

## Short Period Binary Stars Observations Analyses And Results Astrophysics And Space Science Library

Focussing on the formulation of mathematical models for the light curves of eclipsing binary stars, and on the algorithms for generating such models, this book provides astronomers, both amateur and professional, with a guide for - specifying an astrophysical model for a set of observations - selecting an algorithm to determine the parameters of the model - estimating the errors of the parameters. It is written for readers with knowledge of basic calculus and linear algebra: appendices cover mathematical details on such matters as optimisation, co-ordinate and specific models. While emphasising the physical and mathematical framework, the discussion remains close to the problems of actual implementation. The book concludes with chapters on specific models and approaches and the authors'views on the structure of future light-curve programs.

Observing variable stars is one of the major contributions amateur astronomers make to science. There are 36,000 variable stars listed in the General Catalogue of Variable Stars, so it is clearly impossible for the limited number of professional observatories to target even the majority of them. That's where amateur astronomers come in - thousands of them turning their telescopes to the sky every night. Variable star observing is the most popular of "real science" activities for amateurs, and Gerry Good's book provides everything needed. The first part of the book provides a highly detailed account of the various classes of variable star, with examples, illustrations and physical descriptions. The second section covers practical aspects of observing, everything from preparation and planning, through observing techniques, to data management and reduction.

Astronomy and Astrophysics Abstracts is devoted to the recording, summarizing and indexing of astronomical publications throughout the world. Two volumes are scheduled to appear per year. Volume 67 records 10,903 papers covering besides the classical fields of astronomy and astrophysics such matters as space flights related to astronomy, lunar and planetary probes and satellites, meteorites and interplanetary matter, X rays and cosmic rays, quasars and pulsars. The abstracts are classified under more than one hundred subject categories thus permitting a highly detailed surveying of the bulk of material published on the same topic within six months. For instance, this volume records 119 papers on minor planets, 155 papers on supernovae, and 554 papers on cosmology.

M. KITAMURA Tokyo Astronomical Observatory, Japan and E. BUDDING Carter Observatory, Wellington, New Zealand The Third Asian-Pacific Regional Meeting of the International Astronomical Union was held from 30 September to 5 October, 1984, at the Kyoto International Conference Hall, Kyoto, Japan, under the auspices of the Union and the Astronomical Society of Japan with Kyoto University as host. Three hundred and twenty-seven astronomers from twenty-two countries participated at the meeting and more than two hundred papers were presented. The meeting was not only to promote scientific developments and cooperation, but also to offer a chance for all participants to become acquainted with major astronomical projects of the Asian-Pacific Region. Therefore, two new sessions of 'A View of Asian-Pacific Astronomy' and 'Astronomical Education in the Asian Pacific Region', which had not been undertaken in the previous two Regional Meetings, were arranged as a first trial, besides the other ordinary scientific sessions. The Scientific Organizing Committee consisted of D.C. Morton (chairman), R.N. Manchester, S.M. Gong, K.J. Feng, C.S. Shen, J.C. Bhattacharyya, G. Swa B. Hidayat, H.M.K. Al-Nairny, H.S. Yun, J.B. Hearnshaw, S.C. Wolff, I. Ka rup, waguchi, M. Kitamura, M. Morimoto, M. Oda, andJ. P. Swings (IAU, ex officio); and the Local Organizing Committee of T. Kogure (chairman), T. Ishizawa, M. Saite, R. Hirata, SInagaki, E. Hiei, M. Kitamura, B. Takase, N. Kaifu, H. Maehara, Y. Osaki, and A. Yamasaki.

Richard M. West, Light-curves and Elements of the Eclipsing Binary TU Cam : K.K. Kwee, Photo-electric Observations of the Short-period Eclipsing Binary V 502 Ophiuchi Made in 1955 and 1956 : K.K. Kwee, Photo-electric Observations of the Short-period Eclipsing Binary W Ursae Majoris Made on March 1957

Short-Period Binary Stars: Observations, Analyses, and Results

Abstracts of Papers Presented at the ... Meeting

Advancing Variable Star Astronomy

Catalogue of Mean UBV Data on Stars

More than two centuries have elapsed since the story of the interacting binary stars began with the rediscovery of the variability of Algol by John Goodricke and the interpretation he proposed for explaining the regular periodic brightness variations which he found. Over this long span of time our knowledge about these systems has been growing, and we have now reached a fairly good understanding of the structure and behavior of this interesting group of objects. This book contains a timely summary of our present knowledge of interacting binary stars. The chapters have been written by distinguished scientists who have done relevant research in the field of interacting binary stars.

Peter P. Eggleton and James E. Pringle Institute of Astronomy Madingley Road Cambridge England The 1970's can be described, in retrospect, as the "Decade of the Close Binary". Exciting observations with new technology, combined with classical work, both observational and theoretical, convinced the astronomical world that binary interaction of various kinds is not only interesting but common. Indeed, by 1975 almost anything unusual had a good chance of being interpreted as due to binary interaction. But astronomers are seldom overwhelmed by speculation, even their own, and solid observational work has confirmed or refuted such speculation, without regard to its plausibility. For instance, binarity has been found where it was perhaps least expected, in Barium stars, and refuted where it could most reasonably be expected, in Wolf-Rayets. Unfortunately, many other classes of potential binaries remain without the clearest evidence of binarity, for instance Be stars, symbiotics and blue stragglers. This Advanced Study Institute was held to commemorate John Whelan (1945-1981), whose scientific career, sadly cut short in its prime, did much to further the careful study, theoretical and observational, of close binaries, as well as to encourage the spirit of international friendship and collaboration. His own interests covered a greater field, but "Interacting Binaries" seemed a reasonable restriction. We publish here 15 review talks, which still do not cover the whole topic, although they range widely.

IAU 8240 focuses on recent advances across the broad field of binary star research.

Short-Period Binary Stars: Observations, Analyses, and ResultsSpringer Science & Business Media

Close Binary Stars: Observations and Interpretation

Cycle 3 Call for Proposals

Proceedings of the ESO Workshop Held at Garching, Germany, 18–21 June 1996

Science with the VLT Interferometer

Interacting Binaries

Eclipsing Binary Stars

It has always been ESO's aim to operate the VLT in an interferometric mode (VLTI) which allows the coherent combination of stellar light beams col lected by the four 8-m telescopes and by several smaller auxiliary telescopes. In December 1993, in response to financial difficulties, the ESO Council de cided to postpone implement at ion of the VLTI. Coude trains and associated adaptive optics for all the UTs but included provisions for continuing tech nological and development programmes devoted to the aim of reintroducing these capabilities at the earliest possible date. The desirability of carrying out the full VLTI programme as originally envisaged at the earliest possible moment has not, however, diminished, es pecially in view of VLTI's exceptional capabilities and resulting potential for new and exciting discoveries. In recent years, interferometric projects have begun to play a central role in ground-based high-resolution astronomy, and numerous instruments have been completed or are in the process of construc tion. Several large-aperture interferometers will probably co me on-line near the turn of the century. The impending presence of these new instruments represents an important incentive both for clarifying the scientific cases for various VLTI implementation plans and for ensuring VLTI's competitiveness in the international context over the next 10–20 years.

This book contains the proceedings of the second joint research program on close binary systems between the People's Republic of China and the United States. The planning for the double stars conference developed gradually through several years of close cooperation between astronomers of the PRC and the US. Topics covered include interacting an binaries, H-alpha emission and polarization of RS CVn stars, observational approach to close binary evolution, the role of polarimetry in understanding close binary stars and their interactions, physical models for close binaries and logical constraints, and accretion disks in dwarf novae.

The formative ideas for this symposium originated in 1978 at the IAU Symposium No. 83 on "Mass Loss and Evolution of O-type Stars" held at Qualicum Beach, Vancouver Island, Canada - WR stars generally figure prominently in O-star meetings and vice versa! Following general approval by the IAU Executive Committee the initial ideas were cemented at a subsequent meeting, IAU Colloquium No. 59 on "The Effects of Mass Loss on Stellar Evolution", held at Miramare, Trieste, Italy in 1980, which was attended by the majority of the present Scientific Organising Committee and at which meeting the outline programme for this symposium was formulated.

1981 was considered an appropriate year in which to hold a meeting on WR stars, since the last IAU Symposium devoted to this stellar class had been held a decade earlier, in Buenos Aires (IAU Sym posium No. 49), and during this intervening period a wealth of new observational material had been obtained for WR stars together with significant advances on the theoretical front. The venue for this sym posium was chosen from the requirement, which can be inferred from the above, that a meeting on 'hot' stars take place in an appropriate, sunny climate and followed upon the excellent suggestion of Dr. C. Firmani to hold the symposium in Mexico. Since the 1970s symposia or colloquia devoted to recent research on close binaries have been held around the world almost annually. At meetings of the General Assembly of the International Astronomical Union this topic has also been discussed in detail at presentations in various commission meetings and also as invited talks by leading astronomers in the field. In recent years, fundamental changes have taken place in the study of close binaries due to the improvements in observational techniques, extension of observations from X-ray to radio regions of the electromagnetic spectrum, and advances in theoretical studies. For more than a decade, a group of astronomers at Ege University Observatory has been concentrating on active close binaries with particular emphasis on the behaviour of the light curves of chromospherically active systems. Thus, we decided to organize an international meeting in Western Anatolia, where this part of Turkey had been the cradle for great developments in science during antiquity. KUJadasi, located only minutes away from Ephesus, one of the seven wonders of the world, was selected to be the meeting site. Close binary systems constitute a very rich source of information about the physical properties of the components. Some systems are eclipsing variables, where periodic recurrences of eclipses are observed as comparatively brief decreases in the total brightness of the binary system. Precise methods of photometric observations make it possible to obtain the light variations of these systems because of eclipses and other phenomena.

Modeling and Analysis of Eclipsing Binary Stars

Literature 1987, Part 2

Active Close Binaries

The Theory and Design Principles of PHOEBE

Binary Stars as Critical Tools and Tests in Contemporary Astrophysics (IAU S240)

Scientific and Technical Aerospace Reports

"The fascinating and observationally spectacular world of binary stars is a vast and beautiful one that is a significant aspect of many astrophysical studies. Modeling and Analysis of Eclipsing Binary Stars gives a comprehensive analysis and description of the science behind eclipsing binaries. It also explores the assumptions and the difficulties that can occur when using the modeling principles of the classical codes as well as introducing PHOEBE (the Physics Of Eclipsing BinariEs)—a modern suite for modeling binary stars. PHOEBE was conceived by Andrej Pša and his collaborators, and has become one of the standard tools in the eclipsing binary field."--Source : résumé de l'éditeur.

We present the results of a speckle interferometric survey for close visual companions, mainly among 29 of the apparently brightest Wolf-Rayet (W-R) stars. Only one target, WR 48 = theta Mus, was resolved as a close astrometric binary (with a separation of 46+/-9 mas). This system is probably a triple comprising a short-period W-R binary plus a distant O supergiant companion. Although our binary detection fraction is low, it is not an unexpected result given the selection effects that militate against easy detection of binaries. New, higher resolution observations will almost certainly increase the fraction of binaries. There are four known binaries among the six W-R stars in our sample that have nonthermal radio emission, and this connection supports the idea that the nonthermal emission originates in the wind-wind collision between components.

This 2001 book was the first to provide a pedagogical and comprehensive introduction to binary stars for advanced students.

This book explores cataclysmic variables with and without strong, overpowering magnetic fields. You'll read about stars with densities ranging from that of the Sun to the degenerate matter of white dwarfs to the ultra-compact states of neutron stars and black holes. One of the objects examined and discussed is the Double Pulsar, highlighting what observations have told us about fundamental physics.

Proceedings of the 151st Symposium of the International Astronomical Union, Held in Córdoba, Argentina, August 5/9, 1991

ICCD Speckle Observations of Binary Stars XXII

Literature 1997, Part 1

Astronomy and Cosmogony

This document represents the third call for proposals for astronomical observations with the Hubble Space Telescope.

In the two decades since the development of the first eclipsing-binary modeling code, new analytic techniques and the availability of powerful, sometimes dedicated computing facilities have made possible vastly improved determinations of fundamental and even transient stellar parameters. The scale of these developments, of course, raises questions about modeling tools, techniques, and philosophies, such as: Who will maintain and upgrade the codes? Will the codes be open to improvement by outsiders, and if so, how? And, indeed, what should be the goals of a modeling program? Such questions had not been aired for a long time and, for this reason alone, deserved to be discussed in as general a forum as the community provides. This volume contains material presented by Commission 42 (Close Binary Stars) during the International Astronomical Union's XXI General Assembly in Argentina, July 1991, and during IAU Colloquium 151, Cordoba, Argentina, August 1991. The techniques discussed include simulations of stellar bright and dark spots, streams, partial and complete stellar disks, prominences, and other features characterizing active stars; modeling of polarization parameters; models that use radial velocities as well as line profile simulations to model velocity field variation across stellar disks; the weighted effects of brightness asymmetries; and models for translucent eclipsing agents such as stellar winds.

David Levy's entertaining, well-researched book is aimed at the amateur enthusiast who likes to learn enjoyably. Beginning with advice on binoculars and telescopes, and how to observe the night sky effectively, the author goes on to describe thoroughly the field of variable star observation, a field in which amateurs have made important contributions. He shows how to interpret variations in light output in terms of the life of a star, from birth through to sometimes violent death. All of the major variable stars are described and classified, as well as other variable objects such as active galaxies, asteroids, comets and the sun.

The book also contains a guide to the seasonal night sky. Throughout, practical observations serve to complement the text, producing an exciting, very readable introduction to this fascinating subject.

Founded in 1911, the AAVSO boasts over 1200 members and observers and is the world's largest non-profit organization dedicated to variable star observation. This timely book marks the AAVSO's centennial year, presenting an authoritative and accurate history of this important association. Writing in an engaging and accessible style, the authors move chronologically through five eras of the AAVSO, discussing the evolution of its structure and purpose. Throughout the text, the main focus is on the thousands of individuals whose contributions have made the AAVSO's progress possible. Describing a century of interaction between amateur and professional astronomers, the authors celebrate the collaborative relationships that have existed over the years. As the definitive history of the first hundred years of the AAVSO, this text has broad appeal and will be of interest to amateur and professional astronomers, as well as historians and sociologists of science in general.

Lectures Held at the Astrophysics School XII Organized by the European Astrophysics Doctoral Network (EADN) in La Laguna, Tenerife, Spain, 6–17 September 1999

Binary Stars Among Cataclysmic Variables

Eclipsing Binary Stars: Modeling and Analysis

Hubble Space Telescope

Literature 1988, Part 1

Wolf-Rayet Stars: Observations, Physics, Evolution

Proceedings of the IAU Symposium No. 88 held in Toronto, Canada, August 7-10, 1979879

From the reviews: "I recommend it to anyone with an interest in binary stars who wants to learn more about these fascinating objects." (Jocelyn Tomkin, The Observatory, April 2005)

This book is the proceedings of an international conference entitled "Close Binaries in the 21st Century: New Opportunities and Challenges", held in Syros island, Greece, June 27-30, 2005. The papers collected in this volume detail the latest achievements in the field and reflect the state of the art of the dynamically evolving area of binary star research.

Astronomy and Astrophysics Abstracts aims to present a comprehensive documentation of the literature concerning all aspects of astronomy, astrophysics, and their border fields. It is devoted to the recording, summarizing, and indexing of the relevant publications throughout the world. Astronomy and Astrophysics Abstracts is prepared by a special department of the Astronomisches Rechen-Institut under the auspices of the International Astronomical Union. Volume 44 records literature published in 1987 and received before February 15, 1988. Some older literature is included in the volume. The abstracts are classified under more than a hundred subject categories, thus permitting a quick survey of the whole extended material. The AAA is a valuable and important publication for all students and scientists working in the fields of astronomy and related sciences. As such it represents a necessary ingredient of any astronomical library all over the world." Space Science Reviews#1 "Dividing the whole field plus related subjects into 108 categories, each work is numbered and most are accompanied by brief abstracts. Fairly comprehensive cross-referencing links relevant papers to more than one category, and exhaustive author and subject indices are to be found at the back, making the catalogues easy to use. The series appears to be so complete in its coverage and always less than a year out of date that I shall certainly have to make a little more space on those selves for future volumes." The Observatory Magazine#2

More than half of all stars in the universe formed and evolved as binary systems and their study is essential for understanding stellar and galactic evolution. The six lectures in this book give both a readable introduction and an up-to-date review of nearly all aspects of research into binary stars, including the range from common binaries to more exotic systems composed of white dwarfs, neutron stars and black holes. Analysis was performed on observations of the binary star systems NP Andromedae and V1120 Ophiuchi. The raw CCD images were calibrated and aperture photometry was performed to obtain the light curves for both systems. The period was calculated for NP And using the Period04 program, and the period was calculated for V1120 Oph by using an O – C period study. The spectral type and temperature were determined by color indices for both star systems. The Wilson–Devinnay method was used to obtain geometric and astrophysical parameters for NP And, and a 3–D model was constructed of the NP And star system using Binary Maker. The light curves confirmed that both star systems were in fact W UMa star systems. NP And was determined to be an A-type W UMa system with a cool spot on the primary star. There was not enough data to do a complete photometric analysis of V1120 Oph.

Third Asian-Pacific Regional Meeting of the International Astronomical Union

The Centennial History of the American Association of Variable Star Observers

Language of the Stars

A Survey of Wolf-Rayet Stars for Close Visual Companions

Observing Variable Stars

Literature 1986, Part 1