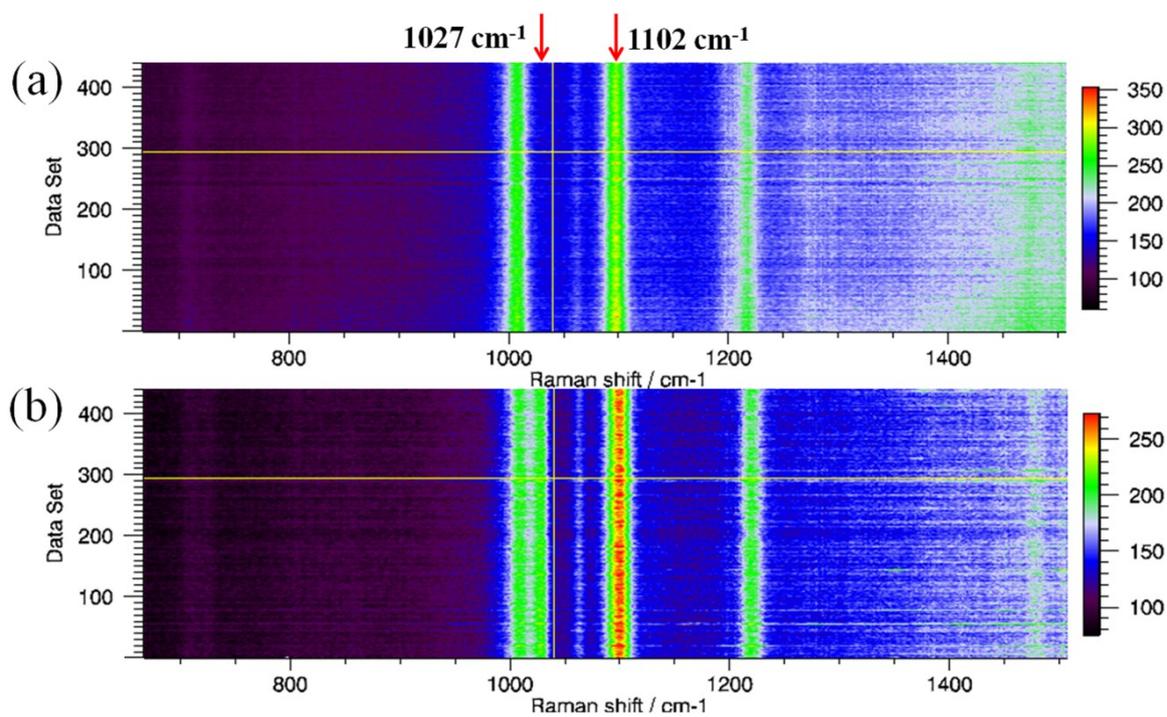


Fig. S3 SERS spectra of 4-MPY from 441 points on the AgNP-Si substrate (a), SERS spectra of 4-MPY from 441 points on the sensor to detect 10 mM Zn²⁺ (b).

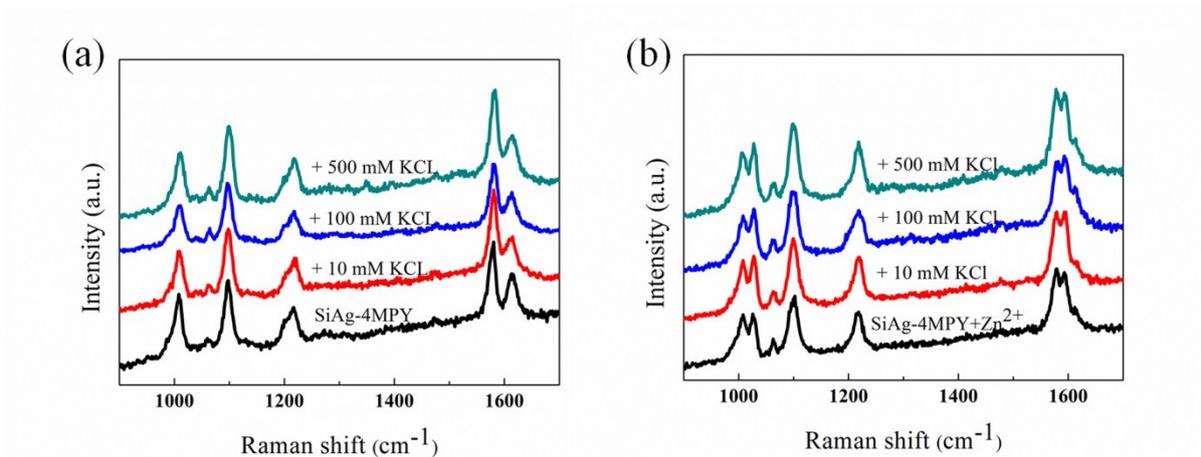


Fig. S4 (a) SERS spectra of SiAg-4MPY treated with KCl solution of different concentrations (10-500 mM). (b) SERS detection of Zn²⁺ (10mM) in the presence of different amounts of KCl (10-500 mM).

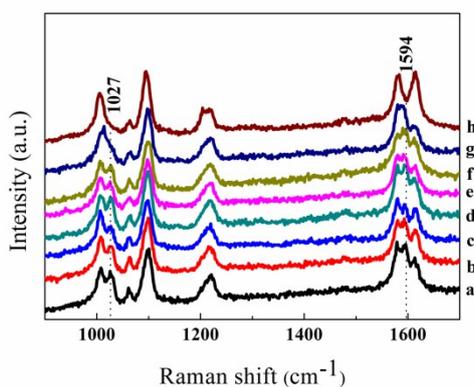


Fig. S5 SERS spectra response of SiAg-4MPY in the presence of Zn²⁺ (10mM, curve a) and interfering ions, Mn²⁺ (curve b), Ca²⁺ (curve c), K⁺ (curve d), Ni²⁺ (curve e), Fe²⁺ (curve f), Cd²⁺ (curve g) and Cr³⁺ (curve h)

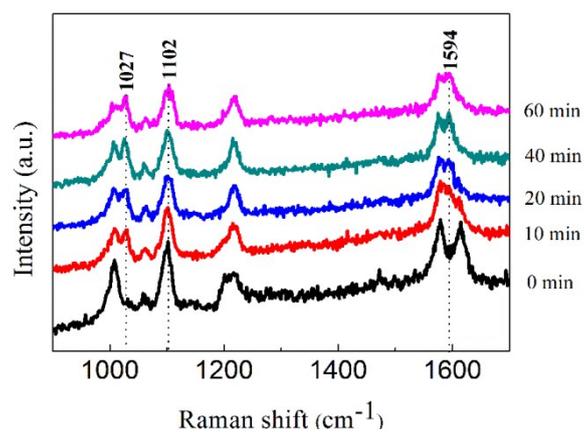


Fig. S6 SERS spectra of SiAg-4MPY used to detect 10 mM Zn²⁺ with different immersing times.

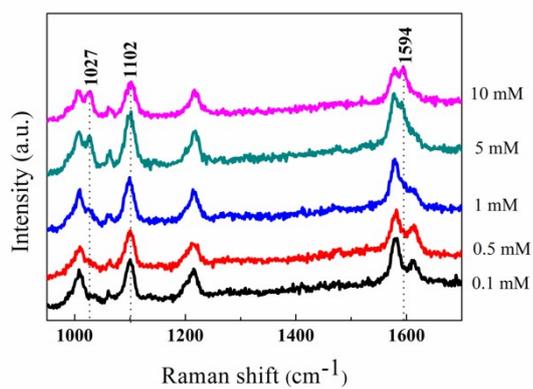


Fig. S7 SERS spectra of SiAg-4MPY used to detect Zn²⁺ at different concentrations.

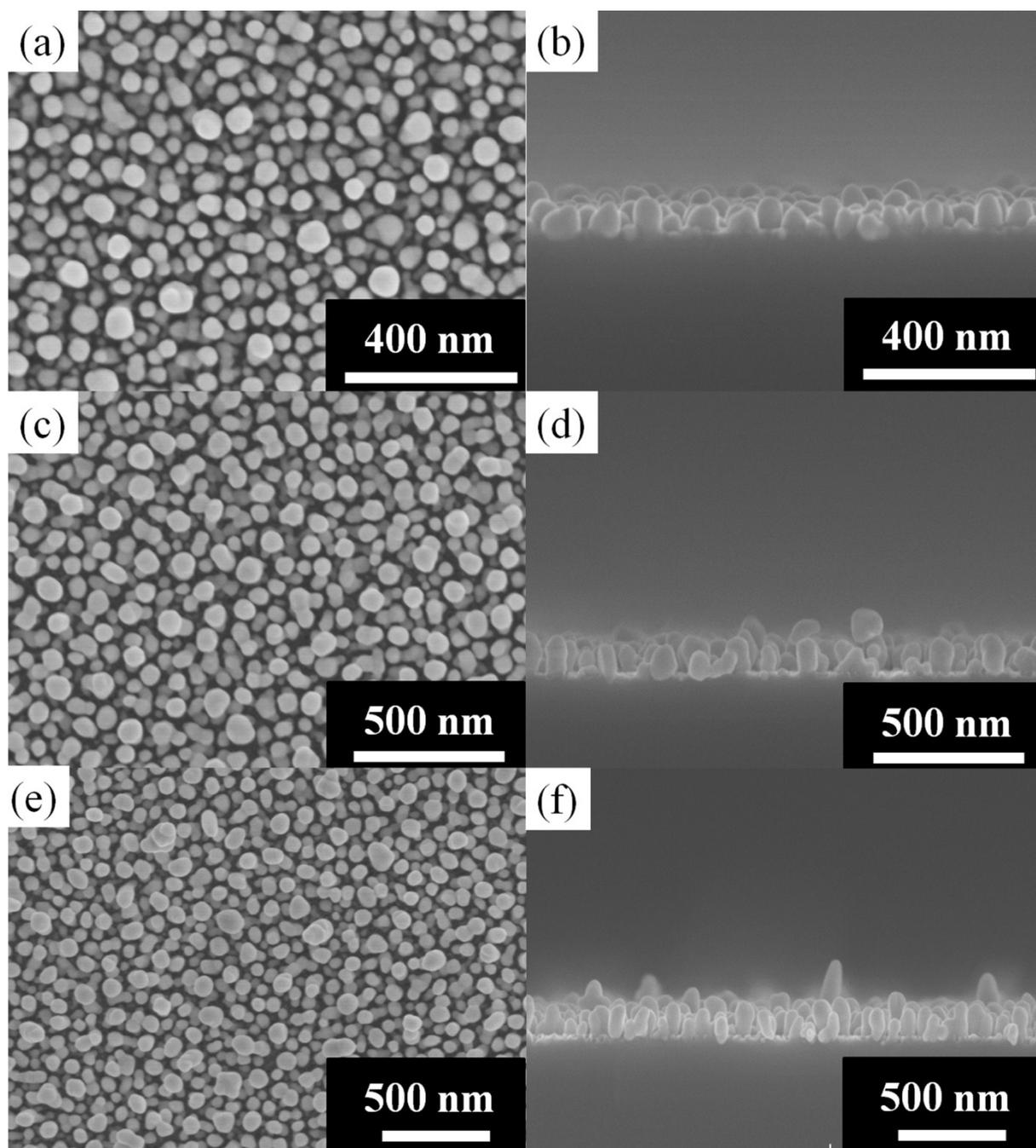


Fig. S8 SEM images of as-optimized AgNP-Si substrate, the immersing times are 60s (a, b), 180s (c, d), 300s (e, f).

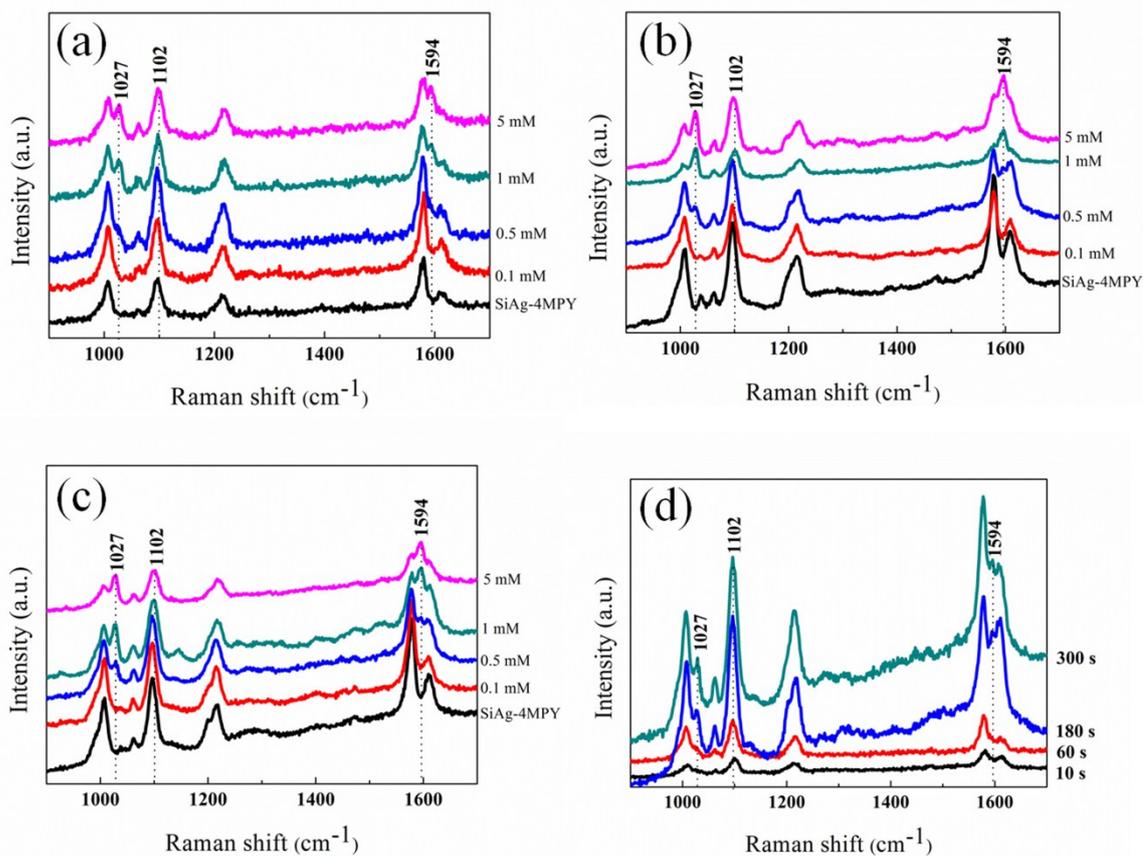


Fig. S9 SERS spectra of SiAg-4MPY alone and SiAg-4MPY used to detect Zn^{2+} with different optimizing time, 60s (a), 180s (b), 300s (c), and SERS spectra of SiAg-4MPY used to detect Zn^{2+} at the concentration of 0.5 mM (d).