Abstract Submitted
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The structures of a C_{60} monolayer on Au(111)[1] HEEKEUN SHIN, Penn State University, KATARIINA PUSSI, Lappeenranta University of Technology, RENEE DIEHL, Penn State University, AJAY SHUKLA, VINCENT FOURNEE, JULIAN LEDIEU, Nancy University — The in-phase and $(2\sqrt{3}x2\sqrt{3})R30^\circ$ structures of monolayer C_{60} on Au(111) have been studied by scanning tunneling microscopy and dynamical low energy electron diffraction. The in-phase domains exhibit a (2x2) superlattice in high resolution STM images at 57K, in which one of the four molecules in the unit cell has a three-lobe intramolecular shape. After annealing at 663K, most of the monolayer was converted to $R30^\circ$ domains. The C_{60} molecules in the $(2\sqrt{3}x2\sqrt{3})R30^\circ$ domains image as random bright or dim objects, with a 50:50 ratio of bright to dim. At room temperature, there are conversions from bright to dim and vice versa, but such conversions are suppressed at 57K. The dynamical LEED analysis of $(2\sqrt{3}x2\sqrt{3})R30^\circ$ structure will be presented.

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