

Supporting Information

Microcantilevers Bend to the Pressure of Clustered Redox Centers

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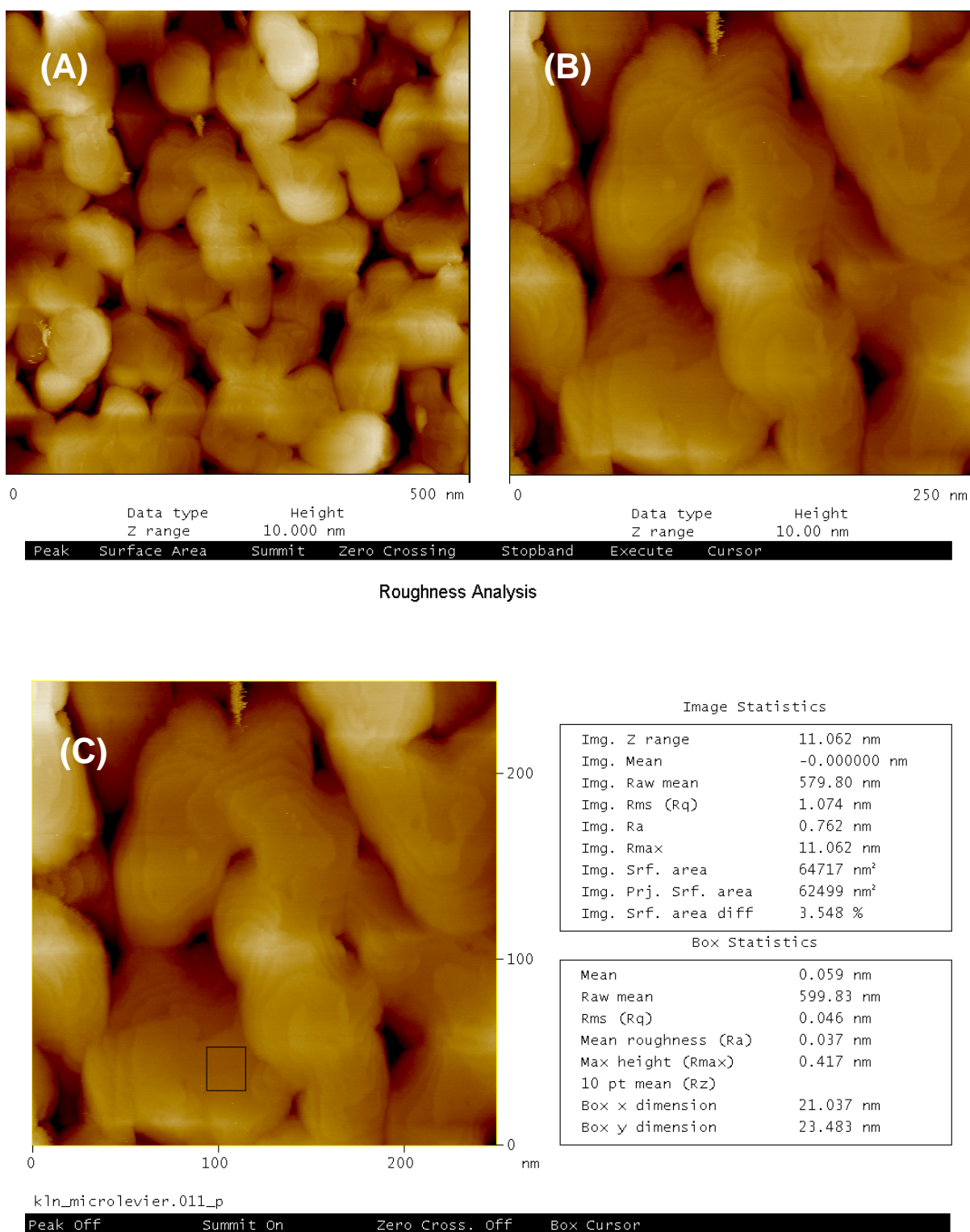


Figure S1. STM images of the morphology of a 50 nm-thick gold film deposited on the silicon nitride microlever chip substrate. Images were acquired in air with a Pt/Ir tip. Tip bias = 497 mV and tunneling current = 620 pA. (A) 500 nm × 500 nm, (B) 250 nm × 250 nm, and (C) roughness analysis on a terrace of a single grain. Image statistics box indicates a root mean square roughness (Rms) of 1.074 nm over the 250 × 250 nm² area and the box statistics shows a Rms of 0.046 nm over the terrace outlined by the black box.

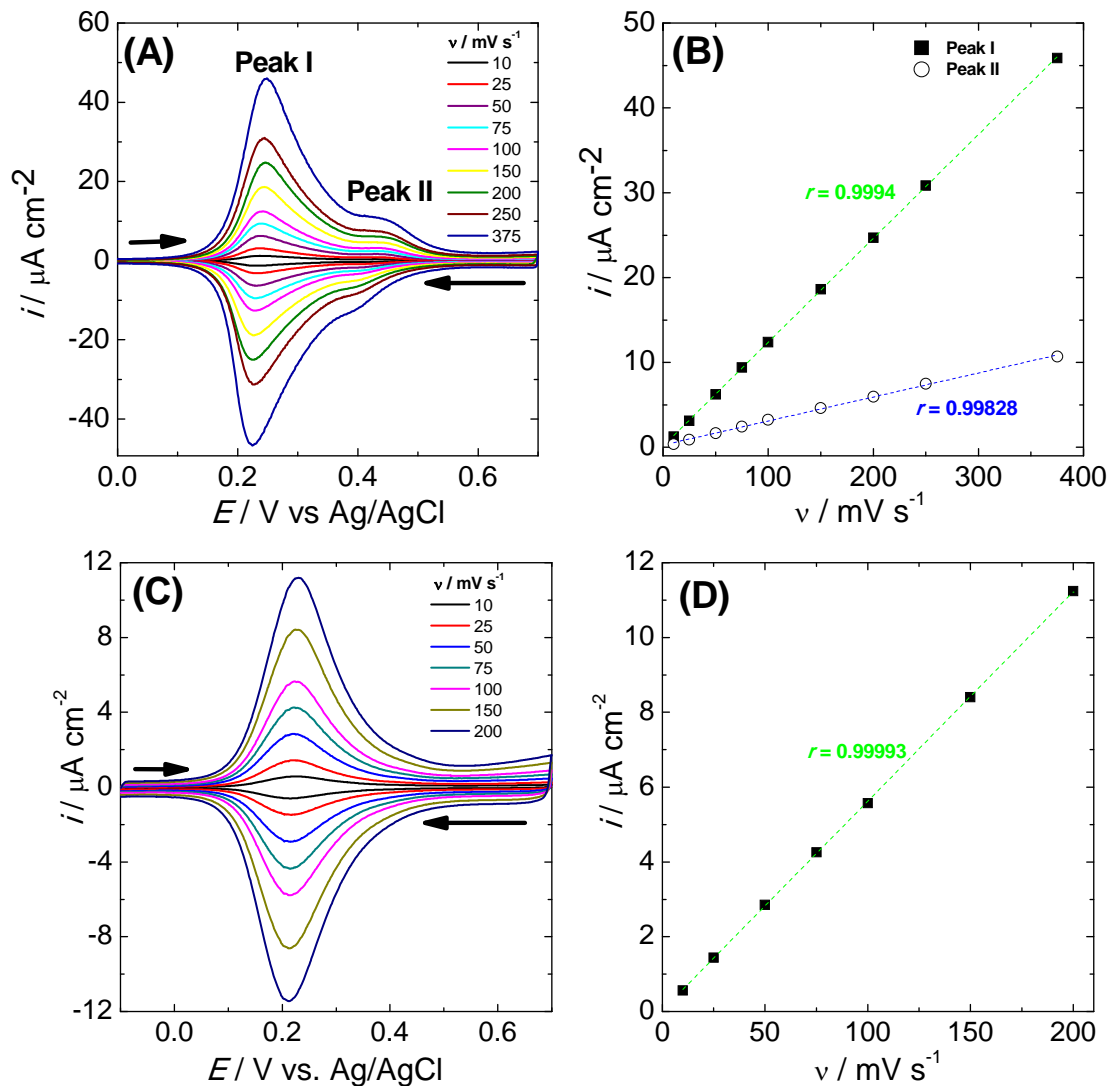


Figure S2. FcC₁₂SAu SAMs formed on gold-coated silicon wafers (Ti and Au layer thicknesses of 2 nm and 60 nm, respectively) in 0.100 M NaClO₄/0.010 M HClO_{4(aq)}. Cyclic voltammograms as a function of the scan rate for (A) $\chi_{\text{Fc}}^{\text{soln}} = 0.2$ ($\chi_{\text{Fc}}^{\text{surf}} = 0.46$) and (B) $\chi_{\text{Fc}}^{\text{surf}} = 0.1$ ($\chi_{\text{Fc}}^{\text{surf}} = 0.21$) respectively. The arrows indicate the direction of potential cycling. Corresponding plots of the anodic peak current density i as a function of the scan rate ν , (B) and (D).

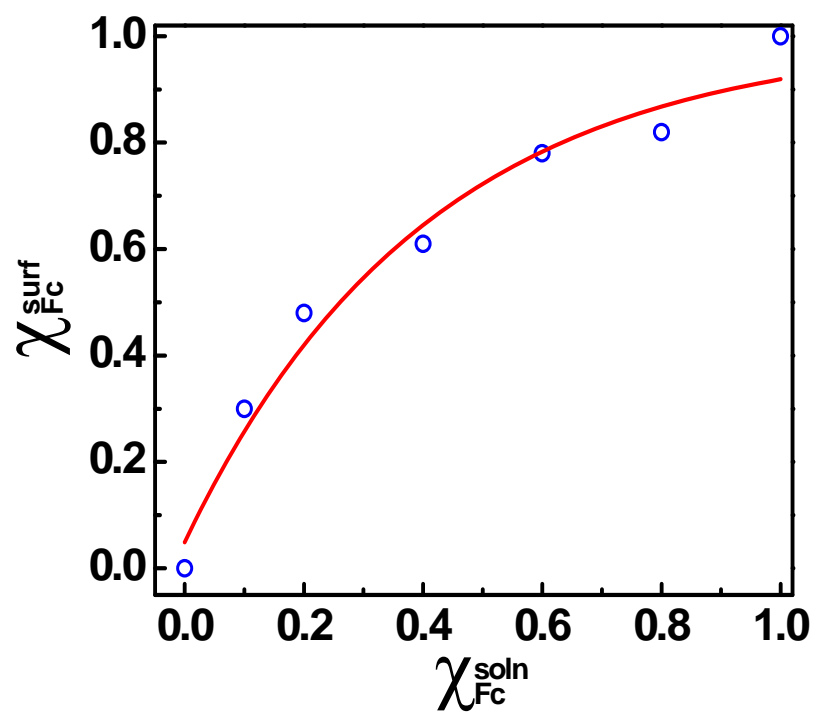


Figure S3. Plot of the surface mole fraction of chemisorbed $\text{FcC}_{12}\text{SAu}$ ($\chi_{\text{Fc}}^{\text{surf}}$) as a function of the mole fraction of ferrocenyldodecanethiol in solution ($\chi_{\text{Fc}}^{\text{soln}}$).

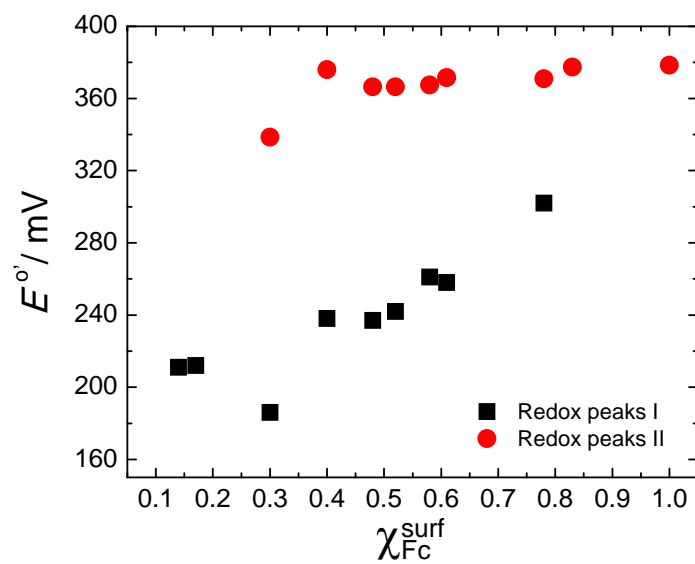


Figure S4. Plot of the measured SAM redox potential ($E^{\circ'}$) for redox peaks I and redox peaks II as a function of the surface mole fraction of ferrocene. $E^{\circ'}$ is the average of the anodic (oxidation) and cathodic (reduction) peak potentials.

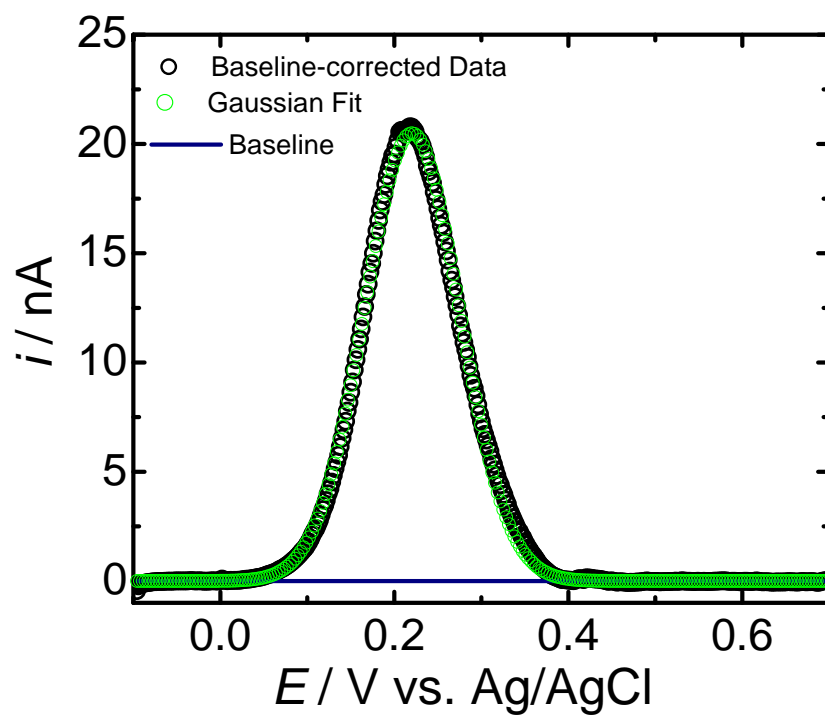


Figure S5. Gaussian fit of the anodic voltammogram for $\chi_{\text{Fc}}^{\text{surf}} = 0.17$.