

Reusable Surface Enhanced Raman Spectroscopy Substrates Made of Silicon Nanowire Array Coated with Silver Nanoparticles Fabricated by Metal Assisted Chemical Etching and Photonic Reduction

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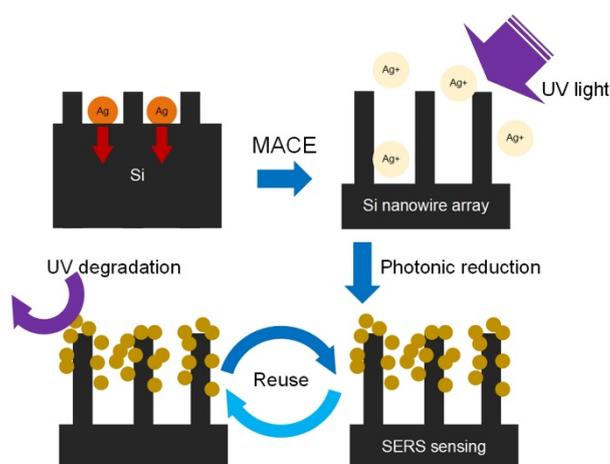


Figure S1. Schematic diagram of fabrication of silicon nanowire array coated with silver nanoparticles SERS substrate with high sensitivity and reusability by MACE and successive photonic reduction.

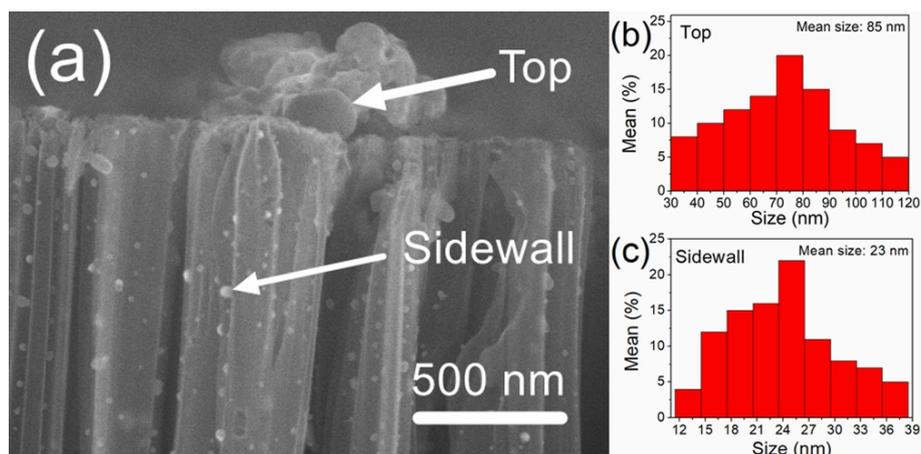


Figure S2. (a) SEM image of silicon nanowire array coated with silver nanoparticles by UV irradiation for 10 min. (b) and (c) The size distribution of Ag nanoparticle on the top surface and sidewall of nanowire array.

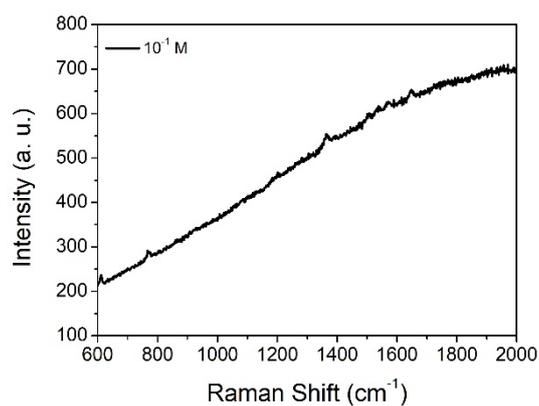


Figure S3. The Raman spectrum of R6G on silicon wafer. The concentration of R6G is 10⁻¹M.

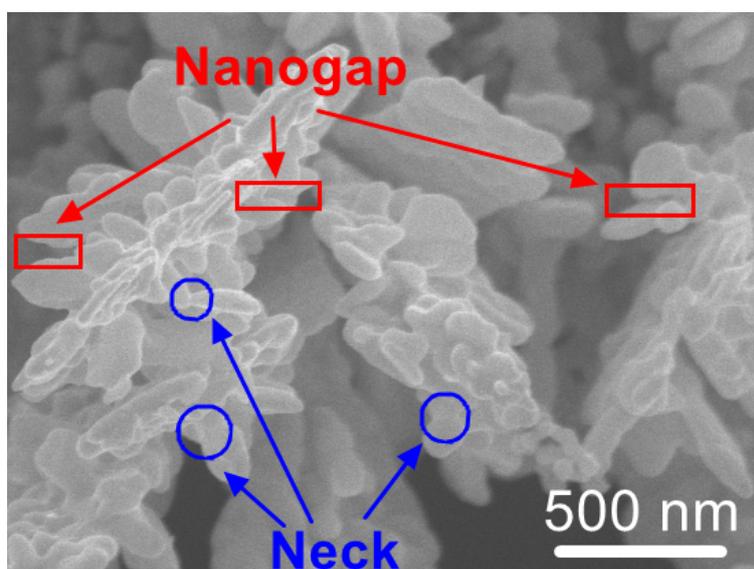


Figure S4. SEM image of branched silver dendrites. The nanogaps and neck areas on branched silver dendrites are marked by red rectangles and blue circles, respectively.

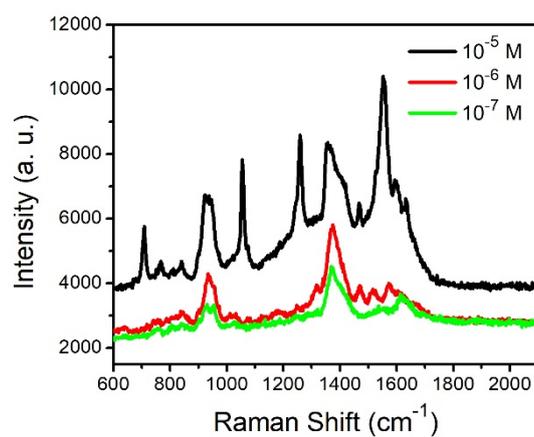


Figure S5. SERS spectra of DA solutions with different concentrations on silicon nanowires coated with silver nanoparticles. The laser power for DA Raman measurement is 0.05 mW.

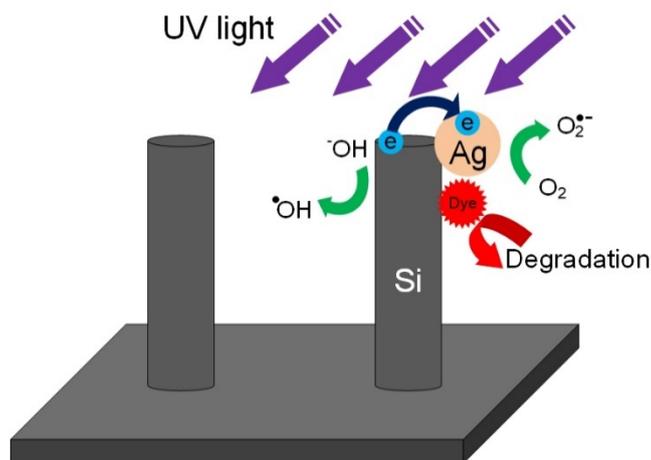


Figure S6. Schematic diagram of photocatalytic degradation of dye molecule on Ag NP/Si NW substrate by UV light irradiation.

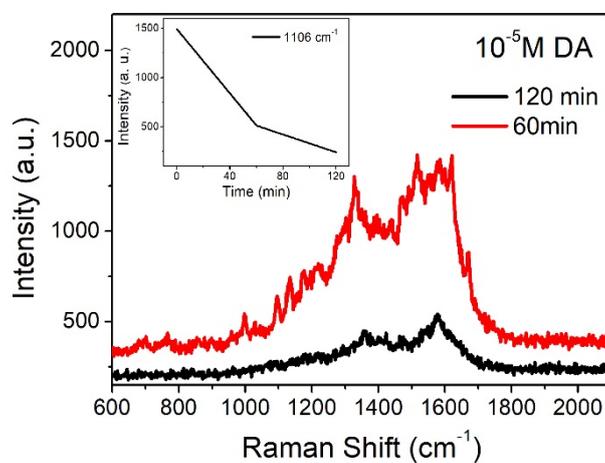


Figure S7. The Raman spectrum of DA on Ag-NP/Si-NW array SERS substrate after 60 min and 120 min UV photodegradation. The concentration of DA is 10^{-5} M. Insert: The variation of Raman peak intensity at 1106 cm^{-1} treated by UV photodegradation.

