In-situ Infrared Study of the Adsorption and Surface Acid-Base Properties of the Anions of Dicarboxylic Acids at Gold Single Crystal and Thin-Film Electrodes.

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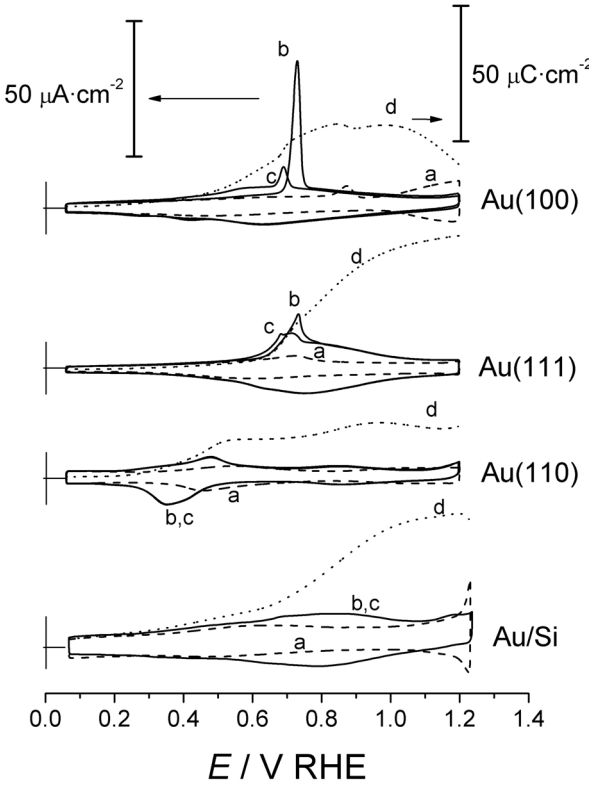
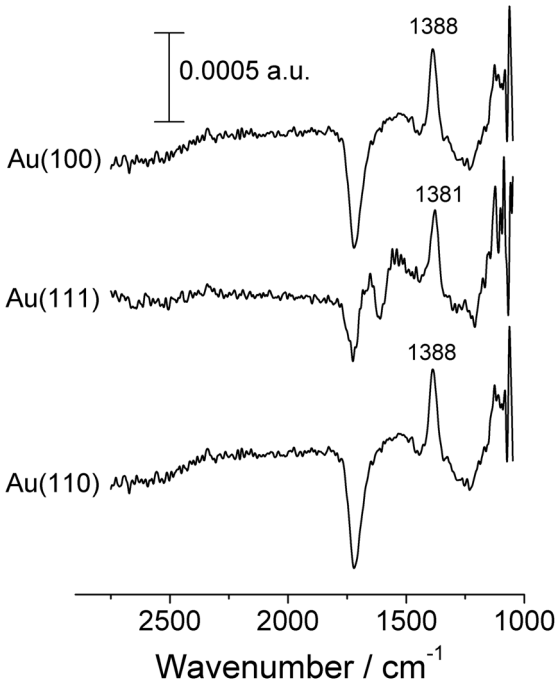
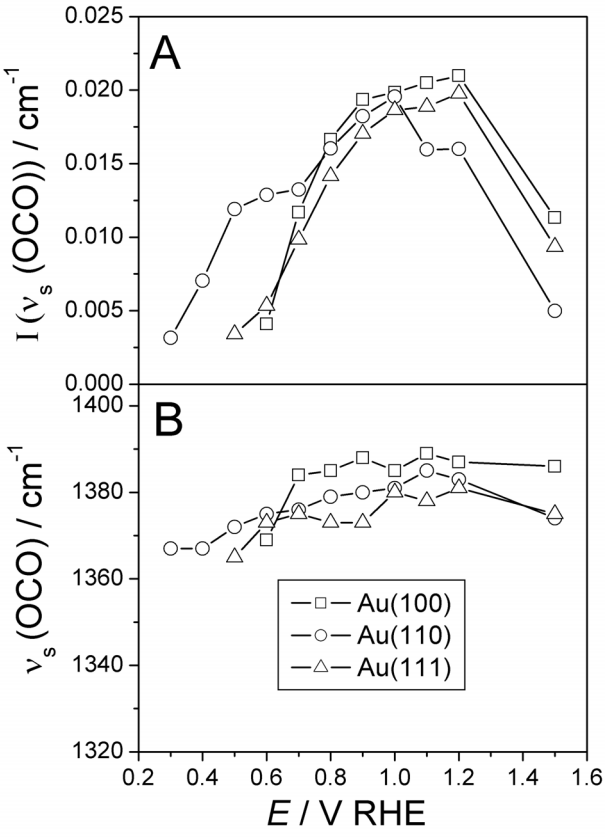
Supporting information



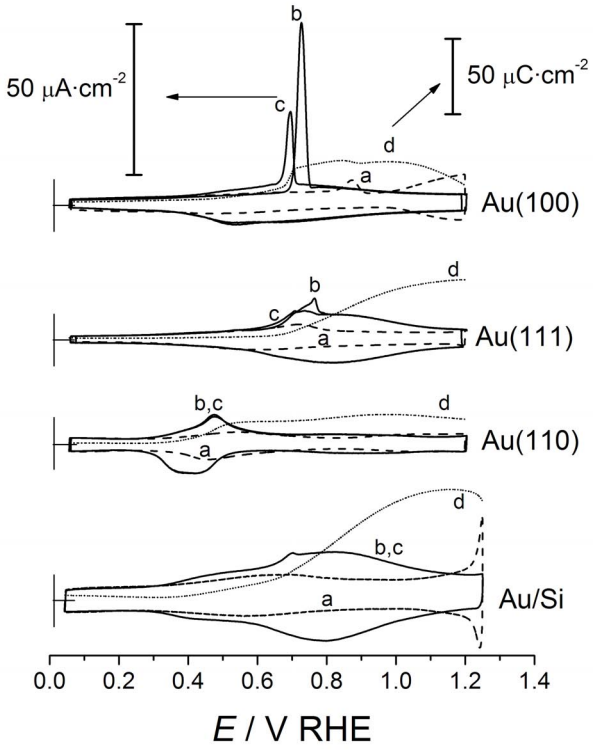
Cyclic voltammograms for Au(100), Au(111), Au(110) and an electrochemically annealed thin-film gold electrode in 0.1 M $HClO_4$ (a, dashed line) and 0.01 M $H_4C_3O_4$ + 0.1 M $HClO_4$ (b and c, solid lines, correspond to the first and second voltammetric cycle, respectively). Sweep rate: 50 mV s^{-1}. Dotted curves (d) correspond to the charge density vs potential curves calculated by integrating the difference between voltammetric curves c and a.



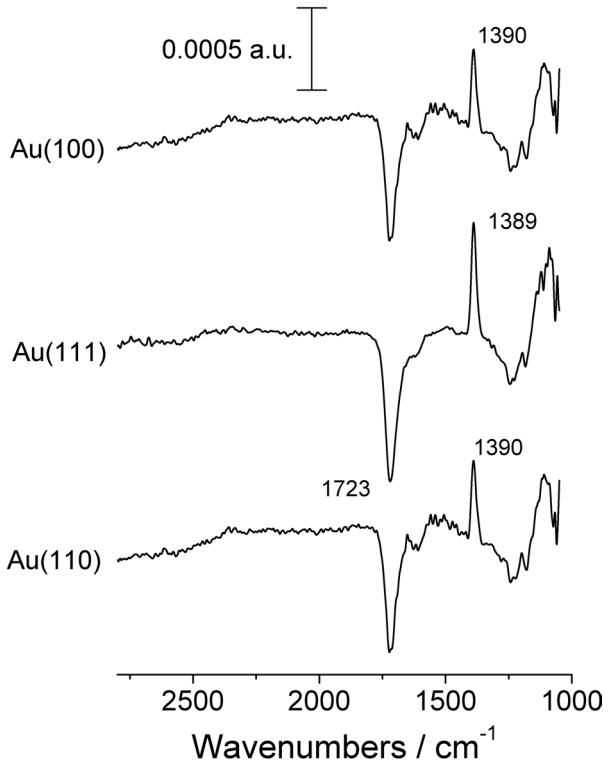
Potential-difference spectra collected at 1.20 V for a Au(100), Au(111) and Au(110) electrodes in 0.01 M $H_4C_3O_4$ + 0.1 M $HClO_4$ solutions. Reference potential: 0.10 V; 1000 interferograms collected at each potential.



Plots of (A) the integrated intensity and (B) the adsorbate band frequencies of the adsorbate bands as measured in the potential-difference spectra collected for Au(100), Au(111) and Au(110) electrodes in contact with 0.01 M $H_4C_3O_4$ + 0.1 M $HClO_4$ solutions.



Cyclic voltammograms for Au(100), Au(111), Au(110) and an electrochemically annealed thin-film gold electrode in 0.1 M $HClO_4$ (a, dashed line) and 0.01 M $H_6C_4O_4$ + 0.1 M $HClO_4$ (b and c, solid lines, correspond to the first and second voltammetric cycle, respectively). Sweep rate: 50 mV s^{-1}. Dotted curves (d) correspond to the charge density vs potential curves calculated by integrating the difference between voltammetric curves c and a.



Potential-difference spectra collected at 1.20 V for a Au(100), Au(111) and Au(110) electrodes in 0.01 M $H_6C_4O_4$ + 0.1 M $HClO_4$ solutions. Reference potential: 0.10 V; 1000 interferograms collected at each potential.