

Propagation properties of higher-order cosine-hyperbolic-Gaussian beams in a chiral medium

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Abstract


The paraxial propagation of a higher-order cosine-hyperbolic-Gaussian beam (HOChGB) in a chiral medium is investigated theoretically. Analytical expression of the HOChGB passing through a chiral medium is derived based on the Huygens-Fresnel Integral and the ABCD transfer matrix. From the obtained formula, the propagation properties of this beam in a chiral medium are analyzed with numerical illustrative examples. The obtained results show that the evolution of the intensity pattern of HOChGB depends strongly on the chiral factor, the beam order, and the decentered parameter.

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