Annotation

Second harmonic generation by the impulse light beam in the volume of an isotropic chiral medium

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Current work is devoted to a numerical analysis of the second harmonic generation in the volume of a nonlinear medium by a fundamental pulse beam with a complex temporal, spatial and polarizational profile. Two different mechanisms of nonlinear frequency mixing are considered: due to a spatial nonlocality of the nonlinear response and due to it's frequency dispersion. It is shown that in the case of the nonlocal response the key role in the appearance of the double-frequency signal pulse has the spatial nonlocality of the distribution of the beam's polarization, and in the case of the frequency dispersion — the temporal one.

A programm system for solving $3+1$-dimentional problem of the fundamental and signal pulses propagation and visualisation of the complex field configuration in the beam section and their temporal evolution has been developed.