

OPTICAL CHARACTERIZATION OF THIN FILMS ON PLASTIC FOIL

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Knowledge of precise refractive index of materials consisting holographic structures is important for advanced modelling of diffraction [1] and structure optimization. Substrates for these structures are plastic materials such as polyethylene terephthalate, polycarbonate which are drawn during production and resulting tension gives rise in optical anisotropy.

The main target of this paper is characterization of optical function of the substrate coated by ZnS and Al layer. The foils were studied by using Woollam RC2 Mueller matrix spectroscopic ellipsometer with spectral range 193 nm to 1700 nm. To characterize the layers and substrate we used reflection at the angle of incidence from 40 to 80 degree and transmission spectra at normal incidence. By grinding back side of the foil, we avoid contribution from bottom interface to the measurement. As a model we use b-spline, Cody-Lorenz oscillator and Sellmeier formula to determine the optical function.

[1] KOHUT, Tomáš, Kamil POSTAVA, Zuzana MRÁZKOVÁ, Martin FOLDYNA, Pere ROCA I CABARROCAS, Martin MIČICA a Jaromír PIŠTORA. Modeling of Mueller matrix response from diffracting structures. *Journal of Nanoscience and Nanotechnology*. 2016, **16**(8), 7805-7809. DOI: 10.1166/jnn.2016.12553. ISSN 1533-4899.