
Polarization of coherent optical radiation in moving medium

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The results of experimental investigations for dependence of polarization of coherent optical radiation with wave length $\lambda=0.632991\mu\text{m}$ in rotating optical disc on rotation frequency are presented in the work.

The disc with diameter $D=62$ mm and thickness $d=10$ mm of optical glass HF3 with refraction index $n=1.71250$ was used in experiments. To increase optical path the flat surfaces of the optical disc were covered with metallic reflective coatings.

The transient phenomenon of polarization plane turn and changing the degree of ellipticity for 15-20 minutes at a steady rotation rate were detected. Measurements were carried out for different frequencies from 0 to 200 Hz. The angle of polarization turn was observed up to 80-90 degrees in region 10-30 Hz. The angle decreased up to 10-20 degrees when rotation rate was further increased.

Keywords: polarization, optical radiation, laser, electrodynamics, moving medium.

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