

Supporting Information

Multi-optical Signal Channels Gold Nanoclusters and Their Application in Heavy Metal Ions Sensing Array

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S1. The UV-vis spectrum of MS-AuNCs

From UV-vis spectrum of MS-AuNCs (as shown in Fig S1), two absorption peaks could be seen at about 290 nm and 240 nm. The spectrum was matched with the UV-vis spectrum of AuNCs reported in previous work¹. The result could prove that the average size of the MS-AuNCs was around 2.0 ± 0.5 nm.

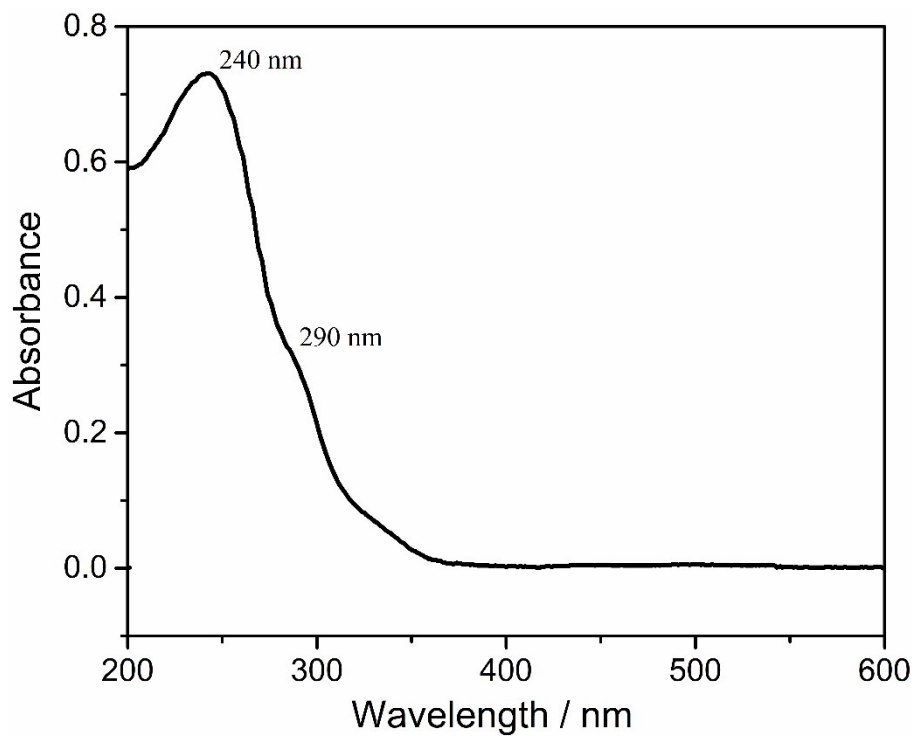


Fig. S1. The UV-vis spectrum of MS-AuNCs.

S2. Experimental ESR spectra

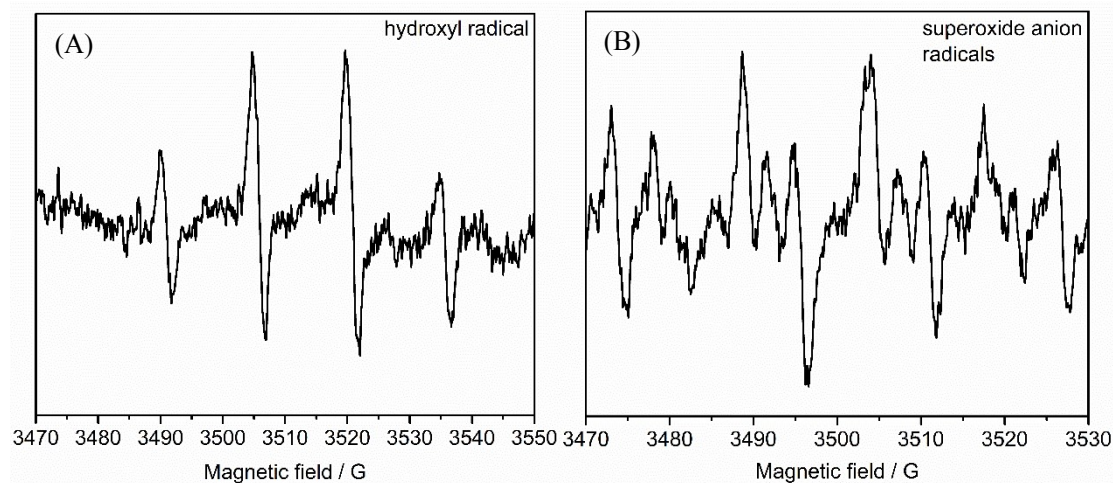


Fig S2 Experimental ESR spectra of DMPO-OH[•] and DMPO-O₂^{•-} in MS-AuNCs-H₂O₂ CL reaction and could increase CL intensity.

S3. The detection results at three concentrations

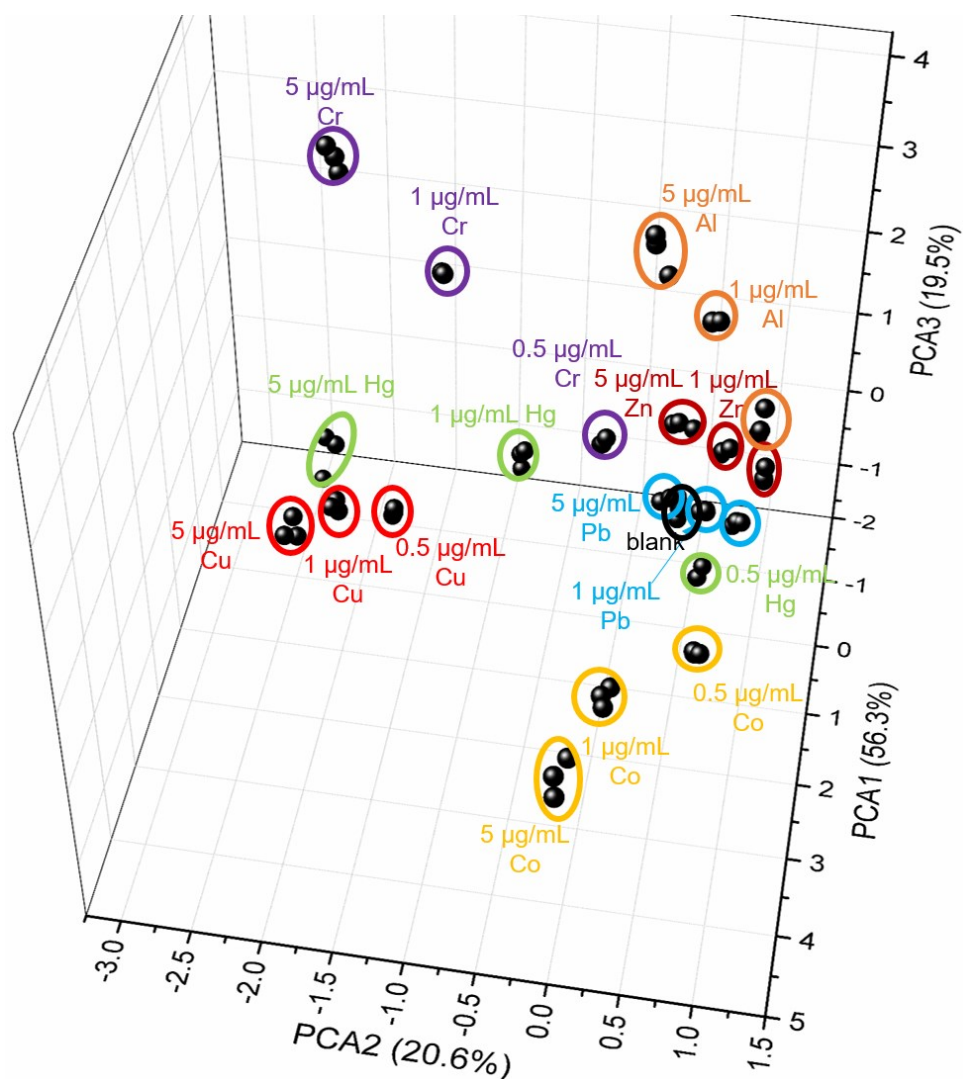


Fig S3. PCA plot for discrimination of seven heavy metal ions at three different concentrations (5.0 µg/mL, 1.0 µg/mL and 0.5 µg/mL) based on MS-AuNCs. For CL detection: $\text{H}_2\text{O}_2=5$ mM; $\text{NaOH}=0.1$ M; For FL detection, excitation wavelengths=290 nm, emission wavelength=424 nm and 598 nm.

References:

1. J. Sun, J. Zhang and Y. Jin, *J. Mater. Chem. C*, 2013, **1**, 138-143.