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Deflective signal analysis in photothermal measurements in the frame of complex geometrical optics

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Keywords

complex geometrical optics, mirage effect, preturbation calculus, deflectional detection, thermal waves, Gaussian beams, geometrical optics of nonhomogeneus media, phase change and deflection

Abstract

The influence of one dimensional plane thermal wave on probing Gaussian beam phase and deflection by complex geometrical optics methods has been analyzed in the work. The probing beam detection by quadrant photodiode has been investigated. The dependence of photodiode current signal on the probing beam diameter, its waist, sample position, angular modulation frequency and the height of the beam over the sample has been studied.

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