

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Growth and dynamics of C₆₀ molecules on Ag(111) RENEE DIEHL, HSIN LI, GUILHERME ABREU, HEEKEUN SHIN, Pennsylvania State Univ, A.K. SHUKLA, JULIAN LEDIEU, VINCENT FOURNÉE, LAURA SERKOVIC LOLI, CNRS-Université de Lorraine, KRISTIN MARINO, STEPHANIE SU, MICHAEL SNYDER, Pennsylvania State Univ — C₆₀ monolayers on Ag(111) form various structures that depend on the surface preparation. For films deposited at 300 K, the monolayer comprises close-packed domains that are incommensurate with the substrate. These domains progressively convert into a commensurate $(2\sqrt{3}\times 2\sqrt{3})R30$ structure as the annealing temperature is increased. The annealing process activates the formation of vacancies beneath some of the C₆₀ molecules, resulting in a temperature-dependent equilibrium population of about 50% of the molecules sitting on vacancies and 50% sitting on top of Ag atoms in the commensurate phase. In addition to molecules in these two sites, about 0.5% of the molecules image very brightly, and these molecules are in dynamical equilibrium with the other two types. This talk will focus on scanning tunneling microscopy and low-energy diffraction studies of the structure and dynamics of the monolayer phases of C₆₀ molecules on Ag(111).

Renee Diehl
Pennsylvania State Univ

Date submitted: 15 Nov 2013

Electronic form version 1.4