Supplementary Materials

The Shape Modulation of Laser-Induced Nanowelded Microstructures Using Two Colors

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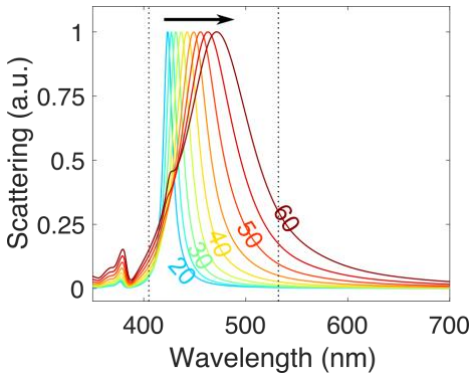

Figure S1. Calculated scattering spectra of single AgNPs of different sizes (20 – 60 nm) using the MNPBEM17 toolbox [1–3], where red shifts are revealed for larger AgNPs.

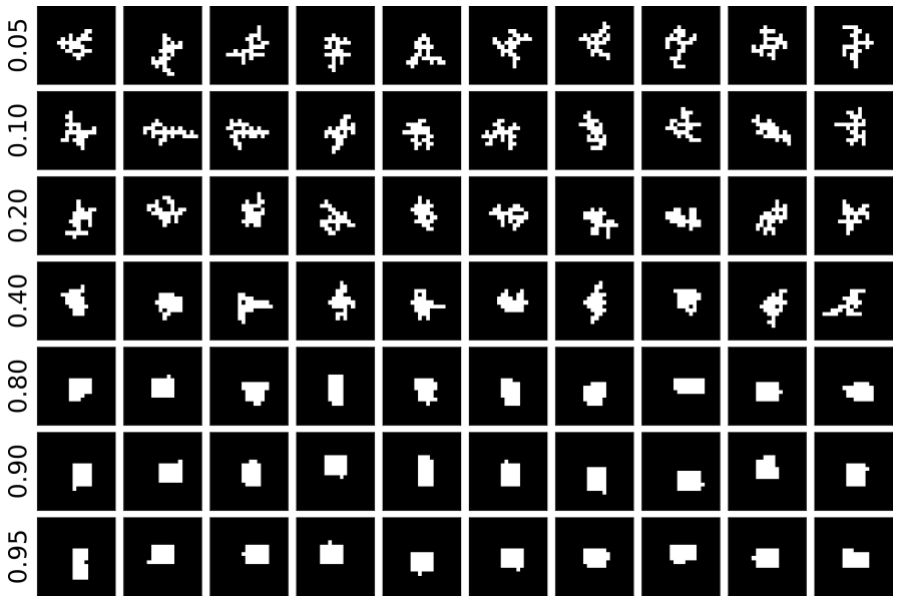

Figure S2. Representative shapes (randomly chosen from 1000 simulations) of nanowelded microstructures with different P_m values ranging from 0.05 to 0.95.

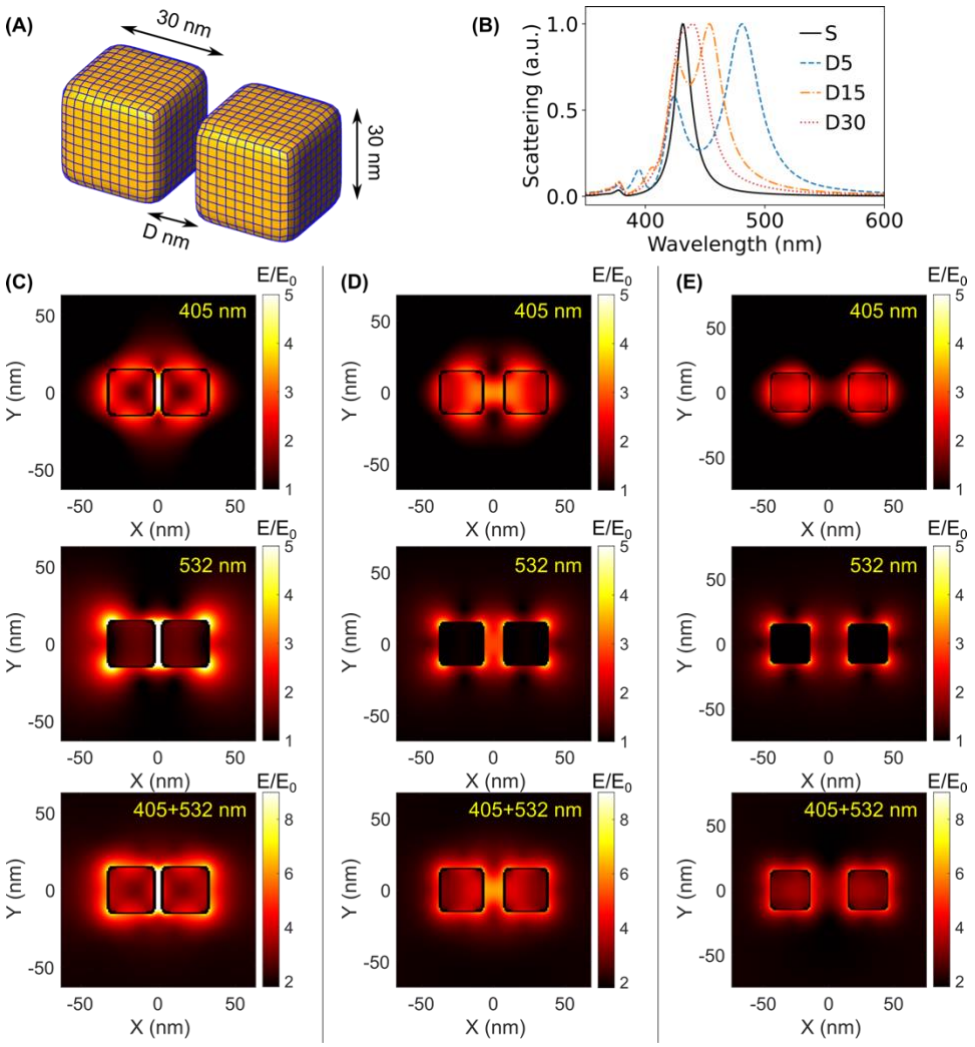

Figure S3. (**A**) Geometry of two AgNPs separated by D nm. (**B**) Calculated scattering spectra (rescaled) of two AgNP with different separation distances of D = 5, 15, and 30 nm, using the MNPBEM17 toolbox [1–3]. S indicates the spectrum of a single AgNP. (**C, D, E**) Calculated electric field enhancement of the two AgNPs when illuminated with (top) only a 405 nm laser, (middle) only a 532 nm laser, and (bottom) both the 405 and 532 nm lasers, with different separation distances (panel **C**: D = 5 nm, panel **D**: D = 15 nm, panel **E**: D = 30 nm) using the MNPBEM17 toolbox [1–3].

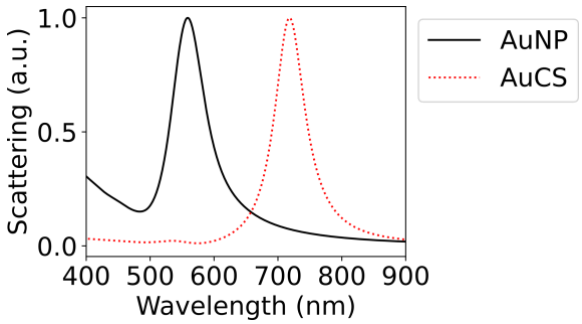

Figure S4. Calculated scattering spectra of a single gold nanoparticle (AuNP) and a cross-shaped gold microstructure (AuCS) using the MNPBEM17 toolbox [1–3].

References

1. Hohenester, U.; Trügler, A. MNPBEM – A Matlab Toolbox for the Simulation of Plasmonic Nanoparticles. *Computer Physics Communications* **2012**, *183*, 370–381, doi:10.1016/j.cpc.2011.09.009.
2. Waxenegger, J.; Trügler, A.; Hohenester, U. Plasmonics Simulations with the MNPBEM Toolbox: Consideration of Substrates and Layer Structures. *Computer Physics Communications* **2015**, *193*, 138–150, doi:10.1016/j.cpc.2015.03.023.
3. Hohenester, U. Simulating Electron Energy Loss Spectroscopy with the MNPBEM Toolbox. *Computer Physics Communications* **2014**, *185*, 1177–1187, doi:10.1016/j.cpc.2013.12.010.