Diploma thesis abstract
Angular momentum transformation of elliptically polarized Gaussian and Laguerre-Gaussian light beams in the sum-frequency generation in isotropic medium.
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Analytic expressions are obtained for the nonlinear polarization and electric field of the beam at sum frequency generated by elliptically polarized Gaussian and Laguerre-Gaussian beams in an isotropic medium. These expressions show that the phase profile of the beam at the sum frequency contains two phase vortices. One vortex repeats the phase profile of the Laguerre-Gaussian beam, and the second is formed by the spin momenta of the beams of the incident radiation. The relationship between the angular momenta of these vortices and the generation of polarization singularities in a beam at the sum frequency is studied.