Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Depth Profiling using Nexafs Spectroscopy KAREN SOHN, UCSB, SITARAMAN KRISHNAN, MARVIN PAIK, CHRISTOPHER OBER, Cornell, ED KRAMER, UCSB, DANIEL FISCHER, NIST — Bilayer systems consisting of a thin poly(methyl methacrylate) (PMMA) film on top of a poly(4-vinylpyridine) (P4VP) film were studied using NEXAFS spectroscopy, angle resolved XPS, and X-ray reflection. Depth profiling using NEXAFS spectroscopy was performed using two different methods, by varying the entrance grid bias (EGB) on the 3 grid high pass partial electron yield detector or by varying the electron emission angle. As the EGB becomes more negative or the emission angle becomes more glancing, the surface sensitivity increases. PMMA, which is unoriented, was used because it has a strong C 1s $\rightarrow \pi*$ signal at 288.8 eV from the carbonyl, whereas the unoriented P4VP has a strong signal from the C 1s $\rightarrow \pi*$ transition at 285.5 eV. By following these peaks as a function of emission angle or EGB in films of different PMMA thicknesses, the electron escape depth for NEXAFS spectroscopy can be calculated.

Karen Sohn
UCSB

Date submitted: 18 Nov 2006 Electronic form version 1.4