# Electronic Supplementary Information

## Self-assembled Structures of Polyhedral Gold Nanocrystals: Shape-directive arrangement and Structure-dependence Plasmonic Enhanced Characteristics

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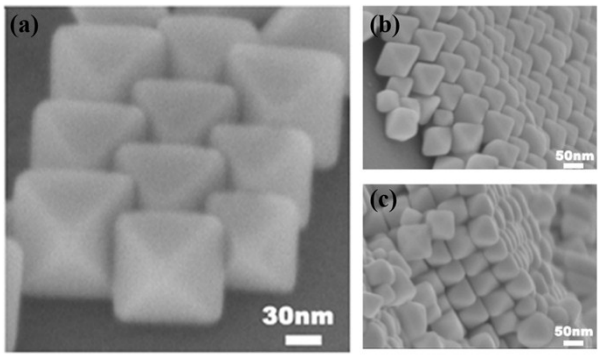


**Fig. S1** The side view SEM images of (a) local magnification, (b) single layer and (c) multilayer self-assembled structures of octahedral Au NCs

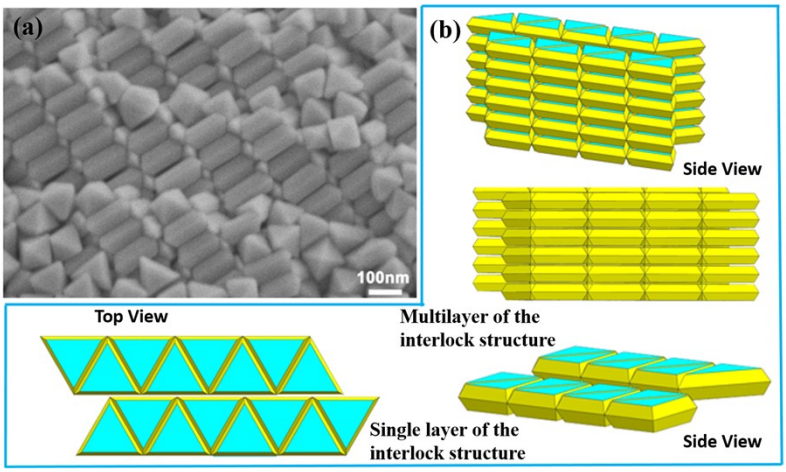


**Fig. S2** SEM image of self-assembled structures of truncated bitetrahedral Au NCs (a) and schematic 3D constructive models of assembly pattern of the building blocks (b)

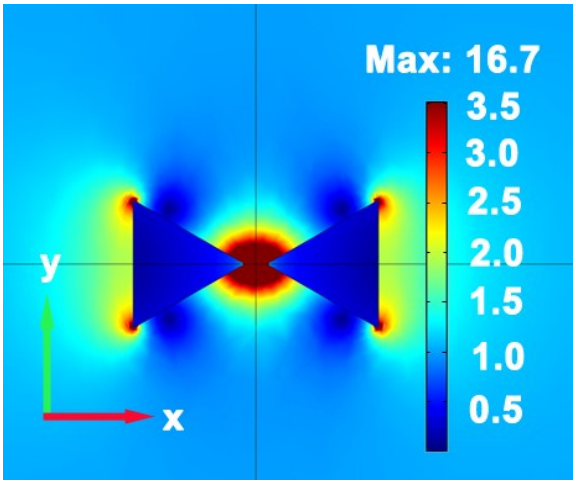


**Fig. S3**. The distributions of electric field of bowtie nanostructure under the incident plane-wave with the 785nm wavelength and the polarization direction along x axis.

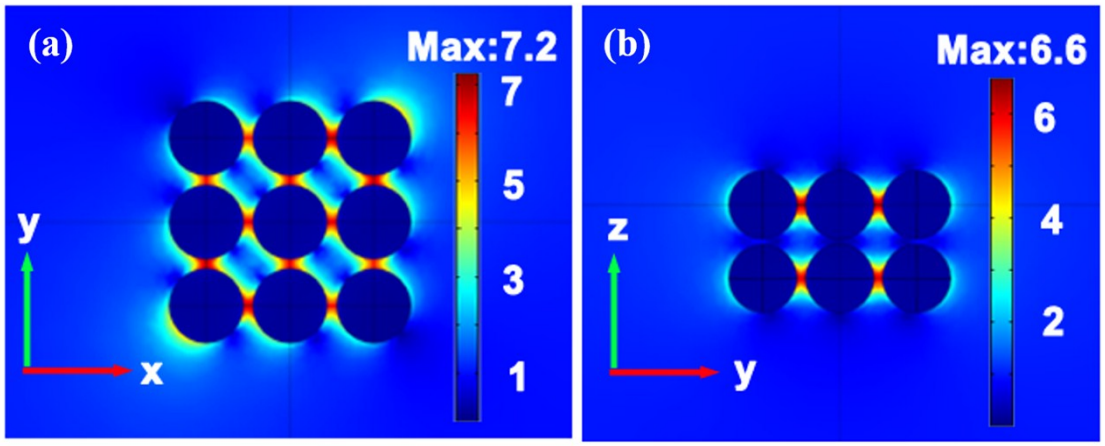


**Fig. S4** The distributions of electric fields of Au nanosphere arrays in (a) x-y plane and (b) y-z plane. Au nanosphere with a diameter of 80nm and the incident plane-wave with the 785nm wavelength and the polarization direction along x axis.