Supporting information for: Control of Electric Field Localisation by Three-Dimensional Bowtie Nanoantennae

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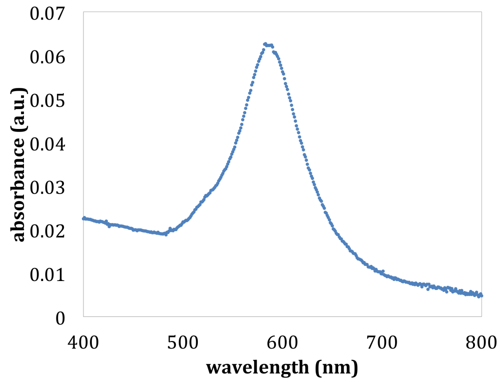

Figure S1: Ensemble UV-visible spectrum of chemically synthesized nanotriangle colloid.

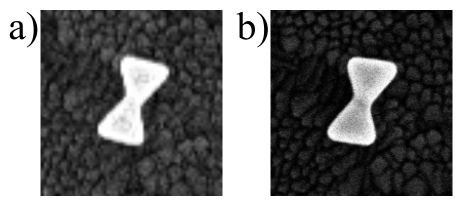

Figure S2: SEM images of a bowtie taken at a) t=0, and b) t=2 years.

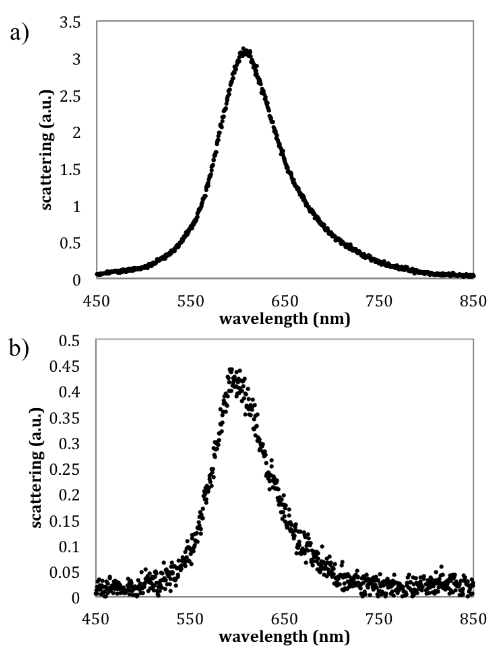

Figure S3: Scattering spectra of monomer nanotriangles with edge lengths of (a) 90 nm and (b) 75 nm.

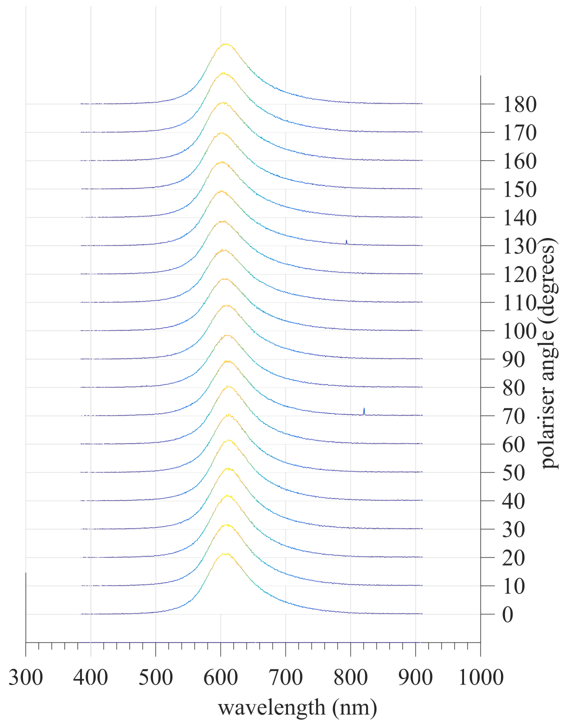

Figure S4: Polarized scattering spectra of a monomer nanotriangle with an edge length of 90 nm, spectra collected at 10° increments over 180°.

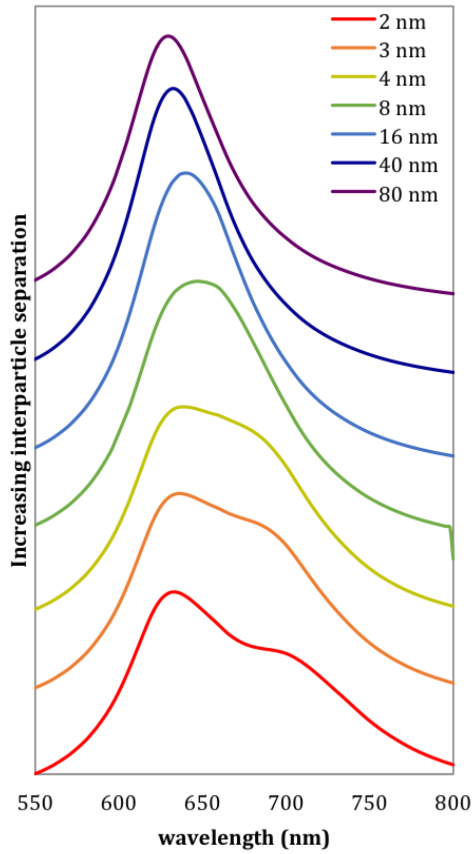

Figure S5: DDA simulated spectra for bowties with varying interparticle separations. The triangles have a chemically synthesized morphology and edge length of 80 nm. The shapes were constructed using 270358 dipoles.

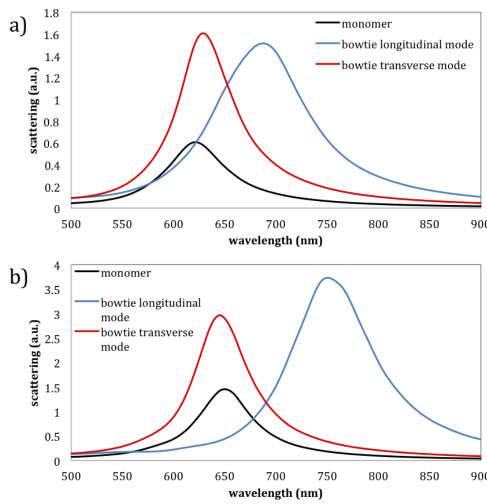

Figure S6: DDA simulated scattering spectra of a monomer nanotriangle and a bowtie-oriented dimer when the morphology is (a) chemically synthesized, and (b) plate-like. The interparticle separation for these dimers is 3 nm.

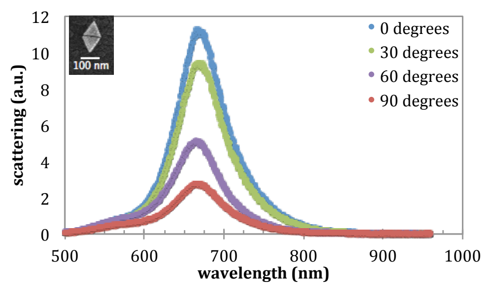

Figure S7: Polarized scattering spectra of an inverted bowtie with an edge-edge offset of 1% (SEM image inset). 0° corresponds to the longitudinal axis.

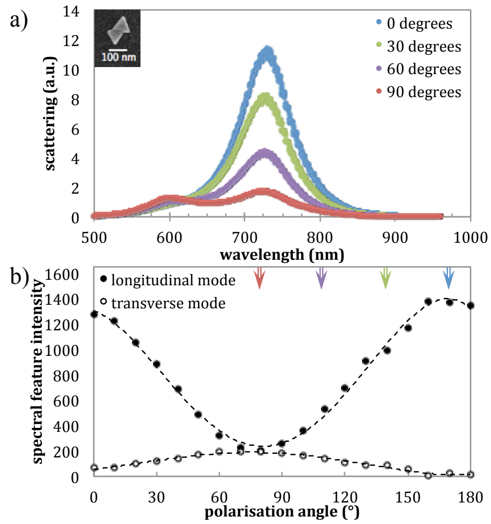

Figure S8: (a) Polarized scattering spectra of a nanotriangle dimer with an edge-edge offset of 44% (SEM image inset) where 0° corresponds to the longitudinal axis. (b) Area of the longitudinal and transverse resonances as a function of excitation polarization for the dimer shown in (a). The coloured arrows in (b) represent the polarization angles of the scattering spectra shown in (a).

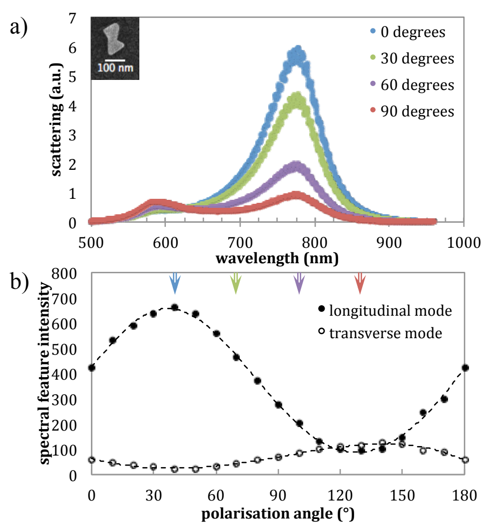

Figure S9: (a) Polarized scattering spectra of a nanotriangle dimer with an edge-edge offset of 65% (SEM image inset) where 0° corresponds to the longitudinal axis. (b) Area of the longitudinal and transverse resonances as a function of excitation polarization for the dimer shown in (a). The coloured arrows in (b) represent the polarization angles of the scattering spectra shown in (a).

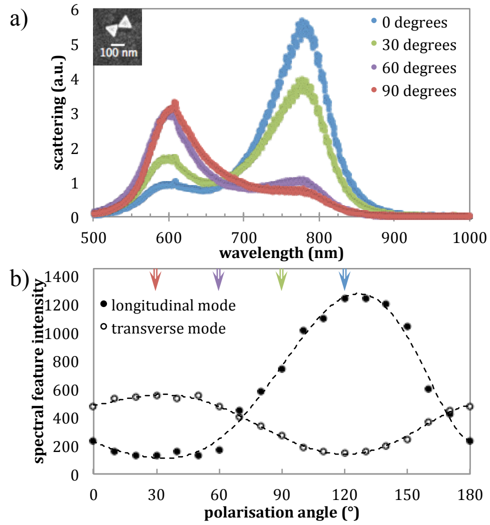

Figure S10: (a) Polarized scattering spectra of a nanotriangle dimer with an edge-edge offset of 75% (SEM image inset) where 0° corresponds to the longitudinal axis. (b) Area of the longitudinal and transverse resonances as a function of excitation polarization for the dimer shown in (a). The coloured arrows in (b) represent the polarization angles of the scattering spectra shown in (a).

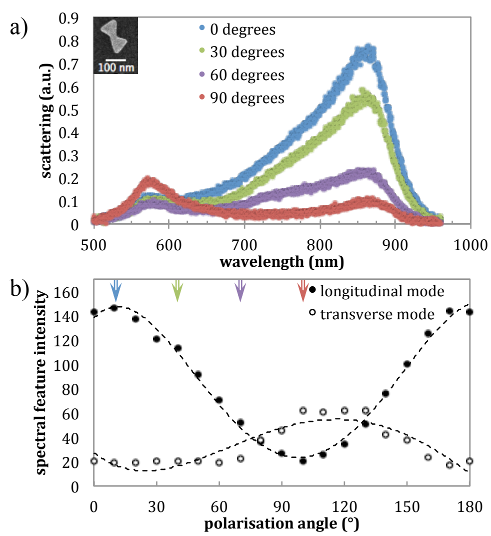

Figure S11: (a) Polarized scattering spectra of a nanotriangle dimer with an edge-edge offset of 86% (SEM image inset) where 0° corresponds to the longitudinal axis. (b) Area of the longitudinal and transverse resonances as a function of excitation polarization for the dimer shown in (a). The coloured arrows in (b) represent the polarization angles of the scattering spectra shown in (a).

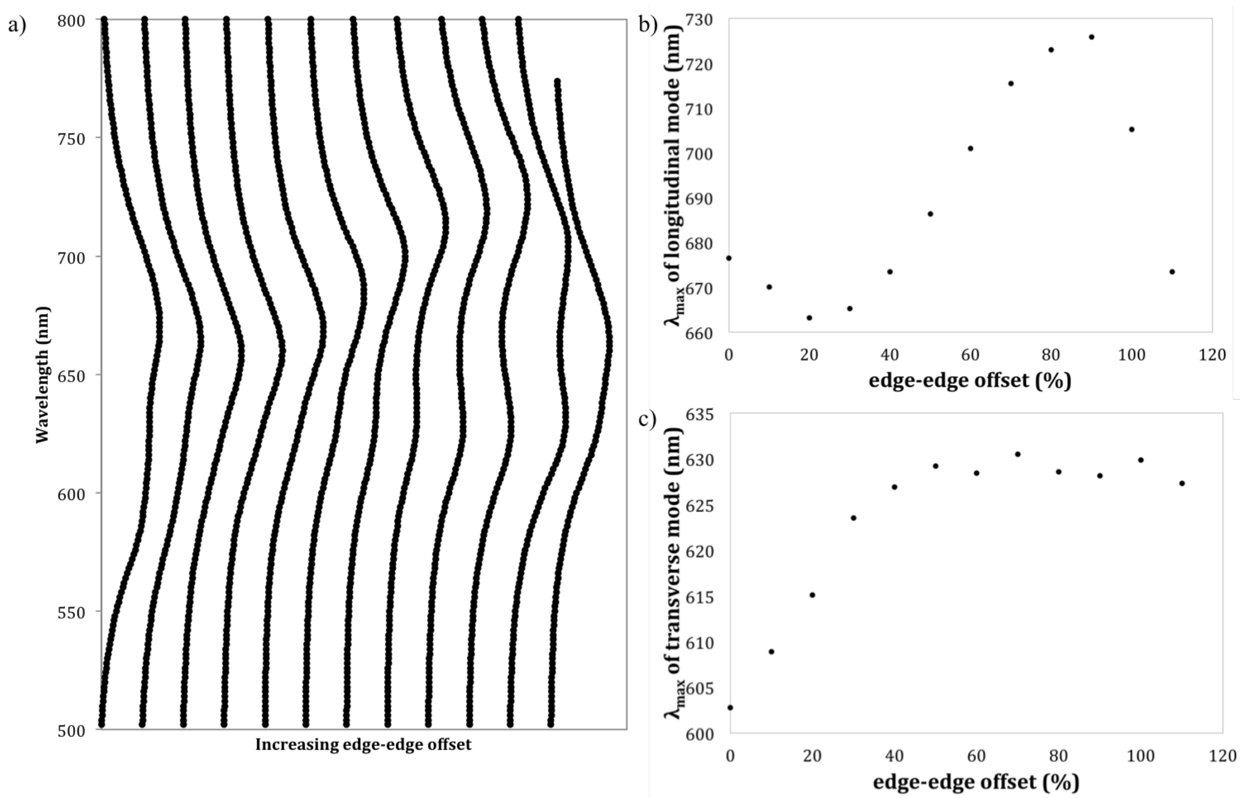

Figure S12: (a) Simulated (DDA) spectra for gold nanotriangle dimers with edge-edge offsets in the range 0-110% at 10% increments. (b) The evolution of wavelength in the longitudinal mode for the spectra in (a). (c) The evolution of the wavelength of the transverse mode for the spectra noted in (a). The wavelengths of (b) & (c) were characterized by deconvolving the spectra in (a).

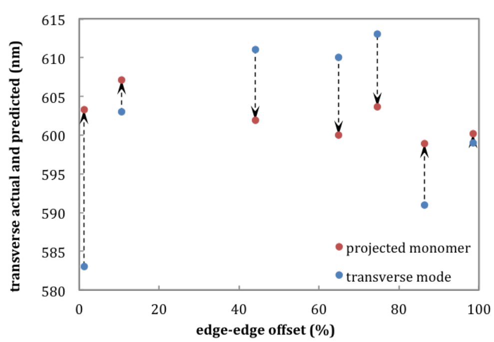

Figure S13: (blue) The wavelength of the transverse mode as a function of edge-edge offset percentage in nanotriangle dimers. (red) The projected wavelength of monomer nanotriangles of equivalent size. The projected wavelength was calculated by assuming a linear relationship between size and wavelength using the experimentally obtained 75 nm and 90 nm nanotriangles shown in figure S3.