

Abstract Submitted
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Incidence-angle dependence of optical reflectivity difference from an ultrathin film on a solid surface¹ J. P. LANDRY, J. GRAY, M. K. O'TOOLE, X. D. ZHU, Dept. of Physics, Univ. of California at Davis — The oblique-incidence reflectivity difference (OI-RD) technique is a special form of polarization-modulated nulling ellipsometry that has been judiciously used in studies of ultrathin films and other surface-bound changes on a solid or even liquid substrate. We have recently studied the incidence angle dependence of the optical reflectivity difference signals in response to ultrathin films on transparent and opaque substrates. We find that the classical three-layer model reproduces the experimentally obtained angular dependence for a monolayer of xenon on Nb(110) and for a monolayer of protein molecules on functionalized glass. We report the findings of this recent experimental investigation and explore the enhancement of the optical response near the Brewster angle (or its equivalent for opaque substrates) in thin film detection.

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