



Linear optical characterization of transparent thin films by the Z-scan technique

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Résumé en anglais	We report experimental characterization of a very small rectangular phase shift (<0.3 rad) obtained from the far-field diffraction patterns using a closed aperture Z-scan technique. The numerical simulations as well as the experimental results reveal a peak-valley configuration in the far-field normalized transmittance, allowing us to determine the sign of the dephasing. The conditions necessary to obtain useful Z-scan traces are discussed. We provide simple linear expressions relating the measured signal to the phase shift. A very good agreement between calculated and experimental Z-scan profiles validates our approach. We show that a very well known nonlinear characterization technique can be extended for linear optical parameter estimation (as refractive index or thickness).
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Liens

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