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Investigation of nonlinearity of photorefractive effect in LiNbO_3

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Abstract

In this paper, the nonlinearities resulting from the simple band transport model of photorefractivity are compared with dependences experimentally obtained in $\text{LiNbO}_3:\text{Fe}$ crystals. The investigation of nonlinearities is performed for both periodic and aperiodic optical fields. The comparison shows that the space-charge field cannot be the main cause of light-induced refractive index changes.



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