



Supplementary Materials

The Geometry of Nanoparticle-on-Mirror Plasmonic Nanocavities Impacts Surface-Enhanced Raman Scattering Backgrounds

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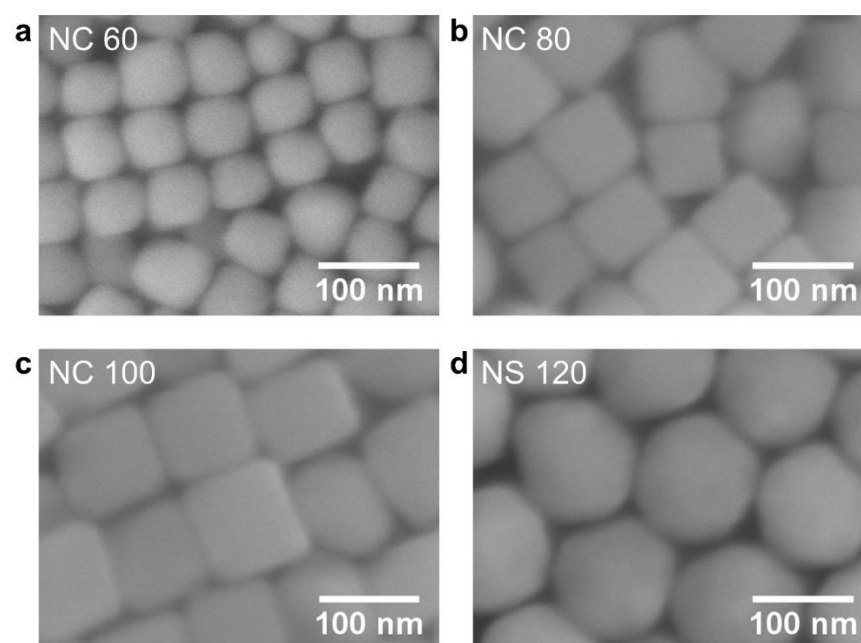


Figure S1. Scanning Electron Microscope (SEM) images of Au nanocubes and Au nanospheres for (a) NC 60, (b) NC 80, (c) NC 100, and (d) NS 120.

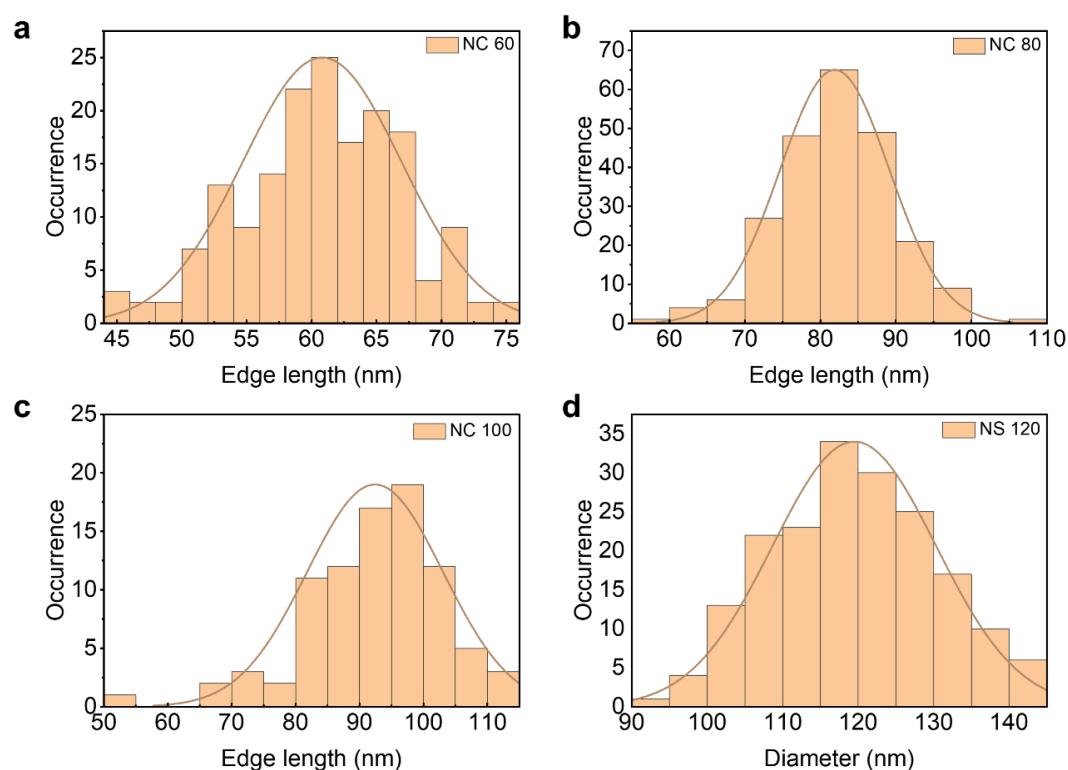


Figure S2. Size distribution of Au nanocubes and nanospheres. **(a)** NC 60 has a size distribution centered at 60.81 nm with a width of 6.13 nm; **(b)** NC 80 has a size distribution centered at 81.90 nm with a width of 7.24 nm; **(c)** NC 100 has a size distribution centered at 92.43 nm with a width of 10.64 nm; **(d)** The nanospheres has a size distribution centered at 119.49 nm with a width of 10.84 nm.

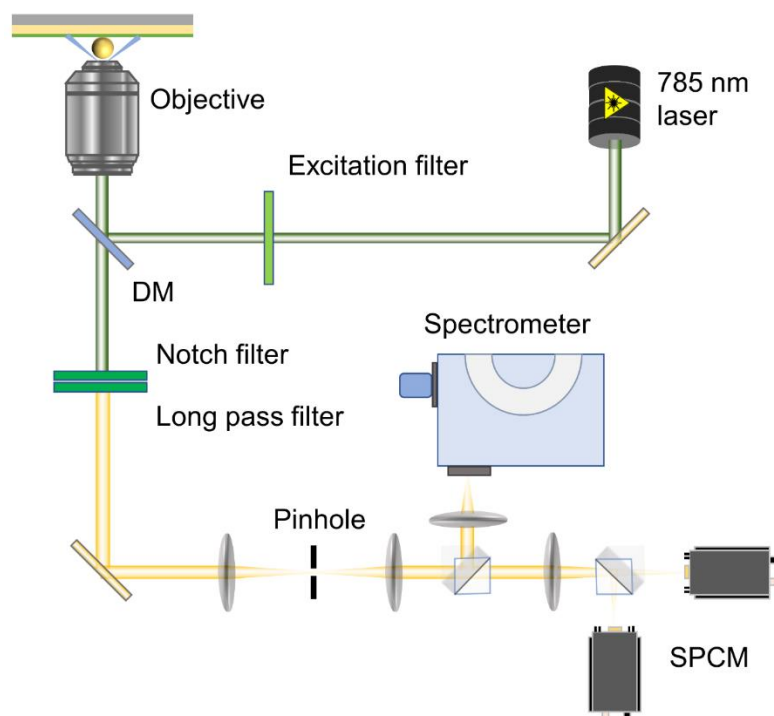


Figure S3. Schematic of the experimental setup for surface-enhanced Raman scattering.

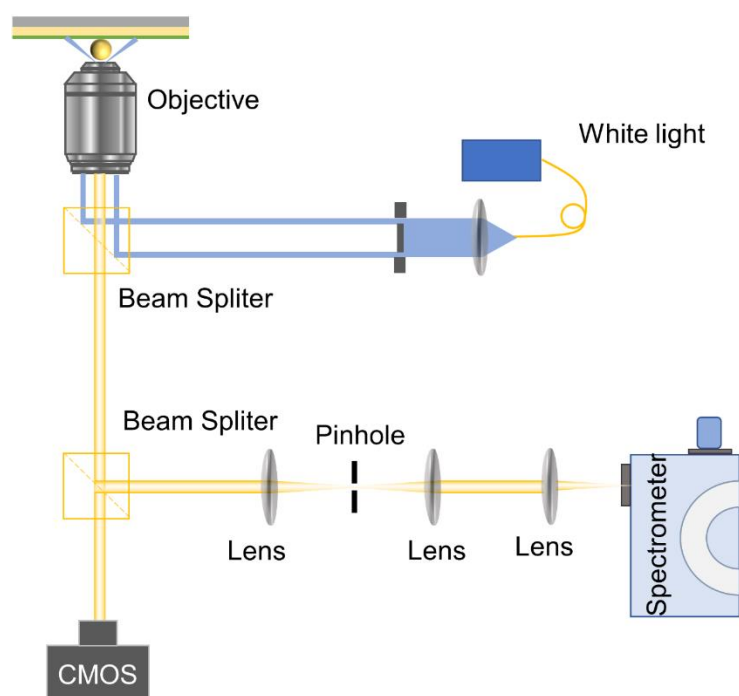


Figure S4. Schematic of the experimental setup for dark-field scattering spectroscopy.

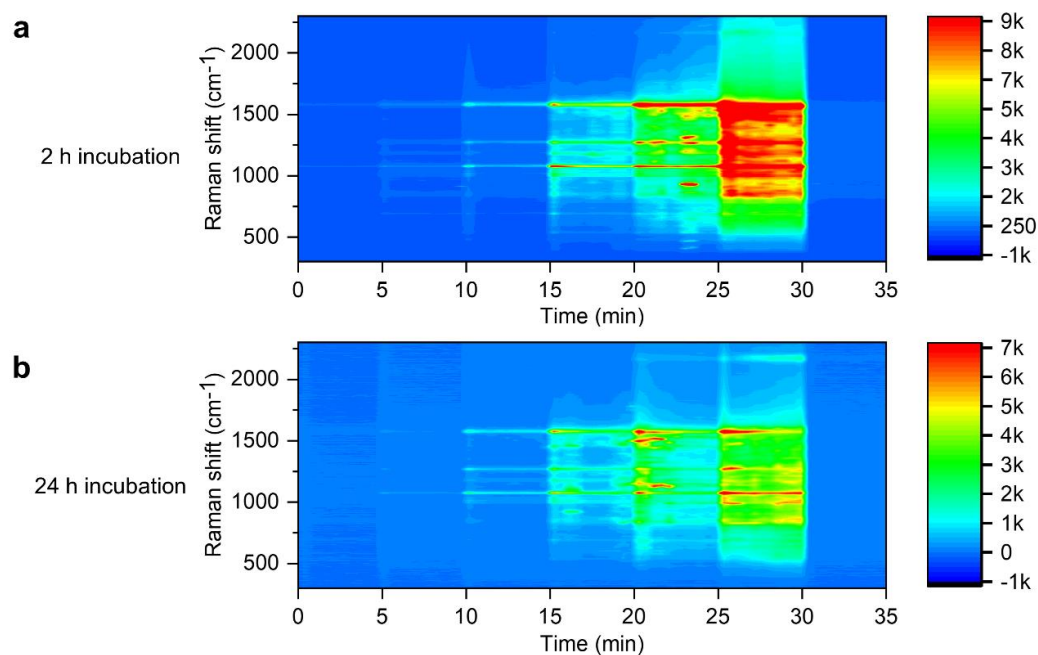


Figure S5. Typical evolution of SERS spectra of spacer molecules prepared with 2 h (a) and 24 h (b) incubation time, among NS 120 plasmonic nanocavity systems, upon laser exposure with laser power of 26.4 μW (initial), 129.4 μW , 564 μW , 1.38 mW, 2.25 mW, 4.5 mW, and 26.4 μW (final). The acquisition time for each power is 5 min.

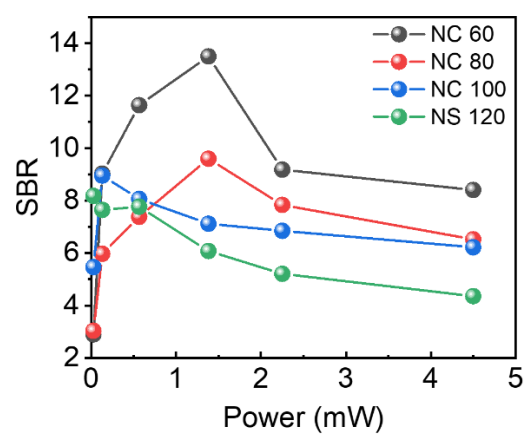


Figure S6. Laser power-dependent SBR of the SERS spectra averaged over all the investigated samples of BPhT molecules in NPoM plasmonic nanocavities with nanoparticle geometries of NC 60, NC 80, NC 100, and NS 120.