Adaptive optics at the University of Hawaii I: current performance at the telescope  p. 2
Observations of faint objects with laser beacon adaptive optics  p. 10
W.M. Keck Observatory adaptive optics program  p. 22
Adaptive optics system for the Very Large Telescope  p. 34
Beams and image formation with adaptive correction  p. 46
Adaptive optics: a general purpose system for astronomy  p. 58
Wavefront compensation using active lenses  p. 77
Synthetic aperture adaptive optics concept  p. 88
Analysis and simulation of aperture-sizing strategies with partial adaptive optics  p. 99
Optimizing the locations of multiconjugate wavefront correctors  p. 110
Theoretical point-spread function for modal adaptive optics  p. 117
Adaptive optics at the University of Hawaii III: the adaptive optical PSF  p. 129
Anisoplanatism effects on diffraction-based performance calculations in adaptive optical systems  p. 137
Canada-France-Hawaii Telescope adaptive optics bonnette II: simulations and control  p. 149
Adaptive optics for in-orbit spherical aberration correction  p. 161
Fractal nature of atmospherically degraded wavefronts: an aid to prediction  p. 180
Issues in the design and optimization of adaptive optics and laser guide stars for the Keck telescopes  p. 189
Implication of atmospheric models on adaptive optics designs  p. 201
Adaptive optics package designed for astronomical use with a laser guide star tuned to an absorption line of atomic sodium  p. 212
Distortion of light beam and correction of adaptive optics in the atmosphere  p. 221
Optimal wavelength selection for adaptive optics telescopes  p. 227
Software package for adaptive optics performance analysis  p. 239
Impact of segmentation errors and detector quantization on nonsolar planet detection using a space-based adaptive optical telescope  p. 246
Performance simulation and experimental results of low-order adaptive optics systems in conjunction with computer postprocessing  p. 260
Astronomical constraints of laser-beacon adaptive optics systems I: the tracking problem  p. 265
Implementation of cw- and pulsed-laser beacons for astronomical adaptive optics systems  p. 272
Measurement of focus and off-axis anisoplanatism using a sodium resonance beacon and binary stars  p. 284
Simulation and analysis of laser guide star adaptive optics systems for the 8- to 10-m-class telescopes  p. 295
Measurement of atmospheric coherence length and isoplanatic angle  p. 304
High-speed seeing measurements at the Keck Telescope  p. 310
Time series of atmospherically distorted wavefronts  p. 314
Fundamental limitation in adaptive optics: how to eliminate it? A full-aperture tilt measurement technique with a laser guide star  p. 321
Sodium laser guide star system at Lawrence Livermore National Laboratory: system description and experimental results p. 326
Field evaluation of two new continuous-wave dye laser systems optimized for sodium beacon excitation p. 342
Design of a fieldable laser system for a sodium guide star p. 352
Preliminary closed-loop results from an adaptive optics system using a sodium resonance guide star p. 373
Point-ahead-compensated illumination tests using the 500-channel Innovative Science and Technology Experimental Facility adaptive optics system p. 381
Compensated imaging over arcminutes with fringes in the sodium layer p. 394
First light on an edge-matched segmented adaptive mirror at the McMath Telescope p. 407
Adaptive optics for the 6.5-m single mirror conversion of the Multiple Mirror Telescope p. 414
Binary adaptive optics: a status report p. 421
Adaptive optics performance analysis for the Gemini 8-m Telescopes Project p. 437
Astronomical adaptive optics system for use on a 4-m-class telescope at optical wavelengths p. 447
High-resolution infrared imaging utilizing a tip-tilt secondary mirror p. 458
Description of the Chicago Adaptive Optics System (ChAOS) p. 468
Images of asteroids 1 Ceres, 2 Pallas, and 4 Vesta with adaptive optics at the Starfire Optical Range p. 474
Adaptive optics at Lick Observatory: system architecture and operations p. 490
Hartmann wavefront sensing with an artificial neural network processor p. 496
New pupil-plane wavefront gradient sensor p. 502
Adaptive optics at the University of Hawaii IV: a photon-counting curvature wavefront sensor p. 508
Performance comparison of the shearing interferometer and Hartmann wavefront sensor p. 519
Curvature-based wavefront sensor for use on extended patterns p. 528
Curvature sensing analysis p. 539
Novel wavefront sensor used in adaptive optics: Zernike polynomials coefficients sensor p. 549
Single-image wavefront curvature sensing p. 555
Experiments on wavefront sensing at La Palma p. 562
Modified Hartmann-Shack wavefront sensing and iterative wavefront reconstruction p. 574
Multitiered wavefront sensor using binary optics p. 588
New circular radial-scan frame-storage CCDs for low-order adaptive optics wavefront curvature sensing p. 596
Development of a low-noise high-frame-rate CCD for adaptive optics p. 607
Rapid-framing CCDs with 16 output ports for laser guide star sensors p. 613
Avalanche photodiodes and area CCDs for fast-guiding and wavefront-sensing applications p. 629
Large-telescope natural guide star adaptive optics system p. 636
Wavefront reconstruction by machine learning using the delta rule p. 647
Zernike decomposition of anisoplanatism for laser beacons and natural guide stars p. 655
Multiframe blind deconvolution with high photon noise p. 643
Novel avalanche photodiode for adaptive optics p. 650
Wavefront reconstruction algorithms for astronomical adaptive optics systems p. 655
Wavefront reconstruction methods for a natural guide star adaptive optics application to the Keck Telescope p. 666
Xinetics low-cost deformable mirrors with actuator replacement cartridges p. 680
Adaptive optics: description of available components at Laserdot p. 688
Bimorph deformable mirror design p. 703
High-bandwidth interferometer for real-time measurement of deformable mirrors p. 715
Quasi-hexagonal deformable mirror geometries p. 726
High-performance deformable mirror for wavefront compensation p. 740
Effect of hysteresis on the performance of deformable mirrors and methods of its compensation p. 754
Membrane deformable mirror for SUBARU adaptive optics p. 762
Efficiency of deformable and segmented mirrors for correction of turbulence-induced wavefront distortions p. 768
Fabrication and testing of a large active primary reflector structure p. 776
Interferometric measurement and analysis of influence functions for a large deformable mirror p. 788
Optimizing a deformable secondary mirror for adaptive optics p. 800
Highly variable curvature mirrors for the Very Large Telescope Interferometer p. 811
Design and operation of the infrared chopping secondary mirror for the Keck 10-m telescope p. 821
PUEO: the Canada-France-Hawaii Telescope adaptive optics bonnette I: system description p. 833
Technology for quiet optical systems in space p. 844
Correctability modeling of a large deformable mirror p. 856
Artificial intelligence system and optimized modal control for the ADONIS adaptive optics instrument p. 867
Adaptive optics at the University of Hawaii II: control system with real-time diagnostics p. 879
Experiments in modeling and control of the ASCIE segmented reflector p. 889
Adaptive optics: a method for real-time optimization of the loop gains in AO systems p. 899
Pamela: progress report on a 0.5-m-diam telescope with a 36-segment adaptive primary mirror p. 910
Experiments with adaptive nonlinear control systems for atmospheric correction p. 920
Optimizing closed-loop adaptive optics performance using multiple control bandwidths p. 935
Coupling efficiency of starlight to low-order-mode optical fibers using adaptive optics: rationale and experiments using the Wavefront Control Experiment p. 949
Adonis: a user-friendly adaptive optics system for the ESO 3.6-m telescope p. 955
Five-order correction adaptive optics system for meter-class telescopes p. 962
Study of anisoplanatism using binary stars p. 974
Low-order adaptive optics and single-mode fibers in stellar interferometry p. 980
Estimating residual aberrations from images taken at the user focus of a telescope compensated by adaptive optics p. 989

Nonreciprocal optical systems with phase-conjugating mirrors: the new class of optical imaging systems p. 998

Wide-aperture laser telescope with the phase-conjugation compensation of the segmented main mirror p. 1004

Segmented mirror control system p. 1008

Optical wavefront corrector based on liquid crystal concept p. 1020

Mirror temperature stabilization and deformation by local heaters p. 1027

Adaptive (immunized) speckle interferometry concept p. 1035

Some features of segmented mirror fabrication and testing p. 1048

New optical systems p. 1056

Correction of anisoplanatic blur by using phase diversity p. 1066

Wavefront control using a 64x64-pixel liquid crystal array p. 1068

UnISIS: University of Illinois Seeing Improvement System (UnISIS)--an adaptive optics instrument for the Mt. Wilson 2.5-m telescope p. 1074

Performance and results of the COME-ON+ adaptive optics system at the ESO 3.6-m telescope p. 1088

Astrophysical results with the COME-ON+ adaptive optics system p. 1099

Performance of adaptive optics at Lick Observatory p. 1110

Field tests of the Wavefront Control Experiment p. 1121

Active optics and coronagraphy with the Hubble Space Telescope p. 1135

Experimental adaptive optics system p. 1146

Adaptive optics with liquid crystal phase screens p. 1155

Table of Contents provided by Blackwell's Book Services and R.R. Bowker. Used with permission.