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Topical Meeting on Adaptive Optics, October 2-6, 1995, Garchng Bei München, Germany-M. J. Cullum 1996
Principles of Adaptive Optics-Robert K. Tyson 1998 Principles of Adaptive Optics is a comprehensive guide to adaptive optics systems and components. It covers all the basic principles, analytical tools, and instrumentation hardware included in an adaptive optics system. This single volume resource includes hundreds of references and outlines design and performance analysis of adaptive optics wavefront sensors, controls, correcting optics, and their integrated operation. The book discusses adaptive optics, system analysis and system design, and the major subsystems: wavefront sensors, correcting optics, wavefront reconstructors, and real-time controls. It details the principal equations that govern atmospheric turbulence compensation.The book contains nearly 700 citations that cover a quarter century of research and development. It includes a new section on laser guide stars and their usage. It also includes recently declassified military information on laser guided stars and all the governing equations of wavefront error, imaging system resolution, beam tilt or wander, scintillation, temporal spectra, anisoplantism, and guide star position.
Adaptive Optics-Michael S. Tarov 2002 Adaptive optics is a field which is coming into its own with new discoveries occurring almost daily both in astronomy and in applications of AO in applied fields. In an adaptive optics system, the output from a wavefront sensor is used to calculate corrections that actively remove distortions from an image. The applications of adaptive optics in vision science have received considerable impetus from the knowledge developed by astronomers about how to correct images using AO technology. It is expected that developments in adaptive optics will radically change the face of astronomy in the 21st century. These systems will largely overcome the main limitation of ground-based telescopes, namely the severe reduction in image quality caused by turbulence in the Earth's atmosphere. Intended for use at near infrared wavelengths, adaptive optics allow imaging and spectroscopy at the limit of resolution imposed by optical diffraction an advance in astronomer's ability to view the heavens unparalleled since the invention of the telescope. AO is now also entering clinical medicine in the field of ophthalmology and other related fields. This new book presents several hundred current abstracts in the field, each fully indexed, for ease of access and contains a CD ROM for further research.
Status and Prospects of Astronomy in Germany 2003-2016-Deutsche Forschungsgemeinschaft (DFG) 2009-01-28 This white paper identifies the main issues and major recommendations for German astronomical research. Their implementation will require initiative from all partners and will allow German astronomers and astrophysicists to continuously play a leading role in their field.
Science with Adaptive Optics-Wolfgang Brandner 2005-04-11 The field of Adaptive Optics (AO) for astronomy has matured in recent years, and diffraction-limited image resolution in the near-infrared is now routinely achieved by ground-based 8 to 10m class telescopes. This book presents the proceedings of the ESO Workshop on Science with Adaptive Optics held in the fall of 2003. The book provides an overview on AO instrumentation, data acquisition and reduction strategies, and covers observations of the sun, solar system objects, circumstellar disks, substellar companions, HII regions, starburst environments, late-type stars, the galactic center, active galaxies, and quasars. The contributions present a vivid picture of the multitude of science topics being addressed by AO in observational astronomy.
Topics in Adaptive Optics-Robert Tyson 2012-01-20 Advances in adaptive optics technology and applications move forward at a rapid pace. The basic idea of wavefront compensation in real-time has been around since the mid 1970s. The first widely used application of adaptive optics was for compensating atmospheric turbulence effects in astronomical imaging and laser beam propagation. While some topics have been researched and reported for years, even decades, new applications and advances in the supporting technologies occur almost daily. This book brings together 11 original chapters related to adaptive optics, written by an international group of invited authors. Topics include atmospheric turbulence characterization, astronomy with large telescopes, image post-processing, high power laser distortion compensation, adaptive optics and the human eye, wavefront sensors, and deformable mirrors.
Spatial Light Modulators-Richard Lee Sutherland 1998
Adaptive Optics and Applications-Robert K. Tyson 1997
Dynamic Astronomy in Latin America-Carlos Abad 2006 “The Third International Meeting of Dynamic Astronomy in Latin America, (Tercera Reunion sobre Astronomıa Dinamica en Latino-America) which we named ADeLA-2004, was held on November 22-24, 2004 in Merida. It represents the consolidation and continuity of a series of meetings about Astrometry and related topics. The first meeting took place in 2001 in San Juan (Argentina), followed by the second meeting in 2002 in Araraquara (Brazil). Astrometry, after an original and basic contribution not only to Astronomy as a branch of science but also to the direct development of society, starts declining when in the middle of the twentieth century it gets far from astrophysical research and the human mind finds alternative ways to solve the upcoming development problems. This fact has progressively made the financing models for scientific projects focus on and expandtowards the more "productive" areas of Astronomy, leaving aside Astrometry, which we consider a vital area.Even when preparing themselves academically, the astrometrists with their meticulous work, do not find easily government support and ways to compete.The rapid development of detectors and observation techniques during the last decade has almost completely transformed Astronomy. The data collected from observation are once again the main source for the theoreticaldevelopment of this science. Moreover, observations have often changed many theoretical concepts.Astrometry has not been left behind and the future, almost magical, observations include the space projectssuch as GAIA and SIM. These projects should be seen as the spur for the adaptation of Astrometry to the new era, making this area a basic one in the professional training of any astronomer. The astrometrist is the one whomust enlarge his scope to encompass data interpretation, taking advantage of the meticulous and craftsman-like character that this work has always had in order to access the big data bases that will be generated and arein danger of being considered as sources of statistical information. This concern for the future of Astrometry was discussed in this meeting. ADeLA-2004 had two additional innovations. The first one consisted in including a workshop, or a series of conferences on topics related to Astrometry, addressed to students interested in astronomy. This meeting has offered the opportunity to gather important foreign researchers. The participation of ESO Vitacura (Chile) researchers in ADeLA 2004, as well as the usual ADeLA meeting participants, facilitated a wide and diverseseries of lectures on related topics. These lectures were addressed both in a pedagogical and a professional atmosphere which encouraged Venezuelan undergraduate, and graduate students interested in or majoring in astronomy, to participate in both events. The so-called "Taller de ADeLA-2004" took place after the meeting on November 25 and 26. The workshop improved the relationships between the Venezuelan scientific and student communities."
High Precision Infra-Red Stellar Interferometry-Benjamin F. Lane 2003-10 This dissertation describes work performed at the Palomar Testbed Interferometer (PTI) during 1998-2002. Using PTI, we developed a method to measure stellar angular diameters in the 1-3 milli-arcsecond range with a precision of better than 5%. Such diameter measurements were used to measure the mass-radius relations of several lower main sequence stars and hence verify model predictions for these stars. In addition, by measuring the changes in Cepheid angular diameters during the pulsational cycle and applying a Baade-Wesselink analysis we are able to derive the distances to two galactic Cepheids (h Aql & z Gem) with a precision of 10%; such distance determinations provide an independent calibration of the Cepheid period-luminosity relations that underpin current estimates of cosmic distance scales. Second, we used PTI and the adaptive optics facility at the Keck Telescope on Mauna Kea to resolve the low mass binary systems BY Dra and GJ 569B, resulting in dynamical mass determinations for these systems. GJ 569B most likely contains at least one sub-stellar component, and as such represents the first dynamical mass determination of a brown dwarf. Finally, a new observing technique, dual star phase referencing, was developed and demonstrated at PTI. Phase referencing allows interferometric observations of stars previously too faint to observe, and is a prerequisite for large-scale interferometric astrometry programs such as the one planned for the Keck Interferometer; interferometric astrometry is a promising technique for the study of extra-solar planetary systems, particularly ones with long-period planets.
Adaptive Optical System Technologies-Domenico Bonaccini 1998
The Influence of Binaries on Stellar Population Studies-Dany Vanbeveren 2001-08-31 This book reviews recent observations of non-evolved and evolved binary populations in clusters and the field with special emphasis on statistical biases, incompleteness, and distribution functions. It considers different binary types and presents and discusses recent results in the field.
Asteroids III-William Frederick Bottke 2002-01-01 Two hundred years after the first asteroid was discovered, asteroids can no longer be considered mere points of light in the sky. Spacecraft missions, advanced Earth-based observation techniques, and state-of-the-art numerical models are continually revealing the detailed shapes, structures, geological properties, and orbital characteristics of these smaller denizens of our solar system. This volume brings together the latest information obtained by spacecraft combined with astronomical observations and theoretical modeling, to present our best current understanding of asteroids and the clues they reveal for the origin an,d evolution of the solar system. This collective knowledge, prepared by a team of more than one hundred international authorities on asteroids, includes new insights into asteroid-meteorite connections, possible relationships with comets, and the hazards posed by asteroids colliding with Earth. The book's contents include reports on surveys based on remote observation and summaries of physical properties; results of in situ exploration; studies of dynamical, collisional, cosmochemical, and weathering evolutionary processes; and discussions of asteroid families and the relationships between asteroids and other solar system bodies. Two previous Space Science Series volumes have established standards for research into asteroids. Asteroids III carries that tradition forward in a book that will stand as the definitive source on its subject for the next decade.
Adaptive Optical Systems and Applications-Robert K. Tyson 1995
Optical Turbulence-Elena Masciadri 2009 This book collects most of the talks and poster presentations presented at the Optical Turbulence OCo Astronomy meets Meteorology international conference held on 15OCo18 September, 2008 at Nymphes Bay, Alghero, Sardinia, Italy. The meeting aimed to deal with one of the major causes of wavefront perturbations limiting the astronomical high-angular-resolution observations from the ground. The uniqueness of this meeting has been the effort to attack this topic in a synergic and multidisciplinary approach promoting constructive discussions between the actors of this science OCo the astronomers, meteorologists, physicists of the atmosphere and the experts in adaptive optics and interferometry techniques whose main goal is to correct, in real-time, the wavefront perturbations induced by atmospheric turbulence to restore at the telescope foci the best available image quality. Sample Chapter(s). Chapter 1: Optical Turbulence in High Angular Resolution Techniques in Astronomy (494 KB). Contents: Optical Turbulence in High Angular Resolution Techniques in Astronomy (J M Beckers); Optical Turbulence Profiles at CTIO from a 12-Element Lunar Scintillometer (P Hickson et al.); High Resolution SLODAR Measurements on Mauna Kea (T Butterley et al.); How We Can Understand the Antarctic Atmospheric? (J W V Storey et al.); The Paranal Surface Layar (J Melnick et al.); Introduction to Data Assimilation in Meteorology (P Brousseau OC L Auger); The Mauna Kea Weather Center: A Case for Custom Seeing Forecasts (T Cherubini et al.); Dealing with Turbulence: MCAO Experience and Beyond (R Ragazzoni et al.); Future-Look Science Operations for the LBT (R F Green); Surface Layer SLODAR (J Osborn et al.); and other papers. Readership: Advanced undergraduates and graduate students, and physicists working in the field of astronomy.
Binary Stars as Critical Tools and Tests in Contemporary Astrophysics (IAU S240)-International Astronomical Union. Symposium 2007-08-27 IAU S240 focuses on recent advances across the broad field of binary star research.
An Introduction to Close Binary Stars-R. W. Hilditch 2001-03-12 This 2001 book was the first to provide a pedagogical and comprehensive introduction to binary stars for advanced students.
Adaptive Optics and Optical Structures-Robert K. Tyson 1990
Adaptive Optics for High-contrast Imaging of Faint Substellar Companions-Katie M. Morzinski 2011
Laser Focus World- Global electro-optic technology and markets.
Adaptive Optics Systems and Technology- 2001
Applied Optics- 1998
Multiple Stars across the H-R Diagram-Swetlana Hubrig 2007-10-13 This volume presents results from the ESO workshop Multiple Stars across the H-R Diagram, held in Garching in July 2005. It covers observations of multiple stars from ground and space, dynamical and stellar evolution in multiple systems, formation and early evolution of multiple stars, and special components of multiple stars. The book reviews the current state of observational and theoretical knowledge and discusses future studies for further progress in the field.
Selected Papers on Adaptive Optics and Speckle Imaging-Devon G. Crowe 1994
Advancements in Adaptive Optics-Domenico Bonaccini Calia 2004 Proceedings of SPIE present the original research papers presented at SPIE conferences and other high-quality conferences in the broad-ranging fields of optics and photonics. These books provide prompt access to the latest innovations in research and technology in their respective fields. Proceedings of SPIE are among the most cited references in patent literature.
The Origins, Evolution, and Destinies of Binary Stars in Clusters-E. F. Milone 1996
From Darkness to Light-Thierry Montmerle 2001 Annotation Approximately 90 papers from the April 2000 conference in Corsica, France discuss interstellar medium structure and magnetic fields, clouds and collapse, collapse and protostars, the origin of the initial mass function, cluster properties and evolution, pre-main sequence evolution, late evolution, and feedback mechanisms. Contributors include physicists, astronomers, and other scientists from Europe, Asia, and North and Soputh America. Sixteen pages of photographs from the conference are included. Annotation c. Book News, Inc., Portland, OR (booknews.com)
Active and Adaptive Optical Systems-Mark A. Ealey 1991
Atmospheric Propagation, Adaptive Systems, and Laser Radar Technology for Remote Sensing-European Optical Society 2001
Image Reconstruction and Restoration II-Timothy J. Schulz 1997
Adaptive Optics for Laser Systems and Other Applications-Gilles Cheriaux 2007 Proceedings of SPIE present the original research papers presented at SPIE conferences and other high-quality conferences in the broad-ranging fields of optics and photonics. These books provide prompt access to the latest innovations in research and technology in their respective fields. Proceedings of SPIE are among the most cited references in patent literature.
Proceedings of the ICO-16 Satellite Conference on Active and Adaptive Optics-Fritz Merkle 1994
Phase Conjugation and Adaptive Optics-Vladimir E. Sherstobitov 1996
Active and Adaptive Optical Components and Systems- 1993
Publications of the Astronomical Society of Japan-Nihon Tenmon Gakkai 2004
Birth and Evolution of Binary Stars-International Astronomical Union. Symposium 2000
The Nature and Evolutionary Status of Herbig Ae/Be Stars-Pik Sin Thé 1994
Optical Diagnostics in Fluid and Thermal Flow-Soyoung S. Cha 1993
Mercury- 2001
Issues in Astronomy and Astrophysics: 2011 Edition- 2012-01-09 Issues in Astronomy and Astrophysics / 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Astronomy and Astrophysics. The editors have built Issues in Astronomy and Astrophysics: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Astronomy and Astrophysics in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Astronomy and Astrophysics: 2011 Edition has been produced by the world’s leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

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