
Astrophysics Is Easy An Introduction For The Amateur Astronomer The Patrick Moore Practical Astronomy Series

Astrophysics for Young People in a Hurry
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 (Astrophysically Speaking)
 An Introduction to Modern Stellar Astrophysics
 Astrophysics: A Very Short Introduction
 An Introduction
 The Isotropic Universe,
 Practical Astronomy
 An Introduction to Nuclear Astrophysics
 Introduction to Astronomy and Astrophysics
 Second Edition

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SHEPPARD JENNINGS

[Astrophysics for Young People in a Hurry](#)
 Springer

This exciting text opens the entire field of modern astrophysics to the reader by using only the basic tools of physics. Designed for the junior-level astrophysics course, each topic is approached in the context of the major unresolved questions in astrophysics. The core chapters have been designed for a course in stellar structure and evolution, while the

extended chapters provide additional coverage of the solar system, galactic structure, dynamics, evolution, and cosmology.

Introduction to Astronomy and Cosmology

W. W. Norton & Company
 Radio astronomy is an active and rapidly expanding field due to advances in computing techniques, with several important new instruments on the horizon. This text provides a thorough introduction to radio astronomy and its contribution to our understanding of the universe, bridging the gap between basic introductions and research-level treatments. It begins by covering the fundamentals physics of radio techniques,

before moving on to single-dish telescopes and aperture synthesis arrays. Fully updated and extensively rewritten, the fourth edition places greater emphasis on techniques, with detailed discussion of interferometry in particular, and comprehensive coverage of digital techniques in the appendices. The science sections are fully revised, with new author Peter N. Wilkinson bringing added expertise to the sections on pulsars, quasars and active galaxies. Spanning the entirety of radio astronomy, this is an engaging introduction for students and researchers approaching radio astronomy for the first time.

[Astrophysics Is Easy!](#) Elsevier

High-energy astrophysics has unveiled a Universe very different from that only known from optical observations. It has revealed many types of objects in which typical variability timescales are as short as years, months, days, and hours (in quasars, X-ray binaries, etc), and even down to milli-seconds in gamma ray bursts. The sources of energy that are encountered are only very seldom nuclear fusion, and most of the time gravitation, a paradox when one thinks that gravitation is, by many orders of magnitude, the weakest of the fundamental interactions. The understanding of these objects' physical conditions and the processes revealed by high-energy astrophysics in the last decades is nowadays part of astrophysicists' culture, even of those active in other domains of astronomy. This book evolved from lectures given to master and PhD students at the University of Geneva since the early 1990s. It aims at providing astronomers and physicists intending to be active in high-energy astrophysics a broad basis on which they should be able to build the more specific knowledge they will need. While in the first part of the book the physical processes are described and derived in detail, the second part studies astrophysical objects in which high-energy astrophysics processes are crucial. This two-pronged approach will help students recognise physical processes by their observational signatures in contexts that may differ widely from those presented here.

An Introduction University of Chicago Press

A NEW YORK TIMES NOTABLE BOOK OF 2020 NAMED A BEST BOOK OF THE YEAR BY * THE WASHINGTON POST * THE ECONOMIST * NEW SCIENTIST * PUBLISHERS WEEKLY * THE GUARDIAN "A thrilling tour of potential cosmic doomsdays....Mack's infectious enthusiasm for communicating the finer points of cosmological doom elevates *The End of Everything* over any other book on the topic." —The Wall Street Journal "I found it helpful—not reassuring, certainly, but mind-expanding—to be reminded of our place in a vast cosmos." —James Gleick, *The New York Times Book Review* From one of the most dynamic rising stars in astrophysics, an accessible and eye-opening look at five ways the universe could end, and the mind-blowing lessons each scenario reveals about the most important concepts in cosmology. We know the universe had a beginning. With the Big Bang, it expanded from a state of unimaginable density to an all-encompassing cosmic fireball to a simmering fluid of matter and energy,

laying down the seeds for everything from black holes to one rocky planet orbiting a star near the edge of a spiral galaxy that happened to develop life as we know it. But what happens to the universe at the end of the story? And what does it mean for us now? Dr. Katie Mack has been contemplating these questions since she was a young student, when her astronomy professor informed her the universe could end at any moment, in an instant. This revelation set her on the path toward theoretical astrophysics. Now, with lively wit and humor, she takes us on a mind-bending tour through five of the cosmos's possible finales: the Big Crunch, Heat Death, the Big Rip, Vacuum Decay (the one that could happen at any moment!), and the Bounce. Guiding us through cutting-edge science and major concepts in quantum mechanics, cosmology, string theory, and much more, *The End of Everything* is a wildly fun, surprisingly upbeat ride to the farthest reaches of all that we know.

Astrophysics in a Nutshell John Wiley & Sons

Intended for undergraduate non-science majors, satisfying a general education requirement or seeking an elective in natural science, this is a physics text, but with the emphasis on topics and applications in astronomy. The perspective is thus different from most undergraduate astronomy courses: rather than discussing what is known about the heavens, this text develops the principles of physics so as to illuminate what we see in the heavens. The fundamental principles governing the behaviour of matter and energy are thus used to study the solar system, the structure and evolution of stars, and the early universe. The first part of the book develops Newtonian mechanics towards an understanding of celestial mechanics, while chapters on electromagnetism and elementary quantum theory lay the foundation of the modern theory of the structure of matter and the role of radiation in the constitution of stars. Kinetic theory and nuclear physics provide the basis for a discussion of stellar structure and evolution, and an examination of red shifts and other observational data provide a basis for discussions of cosmology and cosmogony. *Rocket Science for Babies* Springer Science & Business Media This invaluable book, now in its second edition, covers a wide range of topics appropriate for both undergraduate and postgraduate courses in astrophysics. The book conveys a deep and coherent understanding of the stellar phenomena, and basic astrophysics of stars, galaxies,

clusters of galaxies and other heavenly bodies of interest. Since the first appearance of the book in 1997, significant progress has been made in different branches of Astronomy and Astrophysics. The second edition takes into account the developments of the subject which have taken place in the last decade. It discusses the latest introduction of L and T dwarfs in the Hertzsprung-Russel diagram (or H-R diagram). Other developments discussed pertain to standard solar model, solar neutrino puzzle, cosmic microwave background radiation, Drake equation, dwarf galaxies, ultra compact dwarf galaxies, compact groups and cluster of galaxies. Problems at the end of each chapter motivate the students to go deeper into the topics. Suggested readings at the end of each chapter have been complemented.

A User-Friendly Handbook for Skywatchers Springer Science & Business Media

Fans of Chris Ferrie's ABCs of Biology, ABCs of Space, and Quantum Physics for Babies will love this introduction to aerospace engineering for babies and toddlers! Help your future genius become the smartest baby in the room! It only takes a small spark to ignite a child's mind. Written by an expert, *Rocket Science for Babies* is a colorfully simple introduction to aerospace engineering. Babies (and grownups!) will learn about the basics of how lift and thrust make things fly. With a tongue-in-cheek approach that adults will love, this installment of the Baby University board book series is the perfect way to introduce basic concepts to even the youngest scientists. After all, it's never too early to become a rocket scientist! If you're looking for engineer board books, infant science books, or more Baby University board books to surprise your little one, look no further! *Rocket Science for Babies* offers fun early learning for your little scientist!

Theoretical Astrophysics CRC Press

This book presents the amateur with fine examples of astronomical sketches and step-by-step tutorials in each medium, including pencil, pen and ink, chalks and pastels, painting and computer graphics programs. This unique book can teach almost anyone to create beautiful sketches of celestial objects by following simple, illustrated, step-by-step instructions. Readers can select a chapter related to their preferred class of object, and rapidly learn techniques in several media. Each chapter contains useful information regarding equipment, techniques for preserving and archiving sketches, and suggestions for accurate record keeping.

An Introduction to Modern Astrophysics
Oxford University Press

"In An Introduction to Nuclear Astrophysics, Richard N. Boyd includes basic nomenclature and information so that students from astronomy or physics can quickly orient themselves. Subsequent chapters describe earthbound and spaceborne instruments operating in service to nuclear astrophysics worldwide; background topics such as nuclear and neutrino physics, scattering formalism, and thermonuclear reaction rates; and information on galactic chemical evolution, solar nucleosynthesis, s- and r-processes, and gamma-ray bursts. Each chapter includes problem sets against which students may test their knowledge before moving ahead, and Boyd has included copious references intended to guide students to further study"--Jacket.

Introductory Astronomy and Astrophysics
Cambridge University Press

Astrophysics is the physics of the stars, and more widely the physics of the Universe. It enables us to understand the structure and evolution of planetary systems, stars, galaxies, interstellar gas, and the cosmos as a whole. In this Very Short Introduction, the leading astrophysicist James Binney shows how the field of astrophysics has expanded rapidly in the past century, with vast quantities of data gathered by telescopes exploiting all parts of the electromagnetic spectrum, combined with the rapid advance of computing power, which has allowed increasingly effective mathematical modelling. He illustrates how the application of fundamental principles of physics - the consideration of energy and mass, and momentum - and the two pillars of relativity and quantum mechanics, has provided insights into phenomena ranging from rapidly spinning millisecond pulsars to the collision of giant spiral galaxies. This is a clear, rigorous introduction to astrophysics for those keen to cut their teeth on a conceptual treatment involving some mathematics.

ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable

An Introduction to Physics and Astrophysics Springer Science & Business Media

The ideal one-semester astrophysics introduction for science undergraduates—now expanded and fully

updated Winner of the American Astronomical Society's Chambliss Award, *Astrophysics in a Nutshell* has become the text of choice in astrophysics courses for science majors at top universities in North America and beyond. In this expanded and fully updated second edition, the book gets even better, with a new chapter on extrasolar planets; a greatly expanded chapter on the interstellar medium; fully updated facts and figures on all subjects, from the observed properties of white dwarfs to the latest results from precision cosmology; and additional instructive problem sets. Throughout, the text features the same focused, concise style and emphasis on physics intuition that have made the book a favorite of students and teachers. Written by Dan Maoz, a leading active researcher, and designed for advanced undergraduate science majors, *Astrophysics in a Nutshell* is a brief but thorough introduction to the observational data and theoretical concepts underlying modern astronomy. Generously illustrated, it covers the essentials of modern astrophysics, emphasizing the common physical principles that govern astronomical phenomena, and the interplay between theory and observation, while also introducing subjects at the forefront of modern research, including black holes, dark matter, dark energy, and gravitational lensing. In addition to serving as a course textbook, *Astrophysics in a Nutshell* is an ideal review for a qualifying exam and a handy reference for teachers and researchers. The most concise and current astrophysics textbook for science majors—now expanded and fully updated with the latest research results Contains a broad and well-balanced selection of traditional and current topics Uses simple, short, and clear derivations of physical results Trains students in the essential skills of order-of-magnitude analysis Features a new chapter on extrasolar planets, including discovery techniques Includes new and expanded sections and problems on the physics of shocks, supernova remnants, cosmic-ray acceleration, white dwarf properties, baryon acoustic oscillations, and more Contains instructive problem sets at the end of each chapter Solutions manual (available only to professors) *Astrophysics for Physicists* Benjamin-Cummings Publishing Company Introduction to Astronomy & Cosmology is a modern undergraduate textbook, combining both the theory behind astronomy with the very latest developments. Written for science students, this book takes a carefully

developed scientific approach to this dynamic subject. Every major concept is accompanied by a worked example with end of chapter problems to improve understanding Includes coverage of the very latest developments such as double pulsars and the dark galaxy. Beautifully illustrated in full colour throughout Supplementary web site with many additional full colour images, content, and latest developments.

An Introduction to the Science of Cosmology Cambridge University Press Astrophysics is often -with some justification - regarded as incomprehensible without the use of higher mathematics. Consequently, many amateur astronomers miss out on some of the most fascinating aspects of the subject. *Astrophysics Is Easy!* cuts through the difficult mathematics and explains the basics of astrophysics in accessible terms. Using nothing more than plain arithmetic and simple examples, the workings of the universe are outlined in a straightforward yet detailed and easy-to-grasp manner. The original edition of the book was written over eight years ago, and in that time, advances in observational astronomy have led to new and significant changes to the theories of astrophysics. The new theories will be reflected in both the new and expanded chapters. A unique aspect of this book is that, for each topic under discussion, an observing list is included so that observers can actually see for themselves the concepts presented -stars of the spectral sequence, nebulae, galaxies, even black holes. The observing list has been revised and brought up-to-date in the Second Edition.

Astronomy University Science Books Astronomy is the field of science devoted to the study of astronomical objects, such as stars, galaxies, and nebulae.

Astronomers have gathered a wealth of knowledge about the universe through hundreds of years of painstaking observations. These observations are interpreted by the use of physical and chemical laws familiar to mankind. These interpr

Numerical Methods in Astrophysics John Wiley & Sons

An introduction to modern ideas on cosmology and on the physical basis of the general theory of relativity. The title reflects the author's contention that the remarkable degree of isotropy, rather than the expansions, can be regarded as the central observational feature of the universe. The various theories and ideas in "big bang" cosmology are discussed, providing an insight into current problems. The book is written at an intermediate

level, beyond that of the many elementary books on cosmology, as an introduction to the more advanced works and research literature.

[The Stars](#) Addison-Wesley

This edition has been revised to reflect dramatic changes and advancements in astrophysics that have occurred over the past decade. It includes the latest results from relevant fields of astrophysics and advances in our theoretical understanding of astrophysical phenomena.

[An Introduction to Radio Astronomy](#)

Springer

This second edition has been updated and substantially expanded. Starting with the description of our home galaxy, the Milky Way, this cogently written textbook introduces the reader to the astronomy of galaxies, their structure, active galactic nuclei, evolution and large scale distribution in the Universe. After an extensive and thorough introduction to modern observational and theoretical cosmology, the focus turns to the formation of structures and astronomical objects in the early Universe. The basics of classical astronomy and stellar astrophysics needed for extragalactic astronomy are provided in the appendix. While this book has grown out of introductory university courses on

astronomy and astrophysics and includes a set of problems and solutions, it will not only benefit undergraduate students and lecturers; thanks to the comprehensive coverage of the field, even graduate students and researchers specializing in related fields will appreciate it as a valuable reference work.

[Foundations of Astrophysics](#) Cambridge University Press

Radiative Processes in Astrophysics: This clear, straightforward, and fundamental introduction is designed to present-from a physicist's point of view-radiation processes and their applications to astrophysical phenomena and space science. It covers such topics as radiative transfer theory, relativistic covariance and kinematics, bremsstrahlung radiation, synchrotron radiation, Compton scattering, some plasma effects, and radiative transitions in atoms. Discussion begins with first principles, physically motivating and deriving all results rather than merely presenting finished formulae. However, a reasonably good physics background (introductory quantum mechanics, intermediate electromagnetic theory, special relativity, and some statistical mechanics) is required. Much of this prerequisite material is provided by brief reviews, making the book a self-contained reference for workers in the field as well

as the ideal text for senior or first-year graduate students of astronomy, astrophysics, and related physics courses. *Radiative Processes in Astrophysics* also contains about 75 problems, with solutions, illustrating applications of the material and methods for calculating results. This important and integral section emphasizes physical intuition by presenting important results that are used throughout the main text; it is here that most of the practical astrophysical applications become apparent.

The End of Everything PHI Learning Pvt. Ltd.

Astrophysics is often - with some justification - regarded as incomprehensible without at least degree-level mathematics. Consequently, many amateur astronomers skip the math, and miss out on the fascinating fundamentals of the subject. In *Astrophysics Is Easy!* Mike Inglis takes a quantitative approach to astrophysics that cuts through the incomprehensible mathematics, and explains the basics of astrophysics in accessible terms. The reader can view objects under discussion with commercial amateur equipment.

Fundamentals of Astrophysics CRC Press
*Astrophysics Is Easy!*An Introduction for the Amateur Astronomer Springer

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