

Electronic Supplementary Information

Supporting Figures

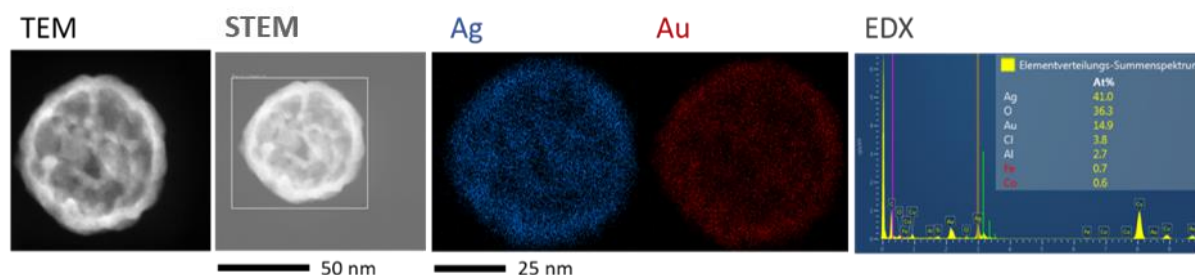


Fig. S1. STEM-EDX measurement of single Ag/Au nanoshells. The Ag/Au nanoshell monomer consists of 73% Ag and 27% Au. The shell thickness is around 5-6 nm and the particle diameter about 65 nm.

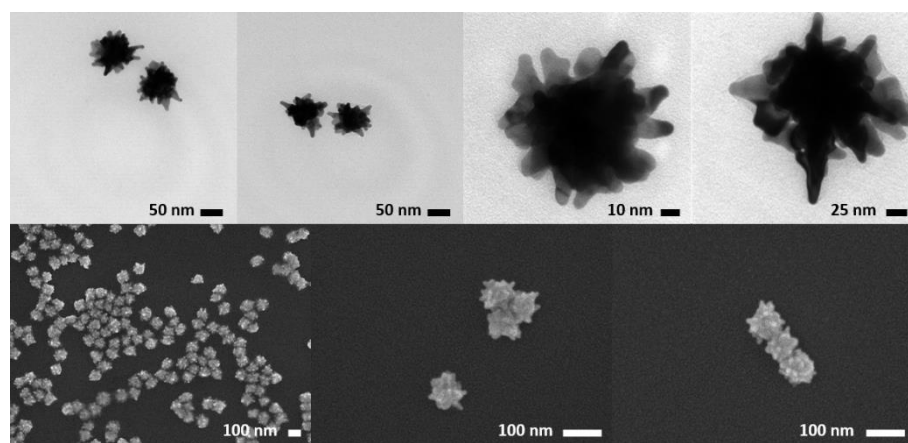


Fig. S2. SEM and TEM images of Au nanostars.

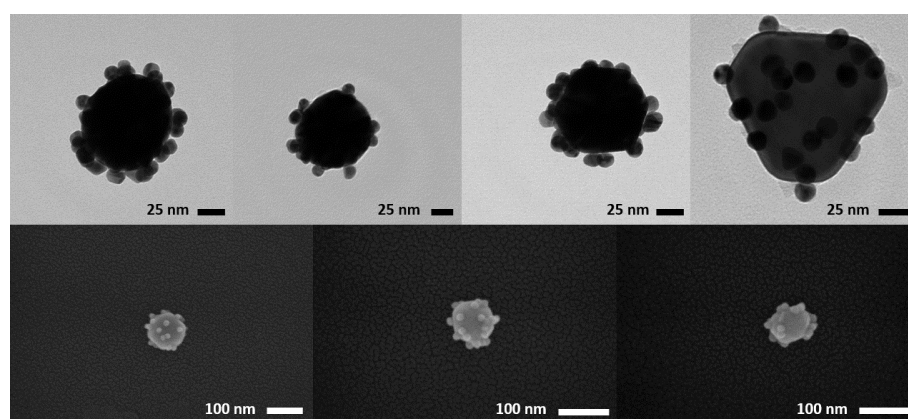


Fig. S3. SEM and TEM images of Au/Au superstructures.

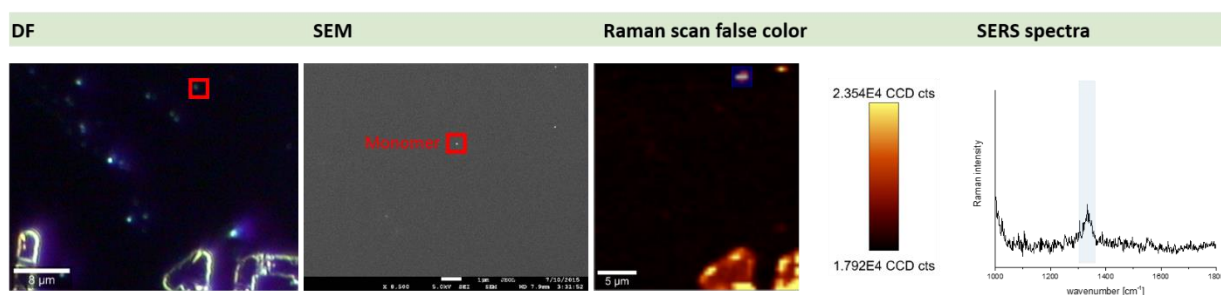


Fig. S4. SP experiments with Au nanostars and 4-NTB-MEG-OH as Raman marker. To emphasize SERS activity of a single Au nanostar, another type of Raman reporter is used. The Raman band of the nitro group appears significantly at 1340 cm^{-1} . Single Au nanoparticle and single Au/Ag nanoshells with 4-NTB-MEG-OH Raman marker show no SERS activity at all. Raman mapping was performed with a 100x DF objective (220 μW , 0.5 s, 632.8 nm laser excitation wavelength).

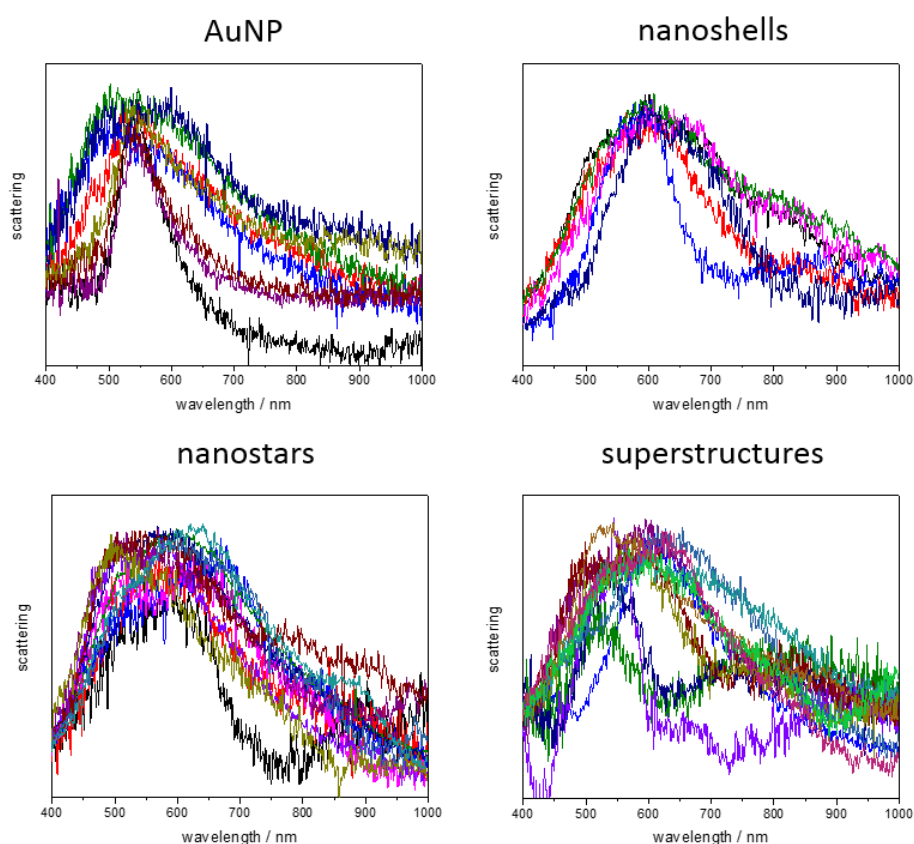


Fig. S5. Further additional DF scattering/LSPR spectra of individual AuNP, Au/Ag nanoshells, Au nanostars and Au/Au supraparticles.

Tab. T1 FEM computer simulations based on the parameters listed in the table.

	Au NP	Ag/Au nanoshell	Au nanostar	Au/Au supraparticle
Diameter	55 nm	$d_{\text{in}} = 57\text{ nm}$ $d_{\text{out}} = 67\text{ nm}$	ca. 80-100 nm	ca. 110 nm
Surface area with Ra	7654 nm^2	14103 nm^2	26503 nm^2	18151 nm^2
N_{tips/satellites}	-	-	26	30

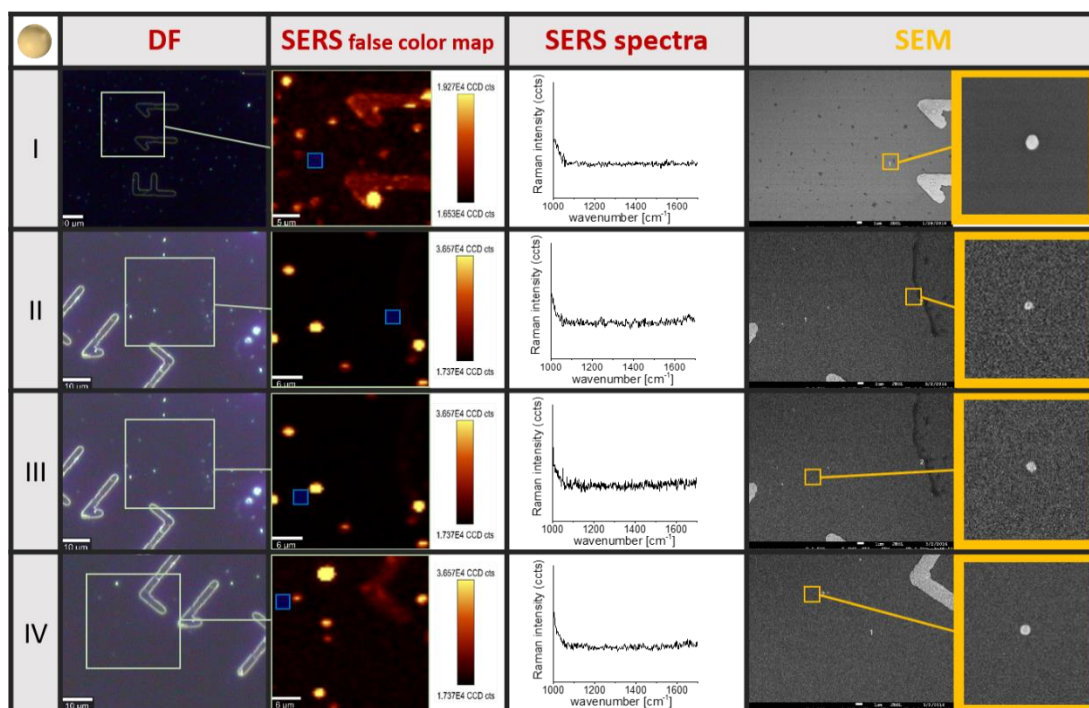


Fig. S6. Correlative SP SERS/SEM experiments of Au nanospheres.

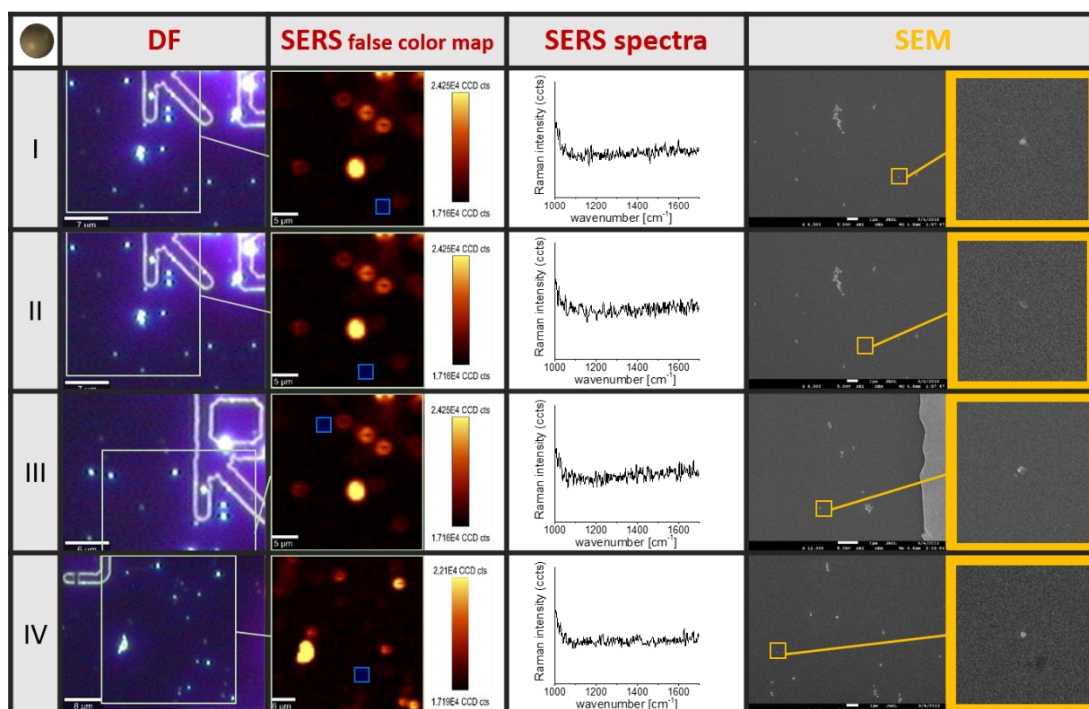


Fig. S7. Correlative SP SERS/SEM experiments of Au/Ag nanoshells.

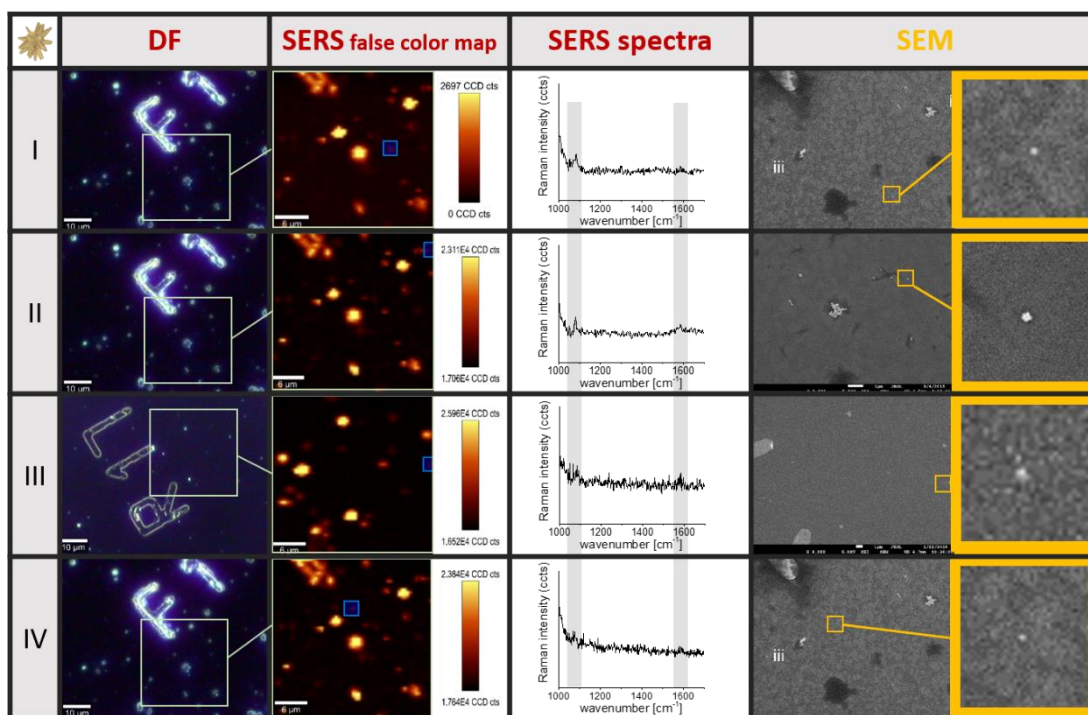


Fig. S8. Correlative SP SERS/SEM experiments of Au nanostars.

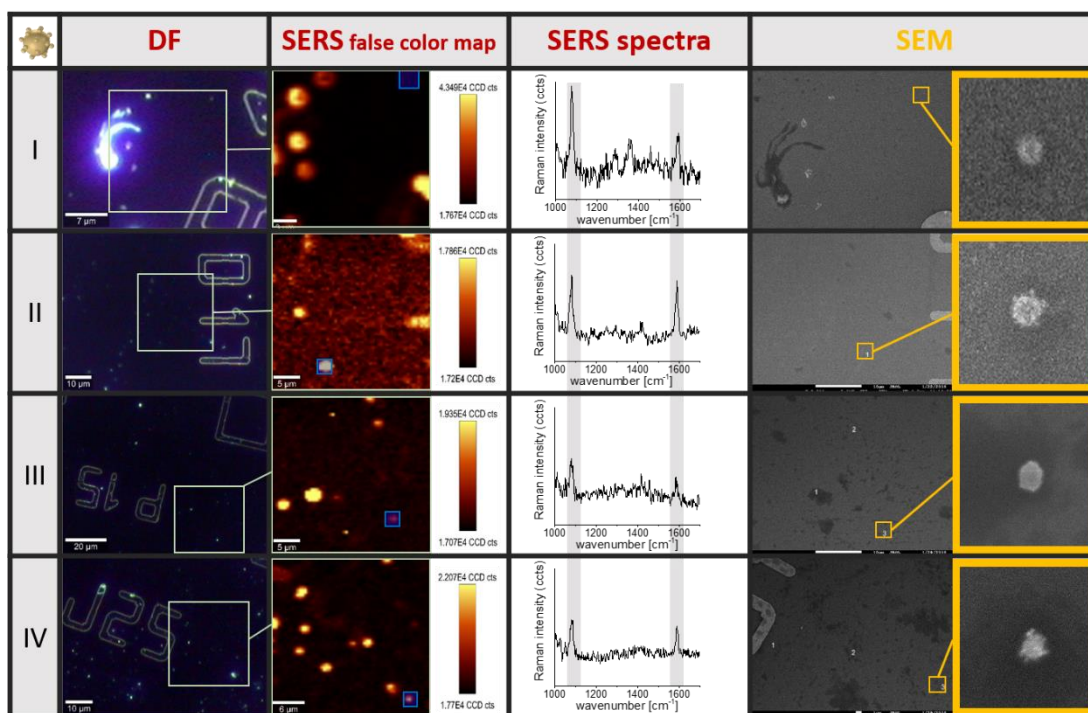


Fig. S9. Correlative SP SERS/SEM experiments of Au/Au core/satellite nanoparticles.

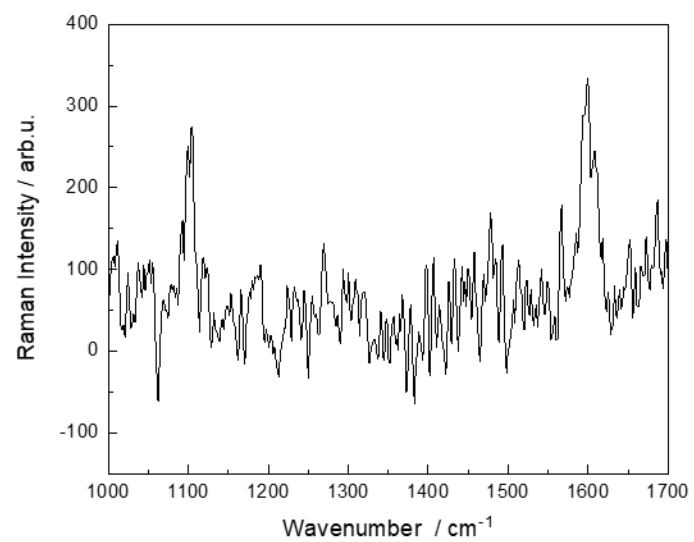


Fig. S10. Raman spectrum of 4-MBA in solution.