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Nota di contenuto	Preface -- 1. The nature of wavefronts. 1.1. Introduction; 1.2. Phasefronts; 1.3. Interaction of wavefronts with optical systems; 1.4. Wavefront description; 1.5. Wavefronts in Fourier optics; 1.6. Wavefront sensor; 1.7. References -- Appendix 1.1. Basic geometrical optics -- 2. Parameters for wavefront sensor measurement. 2.1. Introduction; 2.2. Global wavefront tilt; 2.3. Relation between exit pupil phase and image; 2.4. Basic measurable parameters; 2.5. Physical constraints on HEL WFS operations; 2.6. Beam sampling; 2.7. References -- 3. Piston, pointing, and focus. 3.1. Introduction; 3.2. Piston and optical phased arrays; 3.3. Wavefront tilt sensing; 3.4. Wavefront focus sensing; 3.5. Focus and tilt wavefront sensor; 3.6. References -- Appendix 3.1. Axial focus shift -- 4. Direct wavefront sensing: W(x,y). 4.1. Introduction; 4.2. Radial shear interferometry; 4.3. Point diffraction interferometer; 4.4. PDI wavefront sensor; 4.5. Application of PDI-WFS on Hubble Recovery Program; 4.6. IR PDI; 4.7. Application of an IR PDI wavefront sensor on the Airborne Laser Lab; 4.8. Large integrated telescope experiment; 4.9. References -- Appendix 4.1. General interference equation -- 5. Indirect wavefront measurement, Part I. 5.1. Introduction; 5.2. Knife edge; 5.3. Lateral shear interferometry; 5.4. Itek cross grating sensor; 5.5. Rotating grating; 5.6. Laser wavefront analyzer; 5.7. References. 6. Indirect wavefront measurement, Part II. 6.1. Introduction; 6.2.

Basics of Hartmann sensing; 6.3. Parallel Hartmann sensing; 6.4. Shack-Hartmann sensor (lenslet arrays); 6.5. Application of Shack-Hartmann on Hubble; 6.6. Scanning Hartmann sensor; 6.7. Application of scanning Hartmann sensor; 6.8. References -- 7. Wavefront sensor characterization and calibration. 7.1. Introduction; 7.2. Types of tests; 7.3. The Fizeau interferometer; 7.4. Wavefront sensor evaluation: a case history; 7.5. Ray misidentification; 7.6. Discussion; 7.7. References -- 8. Comparison of wavefront sensor techniques. 8.1. Introduction; 8.2. Aberration generator; 8.3. Calibration of the aberration generator; 8.4. Summary of results; 8.5. Discussion; 8.6. Calibration of auxiliary optics; 8.7. References -- 9. Wavefront sensors and adaptive optics. 9.1. Introduction; 9.2. Generic wavefront compensating system; 9.3. Adaptive optics on the Airborne Laser Lab; 9.4. Real time atmospheric compensation; 9.5. Laser beacons or artificial stars; 9.6. HEL local loop adaptive optics; 9.7. References -- 10. Intensity-based wavefront sensing. 10.1. Introduction; 10.2. Axial intensity; 10.3. Curvature sensor; 10.4. Phase retrieval; Software package; 10.5. References -- Index.

Sommario/riassunto

This is a practical book on wavefront sensing. Emphasis is on principles and techniques, rather than detailed mathematical analysis of such systems. The goal is to provide the reader with a qualitative understanding of wavefront sensor operation.
