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*Physical Foundations Of
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FOUNDATIONS OF MODERN

COSMOLOGY. Edition en anglais

Cambridge University Press

This thoroughly revised 5th edition of Zeh's classic text investigates irreversible phenomena and their foundation in classical, quantum and cosmological settings. It includes new sections on the meaning of probabilities in a cosmological context, irreversible aspects of quantum computers, and various consequences of the expansion of the Universe. In particular, the book offers an analysis of the physical concept of time.

An Introduction to the Science of Cosmology Penguin

Relativistic cosmology has in recent years become one of the most active and exciting branches of research, often considered to be today where particle physics was forty years ago, with major discoveries just waiting to happen. Consequently the part most affected by this second edition is the last part on

cosmology. But there are additions, improvements, and new exercises throughout. _ The book's basic purpose is unchanged. It is to make relativity come alive conceptually, and to display the grand theoretical edifice that it is, with consequences in many branches of physics. The emphasis is on the foundations, on the logical subtleties, and on presenting the necessary mathematics - including differential geometry and tensors - but always as late and in as palatable a form as possible. Aided by over 300 exercises, the book seeks to promote an in-depth understanding, and the confidence to tackle any basic problem in relativity. *The Physical Basis of The Direction of Time* World Scientific

The aim of this two-volume title is to give a comprehensive review of one hundred years of development of general relativity and its scientific influences. This unique title provides a broad introduction and review to the fascinating and profound subject of general relativity, its historical development, its important theoretical consequences, gravitational wave

detection and applications to astrophysics and cosmology. The series focuses on five aspects of the theory: The first three topics are covered in Volume 1 and the remaining two are covered in Volume 2. While this is a two-volume title, it is designed so that each volume can be a standalone reference volume for the related topic.

Cosmology Oxford University Press, USA Novel interpretation of the relationship between space, time, gravitation, and their cosmological implications; based on author's discovery of a value in gravitation overlooked by both Newton and Einstein. 1982 edition.

Foundations of Modern Physics CRC Press

A rising star in theoretical physics offers his awesome vision of our universe and beyond, all beginning with a simple question: Why does time move forward? Time moves forward, not backward—everyone knows you can't unscramble an egg. In the hands of one of today's hottest young physicists, that simple fact of breakfast becomes a doorway to understanding the Big Bang, the universe, and other universes, too. In *From Eternity to Here*, Sean Carroll argues that the arrow of time, pointing resolutely from the past to the future, owes its existence to conditions before the Big Bang itself—a period modern cosmology of which Einstein never dreamed. Increasingly, though, physicists are going out into realms that make the theory of relativity seem like child's play. Carroll's scenario is not only elegant, it's laid out in the same easy-to-understand language that has made his group blog, *Cosmic Variance*, the most popular physics blog on the Net. *From Eternity to Here* uses ideas at the cutting edge of theoretical physics to explore how properties of spacetime before the

Big Bang can explain the flow of time we experience in our everyday lives. Carroll suggests that we live in a baby universe, part of a large family of universes in which many of our siblings experience an arrow of time running in the opposite direction. It's an ambitious, fascinating picture of the universe on an ultra-large scale, one that will captivate fans of popular physics blockbusters like *Elegant Universe* and *A Brief History of Time*.

Watch a Video

Genesis of the Cosmos Springer Science & Business Media

Foundations of Modern Cosmology provides a highly accessible, thorough, and descriptive introduction to the historical development of and the physical basis for the modern big bang theory. This new textbook is ideal for electives that follow traditional introductory astronomy courses. It is intended to fill the gap between the many popular-level books, which can generally provide only a superficial treatment of the subject, and the advanced texts intended for students with strong backgrounds in physics and mathematics. The text is self-contained, appropriate for a one-semester course, and designed to be understandable to students with a grasp of elementary algebra. Emphasis is given to the scientific framework for cosmology, particularly the basic concepts of physics that underlie modern theories of relativity and cosmology; the importance of data and observations is stressed throughout.

The View From the Center of the Universe Oxford University Press

This volume represents an important stage in the development of cosmology as a distinct branch of physics.

One Hundred Years Of General Relativity: From Genesis And Empirical

Foundations To Gravitational Waves, Cosmology And Quantum Gravity - Volume 2 Cambridge University Press

"This is an ideal textbook both for advanced students of physics and astrophysics and for those with a particular interest in theoretical cosmology. Nearly every formula in the book is derived from basic physical principles covered in undergraduate courses. Each chapter includes all necessary background material and no prior knowledge of general relativity and quantum field theory is assumed."--BOOK JACKET.

Physical Foundations of Cosmology
Oxford University Press

Many scientists regard mass and energy as the primary currency of nature. In recent years, however, the concept of information has gained importance. Why? In this book, eminent scientists, philosophers and theologians chart various aspects of information, from quantum information to biological and digital information, in order to understand how nature works. Beginning with an historical treatment of the topic, the book also examines physical and biological approaches to information, and its philosophical, theological and ethical implications.

One Hundred Years Of General Relativity: From Genesis And Empirical Foundations To Gravitational Waves, Cosmology And Quantum Gravity - Volume 1

Oxford University Press, USA

In this strikingly original book, a world-renowned cosmologist and an innovative writer of the history and philosophy of science uncover an astonishing truth: Humans actually are central to the universe. What does this mean for our culture and our personal lives? The answer is revolutionary: a science-based

cosmology that allows us to understand the universe as a whole and our extraordinary place in it.

Introduction to Cosmology Inner Traditions / Bear & Co

Recent discoveries in astronomy, especially those made with data collected by satellites such as the Hubble Space Telescope and the Wilkinson Microwave Anisotropy Probe, have revolutionized the science of cosmology. These new observations offer the possibility that some long-standing mysteries in cosmology might be answered, including such fundamental questions as the ultimate fate of the universe. *descriptive introduction to the physical basis for modern cosmological theory, from the big bang to a distant future dominated by dark energy. This second edition includes the latest observational results and provides the detailed background material necessary to understand their implications, with a focus on the specific model supported by these observations, the concordance model. Consistent with the book's title, basic concepts of physics that underlie modern theories of relativity and cosmology; the importance of data and observations is stressed throughout. The book sketches the historical background of cosmology, and provides a review of special and general relativity are treated, before proceeding to an in-depth discussion of the big bang theory and physics of the early universe.*

Foundations of the Universe OUP
Oxford

A substantial update of this award-winning and highly regarded cosmology textbook, for advanced undergraduates in physics and astronomy.

Foundations of Modern Cosmology John Wiley & Sons

A thorough introduction to modern ideas

on cosmology and on the physical basis of the general theory of relativity, *An Introduction to the Science of Cosmology* explores various theories and ideas in big bang cosmology, providing insight into current problems. Assuming no previous knowledge of astronomy or cosmology, this book takes you beyond introductory texts to the point where you are able to read and appreciate the scientific literature, which is broadly referenced in the book. The authors present the standard big bang theory of the universe and provide an introduction to current inflationary cosmology, emphasizing the underlying physics without excessive technical detail. The book treats cosmological models without reliance on prior knowledge of general relativity, the necessary physics being introduced in the text as required. It also covers recent observational evidence pointing to an accelerating expansion of the universe. The first several chapters provide an introduction to the topics discussed later in the book. The next few chapters introduce relativistic cosmology and the classic observational tests. One chapter gives the main results of the hot big bang theory. Next, the book presents the inflationary model and discusses the problem of the origin of structure and the correspondingly more detailed tests of relativistic models. Finally, the book considers some general issues raised by expansion and isotropy. A reference section completes the work by listing essential formulae, symbols, and physical constants. Beyond the level of many elementary books on cosmology, *An Introduction to the Science of Cosmology* encompasses numerous recent developments and ideas in the area. It provides more detailed coverage than many other titles available, and the inclusion of problems at the end of each

chapter aids in self study and makes the book suitable for taught courses.

Introduction to Cosmology World Scientific

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.

An Introduction to Mathematical Cosmology OUP Oxford

An introductory textbook on mathematical cosmology for beginning graduate students.

[Relativity Made Relatively Easy Pack, Volumes 1 and 2 \(Paperback\): Volume 1: Relativity Made Relatively Easy, Volume 2: General Relativity and Cosmolo](#)

Cambridge University Press

The two-volume book *Relativity Made Relatively Easy* provides a comprehensive and detailed account of the physics of Relativity. Volume 1, which was published in 2012, is devoted to covering the basics of the theory of Special Relativity, assuming almost no prior knowledge, making it suitable for undergraduates studying the subject. Volume 2 encourages students to take their learning further by providing a working understanding of astronomy and gravitational waves, as well as introducing the reader to the key concepts in cosmology and classical field theory. Beginning with a survey of the main ideas, the text goes on to give the

methodological foundations (linearized approximation, differential geometry, covariant differentiation, physics in curved spacetime). It covers the generic properties of horizons and black holes, including Hawking radiation, introduces the key concepts in cosmology and gives a grounding in classical field theory, including spinors and the Dirac equation, and a Lagrangian approach to General Relativity. The book is suitable for self-study and is aimed throughout at clarity, physical insight, and simplicity, presenting explanations and derivations in full, and providing many explicit examples.

[The Physical Basis of The Direction of Time](#) Oxford University Press, USA

An overview of modern cosmology, accessible to undergraduate students, with emphasis on physical foundations and relations to modern observations.

The Isotropic Universe, Princeton University Press

Paul LaViolette reveals astonishing parallels between cutting edge scientific thought and early creation myths, and how these myths encode a theory of cosmology in which matter is continually growing from seeds of order that emerge spontaneously from chaos. Exposing the contradictions of the Big Bang theory, LaViolette leads us beyond the restrictive metaphors of modern science and into a new science for the 21st century.

[Cosmology](#) Vintage

From the Nobel Prize-winning physicist Man's view of the universe is widening today, as it did once before in the early days of big telescopes and photographic plates. Modern man, by means of radio, infrared, optical, ultraviolet, and X-ray

astronomy, can penetrate the universe to depths never before explored. Phillip James Edwin Peebles has written a pioneering work in this newly defined area of investigation. Intended to bridge the chasm between classical textbooks on cosmology and modern developments, *Physical Cosmology* serves as a guide to current points of debate in a rapidly changing field. Originally published in 1972. The Princeton Legacy Library uses the latest print-on-demand technology to again make available previously out-of-print books from the distinguished backlist of Princeton University Press. These editions preserve the original texts of these important books while presenting them in durable paperback and hardcover editions. The goal of the Princeton Legacy Library is to vastly increase access to the rich scholarly heritage found in the thousands of books published by Princeton University Press since its founding in 1905.

The Cosmic Spacetime Oxford University Press, USA

Introduction to Cosmology provides a rare combination of a solid foundation of the core physical concepts of cosmology and the most recent astronomical observations. The text is designed for advanced undergraduates or beginning graduate students and assumes no prior knowledge of general relativity. An emphasis is placed on developing the students' physical insight rather than losing them with complex math. An approachable writing style and wealth of fresh and imaginative analogies from everyday physics are used to make the concepts of cosmology more accessible.