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NEXAFS Determinations of “Skin” Orientation of Injection-Molded Thermotropic Liquid Crystalline Copolyesters ROBERT BUBECK, LOWELL THOMAS, Michigan Molecular Institute, STANLEY RENDON, WESLEY BURGHARDT, Northwestern University, ALEXANDER HEXEMER, University of California at Santa Barbara, DANIEL FISCHER, NIST — Near edge X-ray adsorption fine structure (NEXAFS) spectroscopy is being used to characterize anisotropy in injection-molded plaques fabricated from thermotropic liquid crystalline copolyester polymers (TLCPs). [1] NEXAFS is sensitive to the orientation of the molecular pi orbital of backbone phenyl groups of the top 3 nm of a surface via the variation in intensity of the partial electron yield of Auger electrons of the $1s \rightarrow \pi^*$ transition of the C=C bonds within the C K edge spectrum. Plaques of various commercial TLC polymers were injection-molded under controlled conditions and comparisons relative to mold and melt temperatures, injection speed, and polymer type were made. Good agreements were obtained between the results via 2-D wide-angle X-ray scattering in transmission and NEXAFS for appropriate processing conditions that resulted in near identical skin and core orientation. [1] R. A. Bubeck et al., *J. Appl. Polym. Sci.*, submitted November, 2004.

Robert Bubeck
Michigan Molecular Institute

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