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Descrizione fisica	1 online resource (884 p.)
Collana	Wiley series in pure and applied optics
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Nota di contenuto	Optical Shop Testing; Contents; Preface; Contributors; Chapter 1. Newton, Fizeau, and Haidinger Interferometers; 1.1. Introduction; 1.2. Newton Interferometer; 1.2.1. Source and Observer's Pupil Size Considerations; 1.2.2. Some Suitable Light Sources; 1.2.3. Materials for the Optical Flats; 1.2.4. Simple Procedure for Estimating Peak Error; 1.2.5. Measurement of Spherical Surfaces; 1.2.6. Measurement of Aspheric Surfaces; 1.2.7. Measurement of Flatness of Opaque Surfaces; 1.3. Fizeau Interferometer; 1.3.1. The Basic Fizeau Interferometer; 1.3.2. Coherence Requirements for the Light Source 1.3.3. Quality of Collimation Lens Required1.3.4. Liquid Reference Flats; 1.3.5. Fizeau Interferometer with Laser Source; 1.3.6. Multiple-Beam Fizeau Setup; 1.3.7. Testing Nearly Parallel Plates; 1.3.8. Testing the Inhomogeneity of Large Glass or Fused Quartz Samples; 1.3.9.

Testing the Parallelism and Flatness of the Faces of Rods, Bars and Plates; 1.3.10. Testing Cube Corner and Right-Angle Prisms; 1.3.11. Fizeau Interferometer for Curved Surfaces; 1.3.12. Testing Concave and Convex Surfaces; 1.4. Haidinger Interferometer; 1.4.1. Applications of Haidinger Fringes
 1.4.2. Use of Laser Source for Haidinger Interferometer; 1.4.3. Other Applications of Haidinger Fringes; 1.5. Absolute Testing of Flats;
 Chapter 2. Twyman-Green Interferometer; 2.1. Introduction; 2.2. Beam-Splitter; 2.2.1. Optical Path Difference Introduced by the Beam Splitter Plate; 2.2.2. Required Accuracy in the Beam Splitter Plate; 2.2.3. Polarizing Cube Beam Splitter; 2.2.4. Nonpolarizing Cube Beam Splitter; 2.3. Coherence Requirements; 2.3.1. Spatial Coherence; 2.3.2. Temporal Coherence; 2.4. Uses of a Twyman-Green Interferometer; 2.4.1. Testing of Prisms and Diffraction Rulings
 2.4.2. Testing of Lenses; 2.4.3. Testing of Microscope Objectives; 2.5. Compensation of Intrinsic Aberrations in the Interferometer; 2.6. Unequal-Path Interferometer; 2.6.1. Some Special Designs; 2.6.2. Improving the Fringe Stability; 2.7. Open Path Interferometers; 2.7.1. Mach-Zehnder Interferometers; 2.7.2. Oblique Incidence Interferometers; 2.8. Variations from the Twyman-Green Configuration; 2.8.1. Multiple Image Interferometers; 2.8.2. Interferometers with Diffractive Beam Splitters; 2.8.3. Phase Conjugating Interferometer; 2.9. Twyman-Green Interferograms and their Analysis
 2.9.1. Analysis of Interferograms of Arbitrary Wavefronts
 Chapter 3. Common-Path Interferometers; 3.1. Introduction; 3.2. Burch's Interferometer Employing Two Matched Scatter Plates; 3.2.1. Fresnel Zone Plate Interferometer; 3.2.2. Burch and Fresnel Zone Plate Interferometers for Aspheric Surfaces; 3.2.3. Burch and Fresnel Zone Plate Interferometers for Phase Shifting; 3.3. Birefringent Beam Splitters; 3.3.1. Savart Polariscopes; 3.3.2. Wollaston Prism; 3.3.3. Double-Focus Systems; 3.4. Lateral Shearing Interferometers; 3.4.1. Use of a Savart Polariscopes; 3.4.2. Use of a Wollaston Prism
 3.5. Double-Focus Interferometer

Sommario/riassunto

The purpose of this third edition is to bring together in a single book descriptions of all tests carried out in the optical shop that are applicable to optical components and systems. This book is intended for the specialist as well as the non-specialist engaged in optical shop testing. There is currently a great deal of research being done in optical engineering. Making this new edition very timely.