

## Coronene - Iodine Coadsorbed Adlayers on Au(111) Surfaces Promoted by Electrochemical Potential Control

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A coronene and iodine co-adsorbed adlayer on a Au(111) surface in which iodine atoms surrounded each coronene molecule was investigated by an in-situ scanning tunneling microscopy (STM) study with electrochemical potential control.

Recently, an electrochemical methodology for the preparation and in-situ STM observation of carefully designed two-dimensionally highly-ordered molecular adlayers on well-defined surfaces has recently focused on supramolecular chemistry for the "visualizable supramolecular structures". By choosing a suitable substrate and carefully setting the electrode potential, one can produce a relatively weak or mild adsorption to induce self-organization, via the acceleration of molecular mobility on the surface or via the promotion of the adsorption / desorption equilibrium. Especially, beyond simple 2D-ordered molecular adlayer systems formed on single molecular species, the construction of 2D-supramolecular systems based on alternate arrangements with binary or plural molecular species have been the focus of much interest in this field. A supramolecular structure formed on a binary system would need to be carefully designed, because another interaction balance between homo-intermolecular and hetero-intermolecular interactions would be thermodynamically decided by the structure of the mixed adlayers. In the poster, we report the formation of coronene-iodine coadsorbed adlayers on Au(111) surfaces achieved by delicate control of the interactions based on electrochemical potential management.

References: M. Kunitake et al., *The ECS Transactions*, **3**(34), "*Electrochemical Surface Science: Recent Advances in the Study of The Electrode-Electrolyte Interface*" (2007).

Key words: adsorption-induced self-organization, EC-STM, Au(111), visualizable supramolecular structures

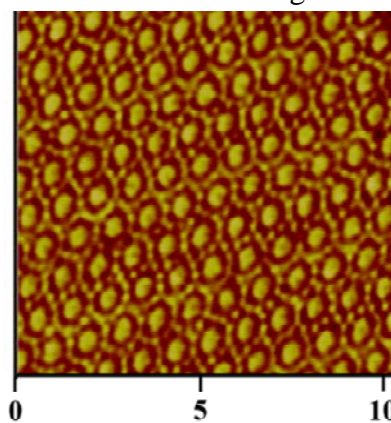


Figure 1. An in-situ STM image of coronene and iodine co-adsorbed adlayer on a Au(111).