Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Nonlinear Optical Probe of Buried Interface of Organic Thin Films SUSAN DOUNCE, University of Pennsylvania, MINCHUL YANG, Naval Research Laboratory, TOM ROCKEY, HAI-LUNG DAI, University of Pennsylvania — Nanometer-thick thin films of small organic molecules have found many recent technology applications in organic semiconducting devices where the interfacial layer structure presumably greatly affects the film electrical properties. In this presentation we show that by using a combination of nonlinear optical and surface science techniques we can determine the intrinsic structure within the molecular films including the orientation and alignment of the molecules at the film/substrate interface. It is demonstrated by using optical second harmonic generation that the pyridine molecules in the interfacial layer underneath the film are found to align along the [11bar0] direction of the Ag(110) surface with a small tilt angle (11 degrees) from the surface norm. This interfacial ordering is found to have a notable effect in inducing crystallization at the heterogeneous boundary of the amorphous molecular film.

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Date submitted: 23 Nov 2004 Electronic form version 1.4