Supporting Information

Plasmon-Mediated Drilling in Thin Metallic Nanostructures

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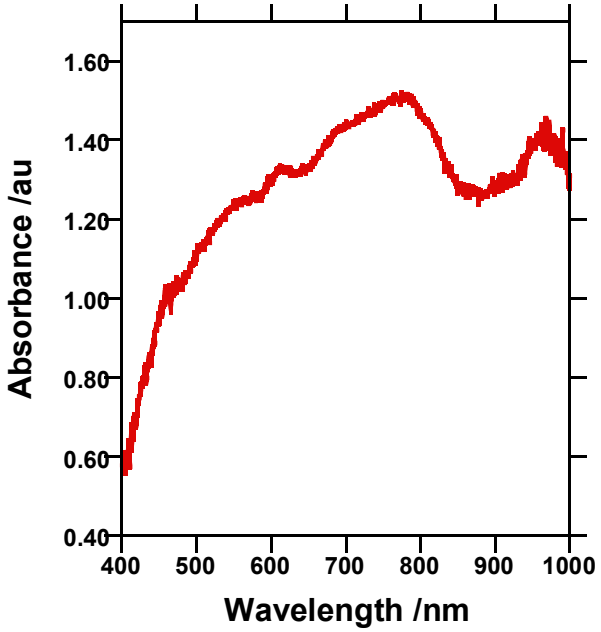

Figure S1. Absorbance spectrum of silver nanoplates.

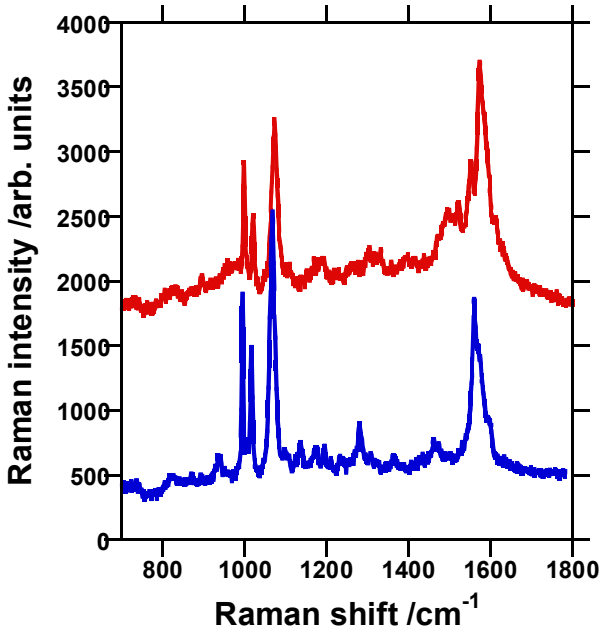

Figure S2.: SERS spectrum (red), multiplied by ten, compared to a typical TERS spectrum (blue). Spectra have been offset for clarity.

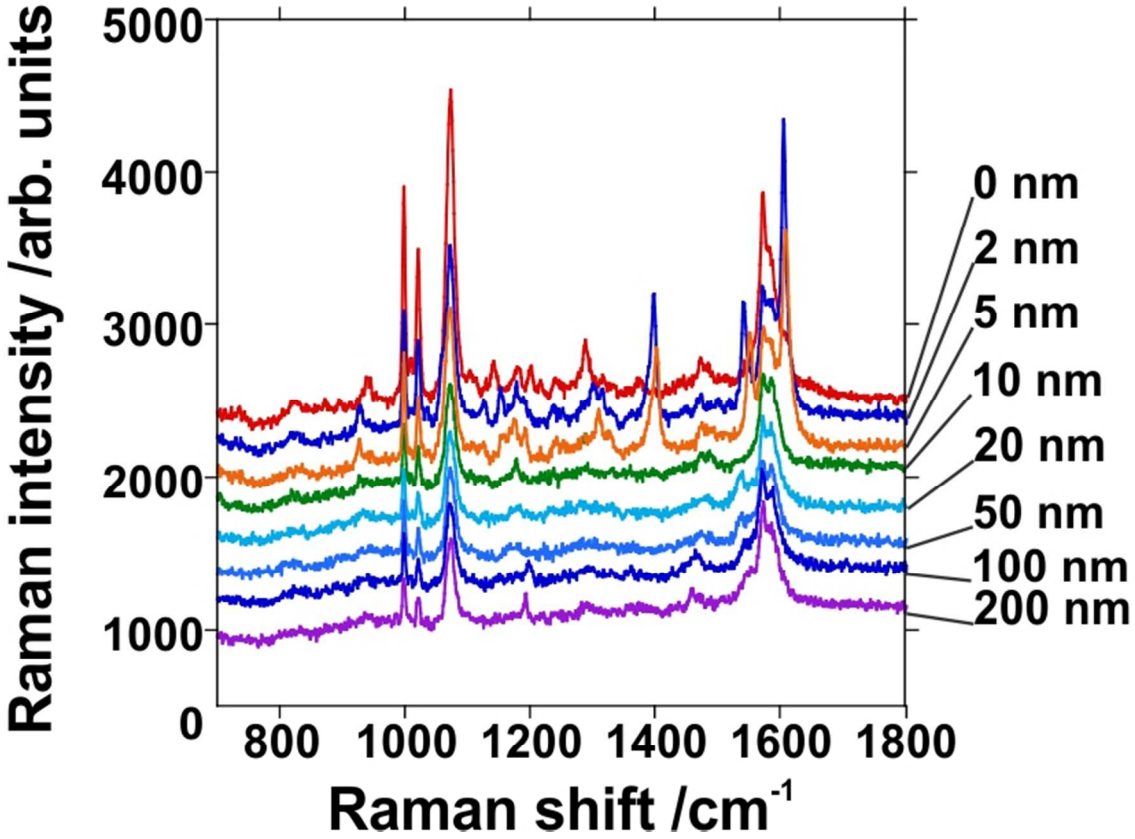

Figure S3. TERS spectra obtained upon increasing the tip-sample distance, as indicated. Spectra have been offset for clarity

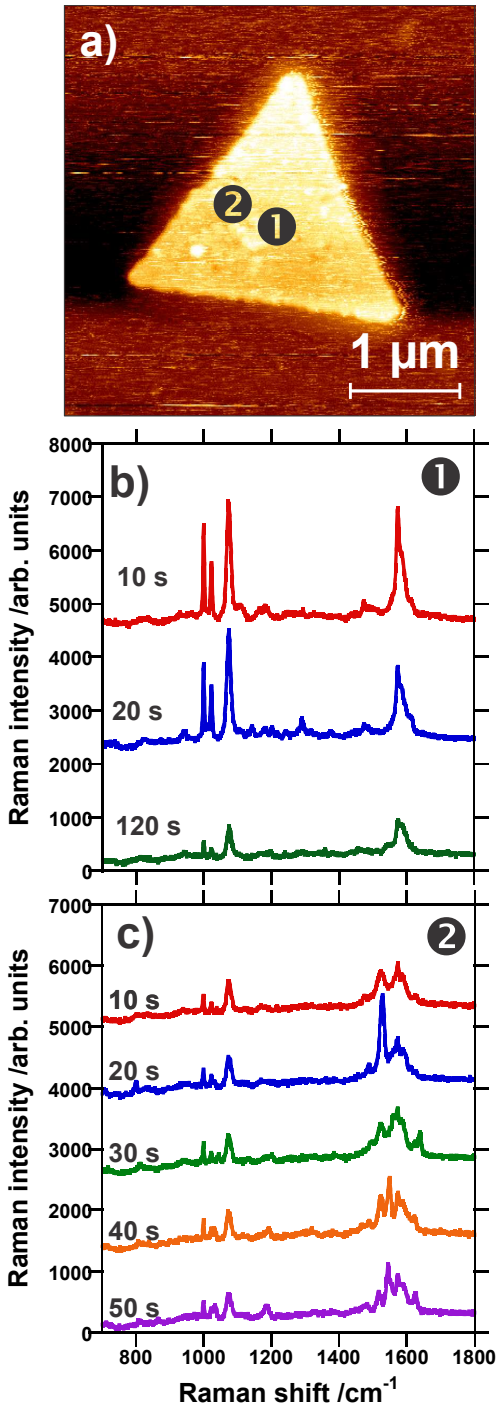

Figure S4: a) Time lapse experiments conducted on two distinct points (1) and (2). b) Series of three spectra collected under continuous irradiation on point 1 after irradiation of 10, 20 and 120 s. The Au-coated tip was new. c) Series of 5 spectra collected on point (2) after irradiation of 10, 20, 30, 40, 50 s. The Au coated tip was used to conduct the experiments in point (1).

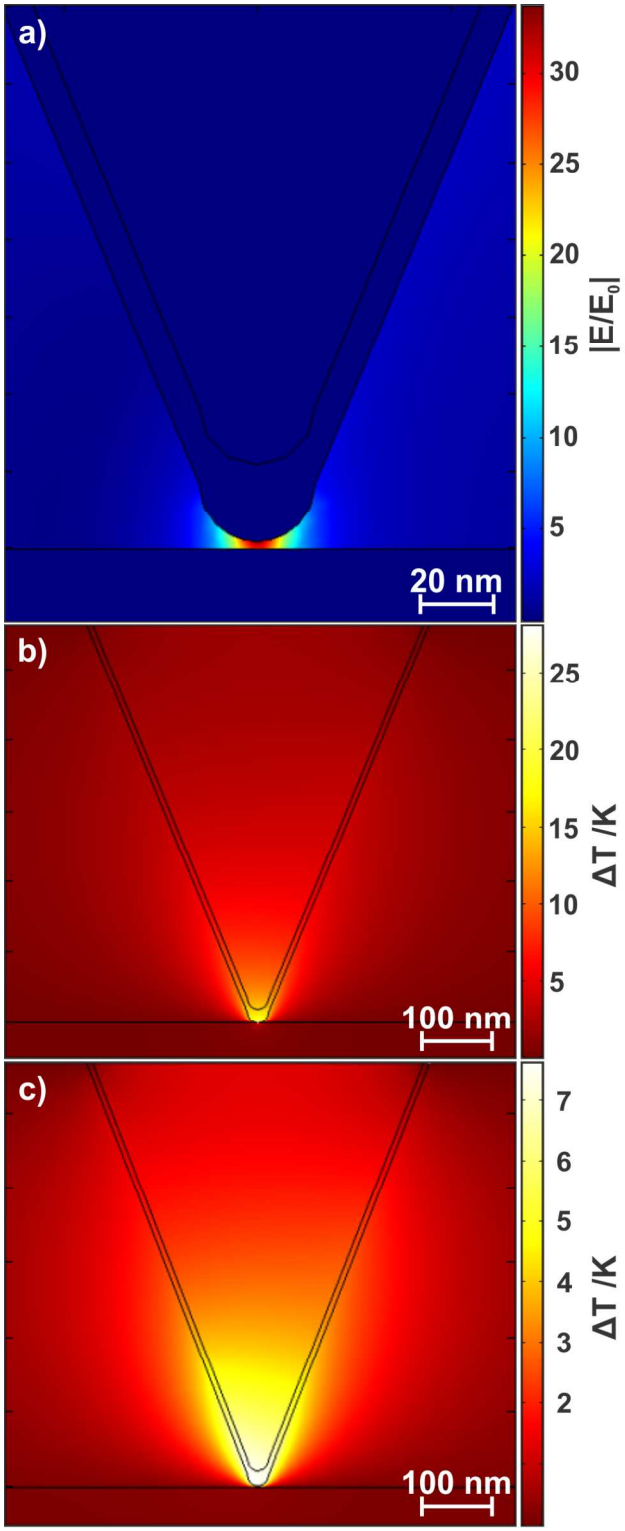

Figure S5. a) Electric field at tip, with the laser polarized along the tip axis; b) Temperature rise at tip-sample contact; c) Temperature rise at a tip-sample distance of 2 nm.

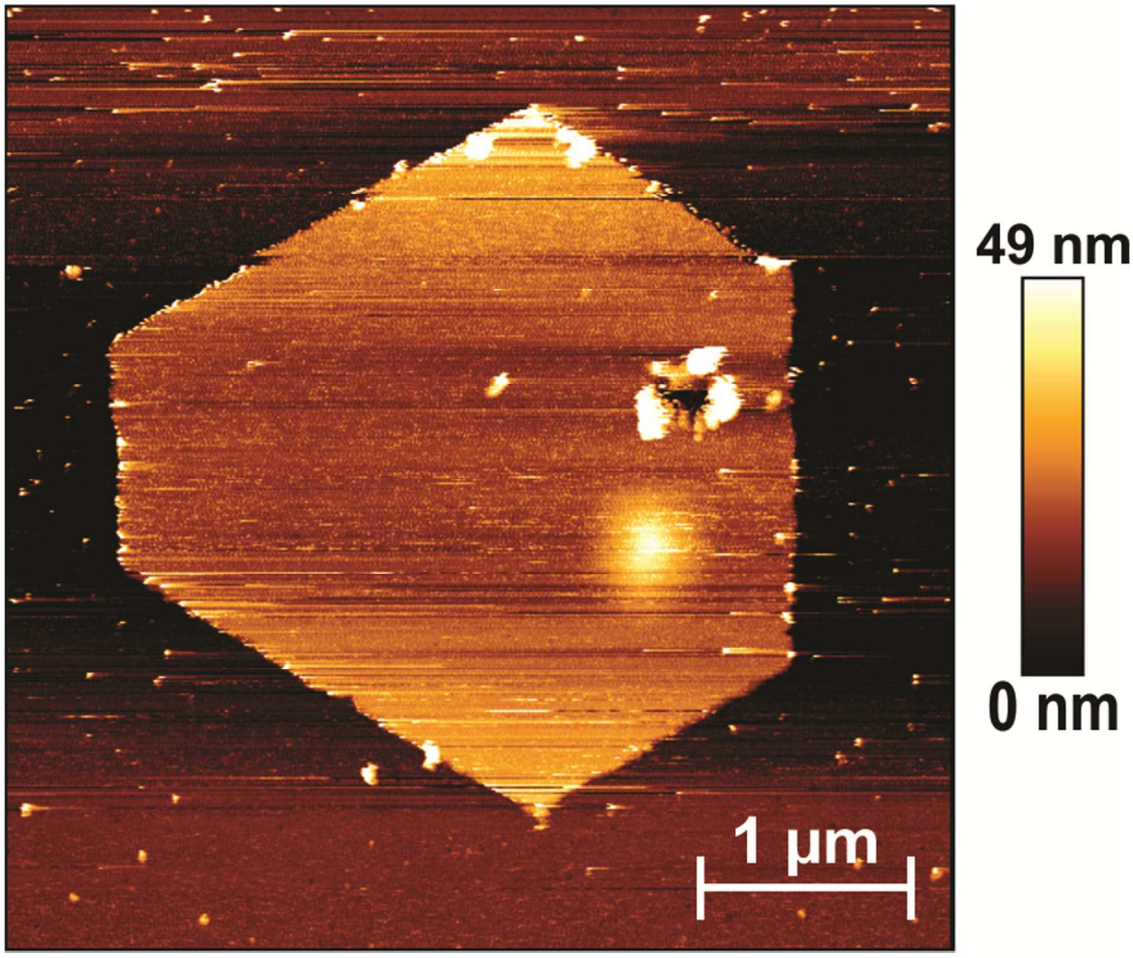

Figure S6. Atomic force micrograph of drilled silver nanoplate corresponding to the tip examined by EDX.

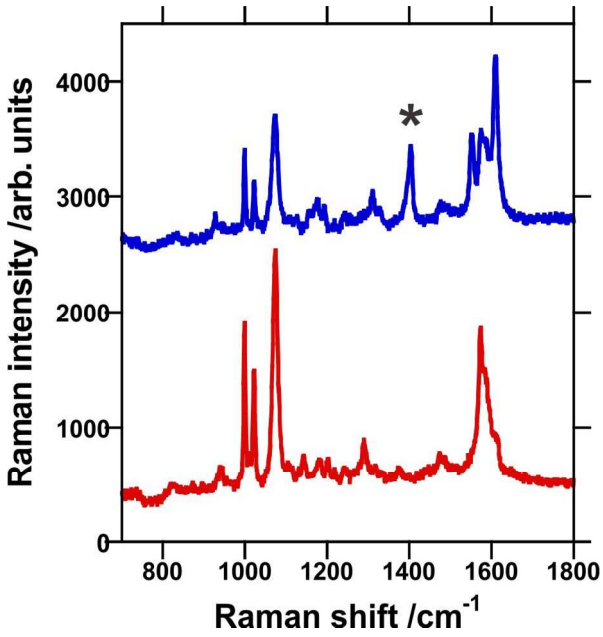

Figure S7. Comparison of a TERS spectra including citrate (blue) to a typical TERS spectrum of 4-MPBA (red). Spectra have been offset for clarity.

Table S1: Material properties for finite-element simulations

Material	ρ /kg·m^{-3} (ref. 1)	k /W·m^{-1}·K^{-1} (ref. 1)	C_p /J·kg^{-1}·K^{-1} (ref. 1)	σ /S·m^{-1} (ref. 2)	n	ε (ref. 3)	γ (ref. 4)
Au	19300	317	129	4.10×10^{7}	-	-11.740 - 1.2611i	-
Air	1.205	0.0258	1005	-	1 (ref. 1)	-	1.4
Ag	10500	429	235	6.30×10^{7}	0.056206 + 4.2776i (ref. 3)	-18.281 - 0.48108i	-
Si	2329	130	700	-	3.8823 + 0.019589i (ref. 1)	-	-

REFERENCES

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4. White, F. M., Appendix A: Physical Properties of Fluids. In Fluid Mechanics, 7th ed.; McGraw-Hill.: Boston., 2011; pp. 827.