## Abstract Submitted for the MAR08 Meeting of The American Physical Society

Stress-Induced Striped Domains at the C<sub>60</sub>-Pentacene Interface\*

DANIEL DOUGHERTY, National Institute of Standards and Technology, WEI JIN, Department of Chemistry and Biochemistry and Materials Research Science and Engineering Center University of Maryland at College Park, WILLIAM CULLEN, Department of Physics and Materials Research Science and Engineering Center University of Maryland at College Park, GREGORY DUTTON, JANICE REUTT-ROBEY, Department of Chemistry and Biochemistry and Materials Research Science and Engineering Center University of Maryland at College Park, STEVEN ROBEY, National Institute of Standards and Technology — C<sub>60</sub>:pentacene heterojunctions have been recently employed in functional organic photovoltaic devices [1]. In order to develop a detailed structural understanding of these junctions, we have made STM observations of the growth of pentacene on top of a monolayer film of  $C_{60}$ on Ag(111). We observe pattern formation in the first pentacene layer due to the tensile stress arising from interactions with the underlying  $C_{60}$ . The stress results in a striped pattern of alternating commensurate and incommensurate domains of pentacene with respect to the  $C_{60}$  monolayer. The incommensurate domains appear as bright regions  $3.6 \pm 0.6$  nm in width and are discussed using a 1D Frenkel-Kontorova model. \*Supported by the NIST Center of Nanomanufacturing and Metrology and the University of Maryland MRSEC via DMR-05-20471.[1] Yoo et al., Appl. Phys. Lett. 85, 5472 (2004).

> Daniel Dougherty National Institute of Standards and Technology

Date submitted: 23 Nov 2007 Electronic form version 1.4