

Numerical solution of Maxwell's equations in the diffractive optics problem

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Abstract:

The article addresses the methods of numerical modeling of diffraction optics tasks, including the methods of difference solution of systems of Maxwell equations for the tasks of diffraction of electromagnetic radiation on micro-optics elements, the methods of finite and boundary elements, the mode methods for solving the tasks of light diffraction on periodic structures like diffraction gratings and photonic crystals, and the methods for calculating the eigenmodes of optical waveguides with inhomogeneous transverse structure (photonic waveguides).

Keywords: Maxwell's Equation, Diffractive Optic, numerical modeling, micro-optic, mode method, diffraction grating, photonic crystal, photonic waveguides

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