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Propagation of Cos-Gaussian Beam in Photorefractive Crystal

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Abstract : A physical model for guiding the wave in photorefractive media is studied. Propagation of cos-Gaussian beam as the special cases of sinusoidal-Gaussian beams in photorefractive crystal is simulated numerically by the Crank-Nicolson method in one dimension. Results show that the beam profile deforms as the energy transfers from the center to the tails under propagation. This simulation approach is of significant interest for application in optical telecommunication. The results are presented graphically and discussed.

Keywords : beam propagation, cos-Gaussian beam, numerical simulation, photorefractive crystal
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