

Electronic Supplementary Information

Controlling Raman enhancement in particle-aperture hybrid nanostructures by interlayer spacing

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1. Supplementary SEM images

Figures S1– S4 show representative large-scale SEM images of the Ag particle-aperture patterns at 12 nm and 50 nm spacer thicknesses.

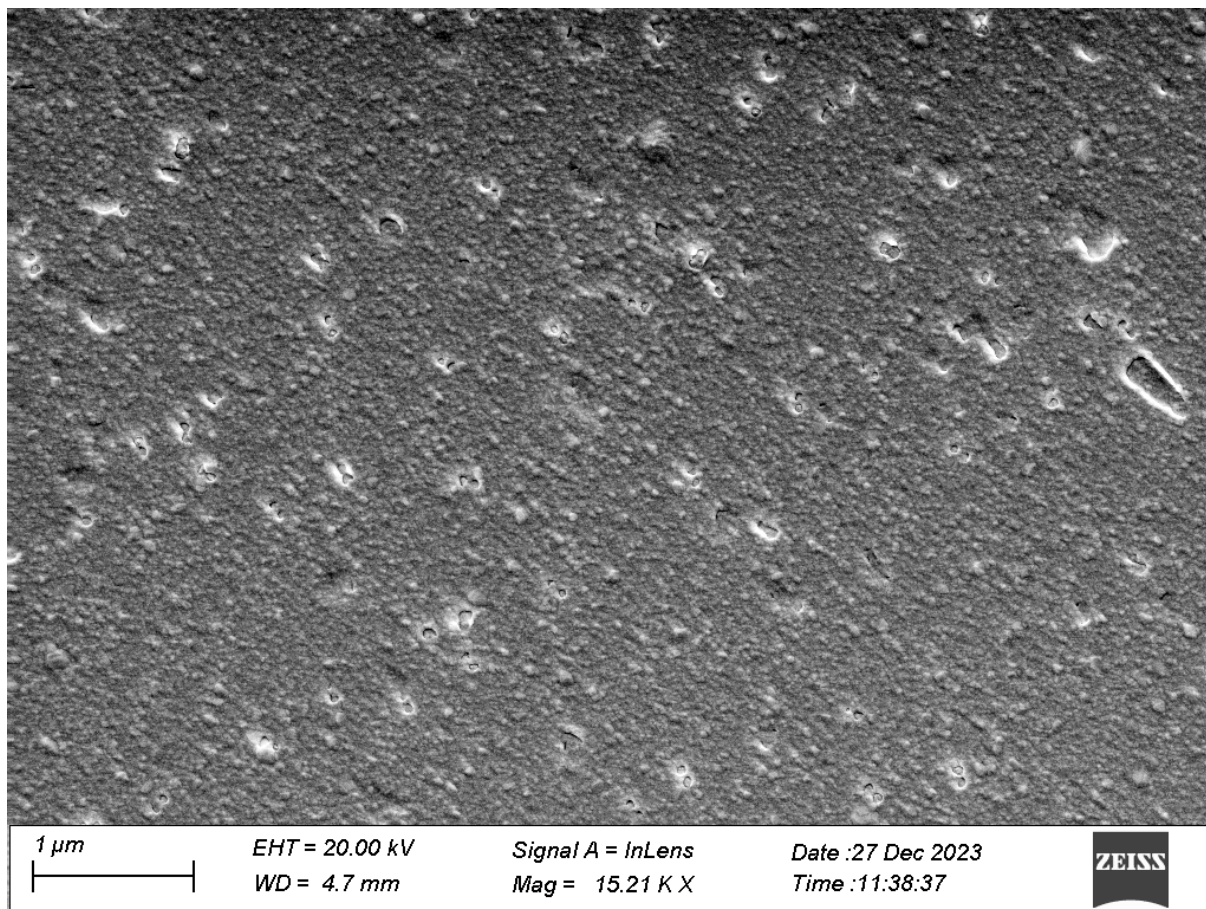


Figure S1. Large-scale SEM image of the particle-aperture patterns with a 12 nm spacer layer.

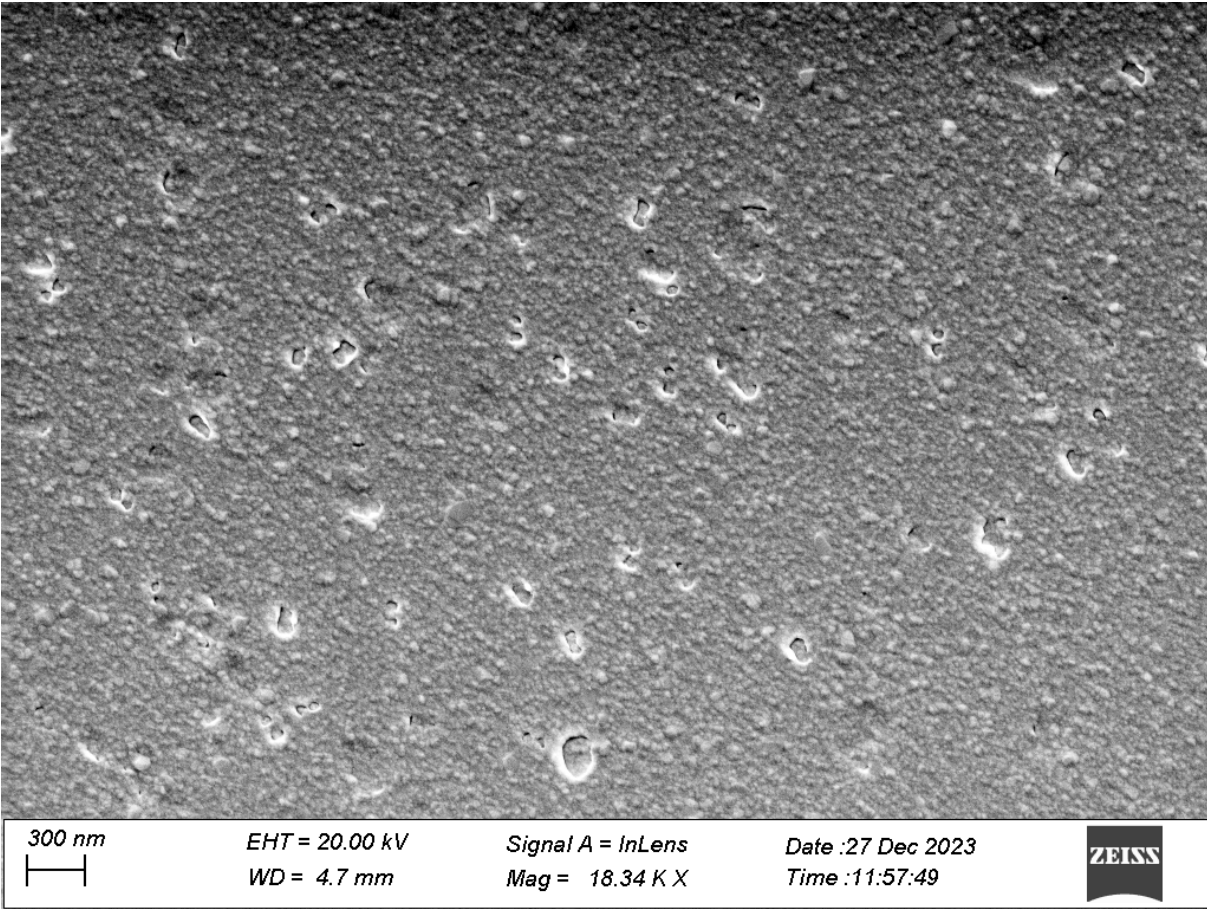


Figure S2. Large-scale SEM image of the particle-aperture patterns with a 12 nm spacer layer.

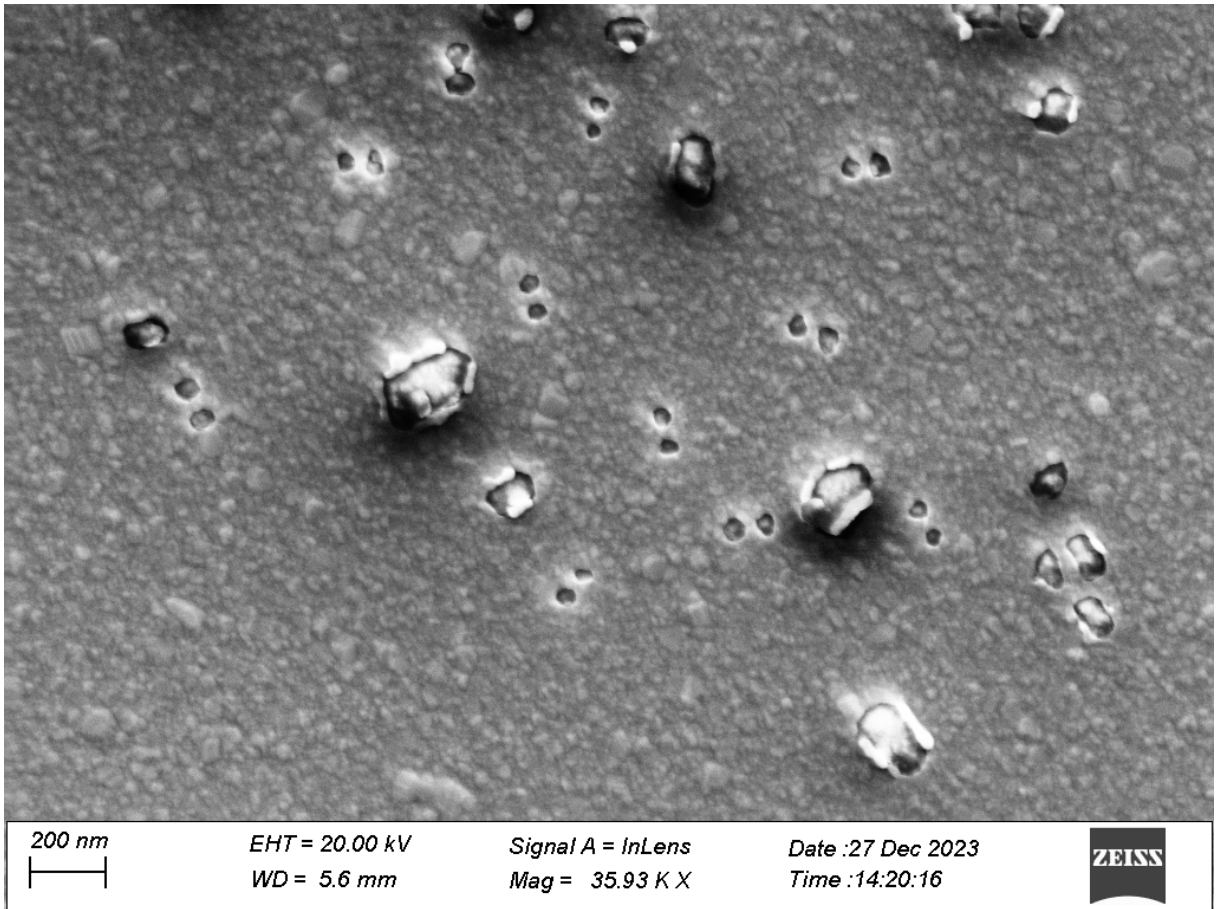


Figure S3. Large-scale SEM image of the particle-aperture patterns with a 50 nm spacer layer.

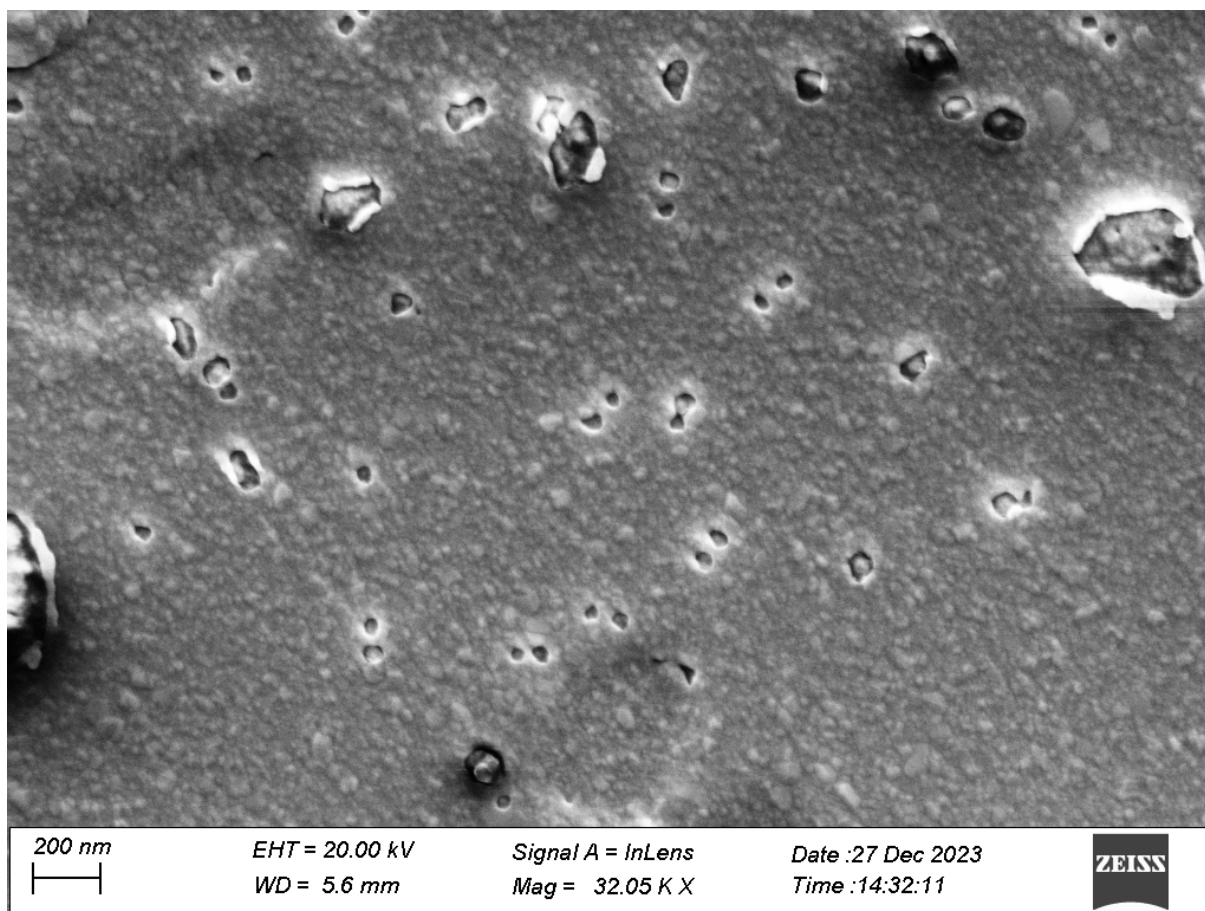


Figure S4. Large-scale SEM image of the particle-aperture patterns with a 50 nm spacer layer.

2. Additional FDTD simulations

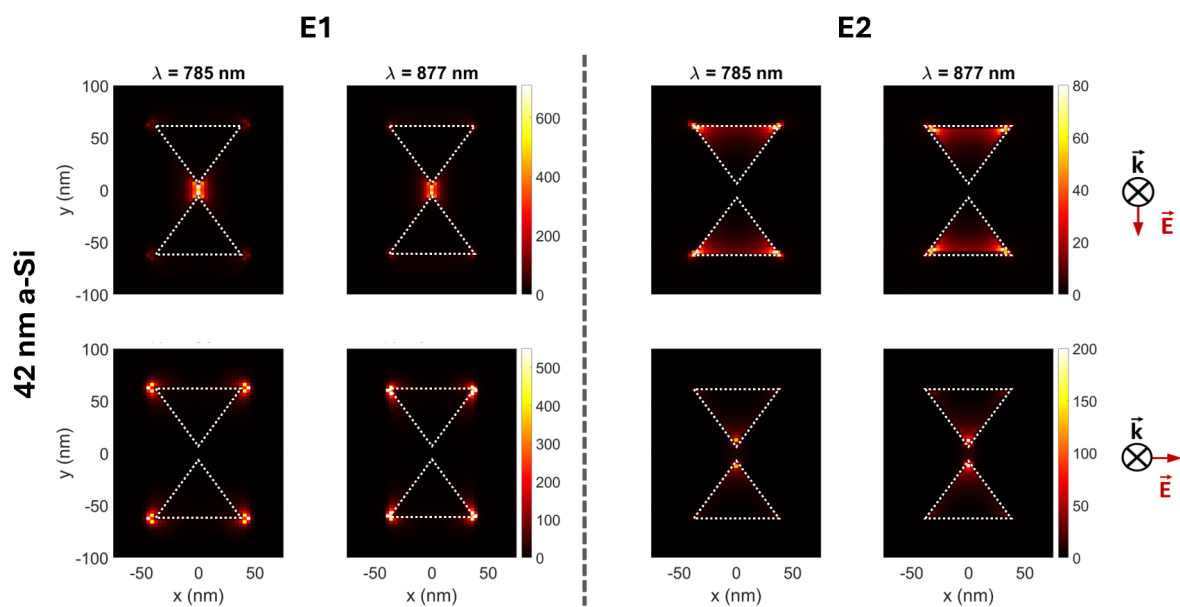


Figure S5. FDTD simulations showing electric field intensity profiles for a sample with 42 nm a-Si spacer thickness at different polarization directions. E1 and E2 correspond to the planes indicated in main article Fig. 1. Top row shows the field enhancements with y-polarization and the bottom row with x-polarization. Left column corresponds to the wavelength of 785 nm (Raman laser wavelength) and the right column to 877 nm (the most prominent Raman transition of the R6G). The dashed lines indicate the outlines of the bowties and the apertures.