Supplementary Material (ESI) for Analytical Methods
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Electronic Supplementary Information

A Highly Sensitive Non-Resonant Raman Approach For Selective Cyanide Detection Based On Evaporated Cuprous Iodide Films

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Experimental details

Thermal evaporation of CuI film. The CuI thin films were vacuum evaporated to about 1000 nm upon polished silicon substrates. Evaporation was from alumina coated tungsten basket in a thermal evaporation system at 10-5 millibar (E6700, Energy Beam Sciences Inc). High-purity polycrystalline copper iodide (Sigma) was used as source material. The powdered samples were out gassed for several minutes before evaporation by preheat the powder to faint redness. Then rapid evaporation begins when the color turned darker red. The evaporation was completed in 5 min. The sample was immediately used for test.

X-ray Diffraction (XRD). The phase structures of CuI films were investigated by X-ray diffraction (XRD). X-ray diffraction was performed using Philips X'Pert PRO MRD HR X-Ray Diffraction System (Panalytical Inc). The X-ray source was Cu Kα (λ=1.5405 Å) and measurements were performed over 5º to 75º at a scanning rate of 0.05 º/s. The X-ray tube was operated at 45 kV and 40 mA. The XRD results indicate that these particles were well crystallized. The peak positions and intensities of diffraction spectra were similar and agreed well with the data of cubic structure, as reported in the Powder Diffraction File (PDF) standard card (No. 831134). Figure 1S is XRD pattern of CuI film which exhibits prominent peaks accordant with JCPDS standard of the CuI crystal. The corresponding Miller indices obtained from the x-ray data are (1 1 1), (2 0 0), (2 2 0), (3 1 1) and (2 2 2).

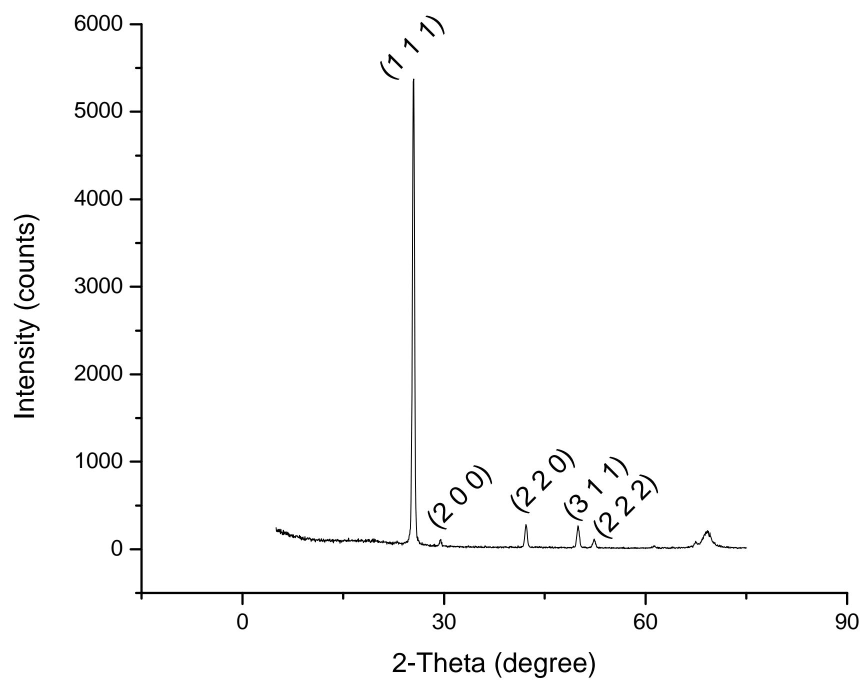

Fig. 1S. X-ray diffraction spectrum of CuI film coated on silicon substrate.