Analysis of the spatial characteristics of a four-wave radiation converter on thermal nonlinearity in the arrangement with codirectional pumping waves

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Abstract:

A system of equations was developed to describe the four-wave interaction in the arrangement with codirectional pumpingwaves on thermal nonlinearity. On condition that the heat is removed from the front and back faces of nonlinear medium in the approximation of a given field by pump waves, there was a change in the spatial spectrum of the amplitude of the transformed wave on the back face of the nonlinear layer. The variation in the width of the modulus of the point spread function (PSF) with respect to the parameters of the pumping waves and the characteristics of the nonlinear medium was analyzed.

Keywords: four-wave interaction, thermal nonlinearity, spatial spectrum, point spread function.

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