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Sommario/riassunto	This book discusses helical Ince-Gaussian beams, which are presented as expansions in Hermite-Gaussian modes, and analytical expressions for the orbital angular momentum are obtained for them. In scalar optics, light is described by a complex amplitude, a complex function of three Cartesian coordinates. This function must be a solution to the scalar paraxial Helmholtz equation, which is equivalent to the Schrödinger equation in quantum mechanics. There are not many known exact analytical solutions of this equation in the form of special

functions, only a few dozen. Each such solution can be associated with a certain laser beam, for example, a Bessel, Laguerre-Gaussian or Hermite-Gaussian beam. Each such analytical solution of the Helmholtz equation allows one to fully describe all the features of the light beam before modeling. Find the intensity distribution at any distance from the waist, phase distribution, total beam power and its other characteristics. Therefore, the search for new analytical solutions describing new laser beams, including helical (vortex) beams, which have orbital angular momentum and topological charge, is relevant. This book describes new helical beams that the authors obtained in 2023-2024. These are generalized asymmetric Laguerre-Gaussian and Hermite-Gaussian beams, double and square Bessel-Gaussian and Laguerre-Gaussian beams, and several types of Bessel-Bessel-Gaussian beams. Each such new analytical solution of the Helmholtz paraxial equation is a significant contribution to optics. The book is of interest to a wide range of scientists and engineers working in the field of optics, photonics, laser physics, opto-information technologies and optical instrumentation. It can also be useful for bachelors and masters in the specialties applied mathematics and physics, applied mathematics and informatics, optics and graduate students specializing in these areas.