1. Record Nr. UNISALENTO991002490709707536

Autore	Brinati, Franco
Titolo	Invito alle Marche / Franco Brinati ; prefazione di Arnaldo Giuliani
Pubbl/distr/stampa	Jesi : Fondazione Federico 2. Hohenstaufen, [1998]
Descrizione fisica	176 p. : ill. ; 24 cm
Altri autori (Persone)	Giuliani, Arnaldo
Disciplina	914.567
Soggetti	Marche Guide
Lingua di pubblicazione	Italiano
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Ed. parallela al vol. pubblicato come numero delle Tabulae

2. Record Nr. UNINA9911004812903321

Autore	Mahajan Virendra N
Titolo	Ray geometrical optics / / Virendra N. Mahajan
Pubbl/distr/stampa	Bellingham, Wash., : SPIE Optical Engineering Press, 1998
ISBN	1-61583-706-X 0-8194-7879-2
Descrizione fisica	1 online resource (500 p.)
Collana	Optical imaging and aberrations ; ; pt. 1
Disciplina	621.36
Soggetti	Aberration Imaging systems Geometrical optics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
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.

Chapter 2: Radiometry of imaging -- Introduction -- Stops, pupils, and vignetting -- Introduction -- Aperture stop, and entrance and exit pupils -- Chief and marginal rays -- Vignetting -- Size of an imaging element -- Telecentric aperture stop -- Field stop, and entrance and exit windows -- Radiometry of point sources -- Irradiance of a surface -- Flux incident on a circular aperture -- Radiometry of extended sources -- Lambertian surface -- Exitance of a Lambertian surface -- Radiance of a tube of rays -- Irradiance by a Lambertian surface element -- Irradiance by a Lambertian disc -- Radiometry of point object imaging -- Radiometry of extended object imaging -- Image radiance -- Pupil distortion -- Image irradiance: aperture stop in front of the system -- Image irradiance: aperture stop in back of the system -- Telecentric systems -- Throughput -- Condition for uniform image irradiance -- Concentric systems -- Photometry -- Photometric quantities and spectral response of the human eye -- Imaging by a human eye -- Brightness of a Lambertian surface -- Observing stars in the daytime -- Appendix: Radiance theorem -- References -- Problems.

Chapter 3: Optical aberrations -- Introduction -- Wave and ray aberrations -- Definitions -- Relationship between wave and ray aberrations -- Defocus aberration -- Wavefront tilt -- Aberration function of a rotationally symmetric system -- Rotational invariants -- Power-series expansion -- Explicit dependence on object coordinates -- No explicit dependence on object coordinates -- Zernike circle-polynomial expansion -- Relationships between coefficients of power-series and -- Zernike-polynomial expansions -- Observation of aberrations -- Primary aberrations -- Interferograms -- Conditions for perfect imaging -- Imaging of a 3-D object -- Imaging of a 2-D transverse object -- Imaging of a 1-D axial object -- Linear coma and the sine condition -- Optical sine theorem -- Linear coma and offense against the sine condition -- Appendix A: Degree of approximation in eq. (3-11) -- Appendix B: Wave and ray aberrations: alternative definition and derivation -- References -- Problems.

Chapter 4: Geometrical point-spread function -- Introduction -- Theory -- Application to primary aberrations -- Spherical aberration -- Coma -- Astigmatism and field curvature -- Distortion -- Balanced aberrations for minimum spot sigma -- Spot diagrams -- Aberration

tolerance and golden rule of optical design -- References -- Problems.
Chapter 5: Calculation of primary aberrations -- Refracting systems -- Introduction -- Spherical refracting surface with aperture stop at the surface -- On-axis point object -- Off-axis point object -- Aberrations with respect to Petzval image point -- Aberrations with respect to Gaussian image point -- Spherical refracting surface with aperture stop not at the surface -- On-axis point object -- Off-axis point object -- Aplanatic points of a spherical refracting surface -- Conic refracting surface -- Sag of a conic surface -- On-axis point object -- Off-axis point object -- General aspherical refracting surface -- Series of coaxial refracting (and reflecting) surfaces -- General imaging system -- Petzval curvature and corresponding field curvature wave aberration -- Relationship among Petzval curvature, field curvature, and astigmatism -- Wave aberration coefficients -- Aberration function in terms of Seidel sums or Seidel coefficients -- Effect of change in aperture stop position on the aberration function -- Change of peak aberration coefficients -- Illustration of the effect of aperture-stop shift on coma and distortion -- Aberrations of a spherical refracting surface with aperture stop not at the surface obtained from those with stop at the surface -- Thin lens -- Imaging relations -- Thin lens with spherical surfaces and aperture stop at the lens -- Petzval surface -- Spherical aberration and coma -- Aplanatic lens -- Thin lens with conic surfaces -- Thin lens with aperture stop not at the lens -- Field flattener -- Imaging relations -- Aberration function -- Plane-parallel plate -- Introduction -- Imaging relations -- Aberration function -- Chromatic aberrations -- Introduction -- Single refracting surface -- Thin lens -- General system: surface-by-surface approach -- General system: use of principal and focal points -- Chromatic aberrations as wave aberrations -- Symmetrical principle -- Pupil aberrations and conjuage-shift equations -- Introduction -- Pupil aberrations -- Conjugate-shift equations -- Invariance of image aberrations -- Simultaneous correction of aberrations for two or more object positions -- References -- Problems.
Chapter 6: Calculation of primary aberrations: reflecting and catadioptric systems -- Introduction -- Conic reflecting surface -- Conic surface -- Imaging relations -- Aberration function -- Petzval surface -- Spherical mirror -- Aberration function and aplanatic points for arbitrary location of aperture stop -- Aperture stop at the mirror surface -- Aperture stop at the center of curvature of mirror -- Paraboloidal mirror -- Catadioptric systems -- Introduction -- Schmidt camera -- Bouwers-Maksutov camera -- Beam expander -- Introduction -- Gaussian parameters -- Aberration contributed by primary mirror -- Aberration contributed by secondary mirror -- System aberration -- Two-mirror astronomical telescopes -- Introduction -- Gaussian parameters -- Petzval surface -- Aberration contributed by primary mirror -- Aberration contributed by secondary mirror -- System aberration -- Classical Cassegrain and Gregorian telescopes -- Aplanatic Cassegrain and Gregorian telescopes -- Afocal telescope -- Couder anastigmatic telescopes -- Schwarzschild telescope -- Dall-Kirkham telescope -- Astronomical telescopes using aspheric plates -- Introduction -- Aspheric plate in a diverging object beam -- Aspheric plate in a converging image beam -- Aspheric plate and a conic mirror -- Aspheric plate and a two-mirror telescope -- References -- Problems.
Chapter 7: Calculation of primary aberrations: perturbed optical systems -- Introduction -- Aberrations of a misaligned surface -- Decentered surface -- Tilted surface -- Despaced surface -- Aberrations of perturbed two-mirror telescopes -- Decentered

secondary mirror -- Tilted secondary mirror -- Decentered and tilted secondary mirror -- Despaced secondary mirror -- Fabrication errors -- Refracting surface -- Reflecting surface -- System errors -- Error tolerance -- References -- Problems -- Bibliography -- Index.

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.