

Supplementary Information

Electrochemical Preparation of Platinum Nanothorn Assemblies with High Surface Enhanced Raman Scattering Activity

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1. Raman spectra of platinum nanostructures corresponding to Figure 3

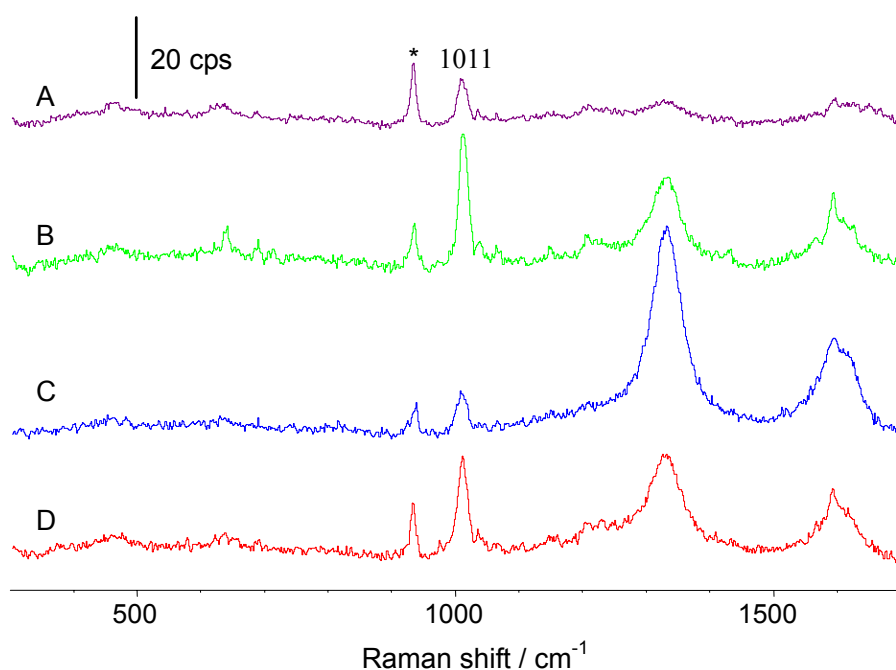


Figure S1. Raman spectra of pyridine adsorbed on platinum nanostructures corresponding to samples presented in figure 3. Solution: 0.01 M Py + 0.1 M NaClO₄; electrode potential: -0.60 V; acquisition time: 50 s; excitation line: 632.8 nm. The band at 932 cm⁻¹ (asterisk) is ClO₄⁻ ions. The broad band at 1332 and 1596 cm⁻¹ come from the GC substrate.

The calculated enhancement factor for spectra A to D are about 160, 420, 220, and 300, respectively. The enhancement factor decreases significantly as the nanothorn becomes obtuse and the density of nanothorn decreases (curve B to C, corresponding to sample b to c in Figure 3). Platinum nanostructure without nanothorn gives the minimal enhancement factor (curve A, corresponding to sample a in Figure 3). These results further demonstrate that the edge- and tip-effects (lightning-rod effect) play important role to the EM enhancement for the present platinum nanostructures.