Supplementary Information for:

Tunable Lattice Coupling of Multipole Plasmon Modes and Near-Field Enhancement in Closely Spaced Gold Nanorod Arrays

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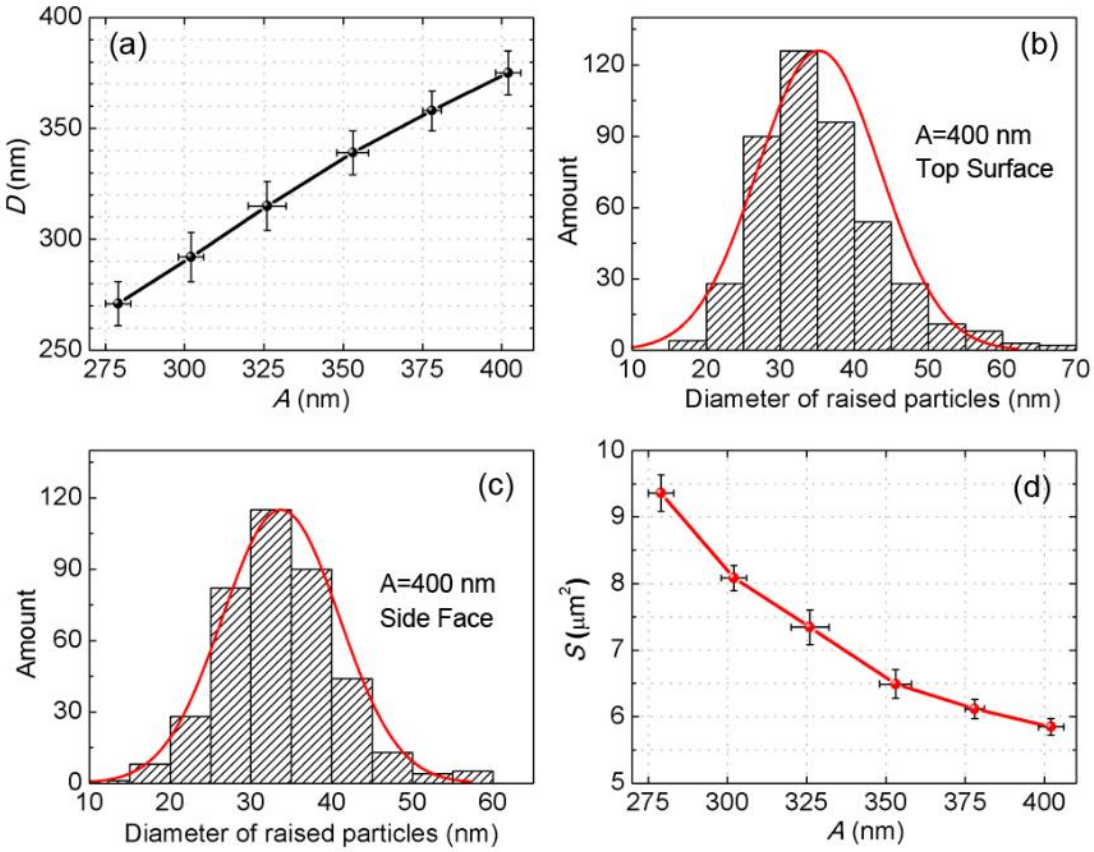
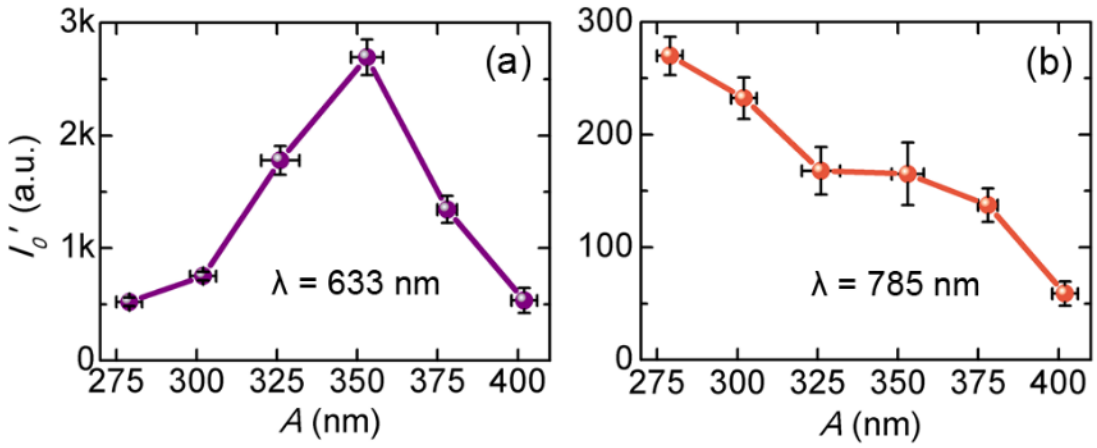


Supplementary Figure S1 | Sizes of fabricated gold nanorod arrays. (**a**) Diameter *D* of the nanorod in fabricated arrays. *A* is the pre-set array periodicity. Error bars are the standard deviations. (**b,c**) Distributions of the diameter of raised particles on the top surface and side face in array *A* = 400 nm. (**d**) Estimations of the total surface area of the nanorods on 1× 1 μm^2. Error bars are respectively uncertainties of total surface area *S* and standard deviations of *A*.



Supplementary Figure S2 | Average SERS intensity I_0' of 612 cm^{-1} band. (**a**) 633 nm excitation. (**b**) 785 nm excitation. Error bars are the standard deviations.

Supplementary Movie S1 | Three dimensional surface charge distributions within one oscillation for Fig. 1e: array h = 300 nm, D = 300 nm, d = 10 nm, λ = 675 nm, the lattice coupling of six-pole plasmon modes.