

The paper presents the mathematical technique for calculation of three dimensional intensity distribution near a focal point of a high aperture optical system in case of quasi monochromatic partly polarized light. This technique is extension of the vector diffraction theory for high aperture optical systems. It is based on Huygens-Fresnel principle: spherical wave at an exit pupil is considered as a numerous set of elementary secondary partly polarized light sources. The total intensity is calculated as superposition of complex wave amplitudes taking into account polarization orientation, degree of polarization defined by Stokes parameters, orientation of detector aperture and coherence length of quasi-monochromatic light.

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