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Autore	Mahajan Virendra N
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Nota di bibliografia	Includes bibliographical references and indexes.
Nota di contenuto	Chapter 1: Gaussian optics -- Introduction -- Foundations of geometrical optics -- Fermat's principle -- Laws of geometrical optics -- Optical path lengths of neighboring rays -- Malus-Dupin theorem -- Hamilton's point characteristic function and direction of a ray -- Gaussian imaging -- Introduction -- Sign convention -- Spherical refracting surface -- Gaussian imaging equation -- Focal lengths and refracting power -- Magnifications and Lagrange invariant -- Graphical imaging -- Newtonian imaging equation -- Thin lens -- Gaussian imaging equation -- Focal lengths and refracting power -- Undeviated ray -- Magnifications and Lagrange invariant -- Newtonian imaging equation -- Refracting systems -- Cardinal points and planes -- Gaussian imaging, focal lengths, and magnifications -- Nodal points -- Newtonian imaging equation -- Afocal systems -- Spherical reflecting surface (spherical mirror) -- Gaussian imaging equation -- Focal length and reflecting power -- Magnifications and Lagrange invariant -- Graphical imaging -- Newtonian imaging equation -- Paraxial ray tracing -- Refracting surface -- Thin lens -- Two thin lenses -- Thick lens -- Reflecting surface (mirror) -- Two-mirror system -- Catadioptric system: thin lens-mirror combination -- Two-ray Lagrange invariant -- Matrix approach to paraxial ray tracing and Gaussian optics -- Introduction -- System matrix -- Conjugate matrix

-- System matrix in terms of Gaussian parameters -- Gaussian imaging equations -- References -- Problems.

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Sommario/riassunto

This book discusses the characteristics of a diffraction image of an incoherent or a coherent object formed by an aberrated imaging system. Numerical results in aberrated imaging have been emphasized to maximize the practical use of the material. This new, second printing includes a number of updates and corrections to the first printing. Beginning with a description of the diffraction theory of image formation, the book describes both aberration-free and aberrated imaging by optical systems with circular, annular, or Gaussian pupils. As in part I, the primary aberrations are emphasized. Their effects on Strehl, Hopkins, and Struve ratios are discussed in detail. The balanced aberrations are identified with Zernike polynomials appropriate for each type of system. Imaging in the presence of random aberrations is also discussed that includes the effects of image motion and propagation through atmospheric turbulence. Each chapter ends with a set of practical problems.
