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**Ellipsometric Studies of the Structure and Transformation Kinetics of Ultra Stable Glasses into the Supercooled Liquid** ZAHRA FAKHRAAI, University of Wisconsin-Madison, GREGORY K. PRIBIL, J. A. Woolam Inc., MARK D. EDIGER, University of Madison-Wisconsin — Exceptionally stable glasses of low molecular weight organic materials have been recently made by means of physical vapor deposition. Compared to the ordinary glass made of the same liquid, these glasses have lower enthalpy, higher density and slow transformation kinetics. Wide angle X-ray scattering (WAXS) measurements show that these glasses exhibit a distinct packing structure not observed in the ordinary glass structure. We used ellipsometry to study the density and structure of the as deposited stable glasses of tris-naphthylbenzene and indomethacin as a function of deposition temperature and film thickness. Ellipsometric measurements indicate that these glasses have a slight structural anisotropy in the direction of the deposition, providing a potential explanation for the observed peak in the WAXS measurements. These glasses were then annealed above the ordinary glass transition temperature either at a constant heating rate or isothermally to investigate the transformation kinetics into the ordinary supercooled liquid state.

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