

# **Self-action and interaction of laser pulses carrying polarization singularities in the isotropic phase of nematic liquid crystal near the temperature of phase transition to mesophase**

## **Annotation**

In this paper the main regularities of the dynamics of polarization characteristics in the self-action and interaction of laser pulses containing polarization singularities as they propagate in the isotropic phase of a nematic liquid crystal near the temperature of phase transition to mesophase are numerically studied and described depending on the values of the parameters characterizing the nonlocality of the nonlinear-optical response of the medium, defocusing in the medium, the peak power of the laser pulse incident on the medium, the dispersion and diffraction in the nematic liquid crystal. This paper contains a brief review of the literature devoted to the propagation of laser radiation in a bulk of nematic liquid crystal. We consider a mathematical model used to describe the propagation of a laser pulse, its basic approximations and the formulation of the problem, describe the results of a numerical experiment, describe the basic laws governing the self-action of a pulse containing a polarization singularity propagation in a bulk of nematic liquid crystal, the main regularities of the impact of the pump pulse containing a polarization singularity on a weak probing pulse.