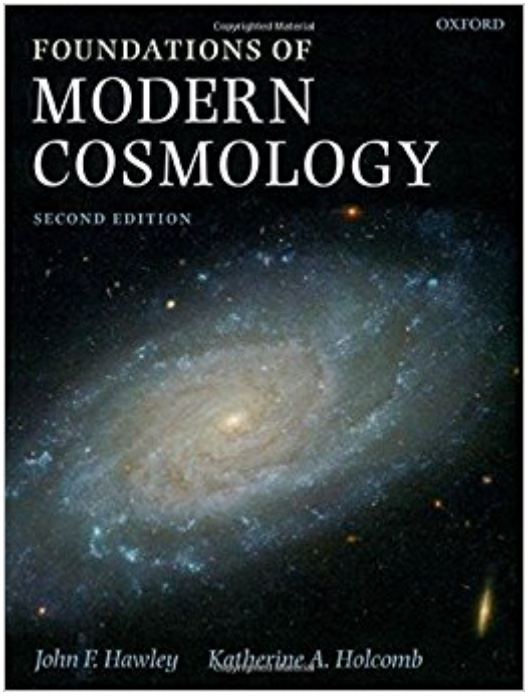
Foundations Of Modern Cosmology



Synopsis

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, basics 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. The book includes current research areas, including dark matter and structure formation, dark energy, the inflationary universe, and quantum cosmology. The authors' website (http: //www astro.virginia.edu/ jh8h/Foundations) offers a wealth of supplemental information, including discoveries

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Customer Reviews

`Review from previous edition "Foundations of Modern Cosmology" by John F. Hawley and

Katherine A. Holcomb is a welcome addition to the list of college-level astronomy textbooks for nonscience majors. [...] Hawley and Holcomb bring to their writing valuable first-hand knowledge and accomplishment in relativistic astrophysics research. Their book reflects the careful development that occurs only when a textbook is written after years of teaching the material.' Paul Shapiro, Physics Today, Vol 52, No. 5, May 1999 pg 70-73

John F. Hawley is Professor of Astronomy at the University of Virginia. His research interests include black holes, accretion disks, and large-scale numerical modeling of astrophysical systems. He was the 1993 recipient of the Helen B. Warner Prize from the American Astronomical Society for his contributions to accretion disk theory and numerical simulations. He has taught an introductory course in cosmology for undergraduates at the University of Virginia since 1989.Katherine A. Holcomb received a Ph.D. in physics from the University of Texas at Austin. She has worked on numerical simulations of a variety of physical systems, including cosmology, relativistic plasma theory, and climate. She is currently employed at the University of Virginia in research computing support.

I choost this rating because I have enjoied the book very much.I like the way in which the book is writted and the content. The book is very explicative.I would recommend the reading to any person interested in foundations of modern cosmology.

I found this book fascinating. It has the best non-mathematical explanation of special and general relativity I have ever read. It is easy to read and does not require a background in math, physics or astronomy. If you enjoy sience writing I don't see how you could fail to enjoy this adventure.tom

This book is a good mix of "easy" and "hard". You don't have to be an astrophysicist to understand the concepts, but it also doesn't gloss over the technical details for those with more experience with math and physics. The authors did a good job of putting things in context, both conceptually and historically. This book has a lot to offer for readers of a wide range of expertise, from layperson to mathematician.

Topics are presented clearly and logically. This text is very readable and offers a great balance between the (algebra based for the most part i.e. little/no calculus required) physics and history of cosmology. If your professor is using this text, consider yourself lucky. It really isn't half bad - pretty

interesting to tell you the truth. Anybody who remembers their HS algebra could pick this bad boy up and understand it perfectly. It really is clear and easy to follow.

Though purchased as a class text, I am glad that it was the "required" textbook. A more thorough, yet understandable, book on this subject probably does not exist. If you buy one book on cosmology, I would highly recommend this one. Clearly written, plenty of diagrams and explanatory graphics, this book is perfect for all levels.

This is a serious yet easy to read book on a facinating and popular subject and its main commendation is its accessibility and rigour. It is an excellent antidote to some of the glossy and expensively packeged books by "pop" writers and TV programmes.As the introduction of the book makes clear, the authors aim for a wide audience for whom Cosmology is not a core discipline. Not only do they do a good job in meeting this goal, but they also present the physical concepts and experimental results in a way that provides new and deep insights to those whose main interest is Physics. For instance, the discussion of the Big Bang and the cosmic models provides an excellent complement to the mathematical presentation of authors like M.V. Berry. Equally, there is a plethora of material that describes experimental results like those for General Relativity: bending of light under the infulence of the sun’s gravity, the Eotovos experiment to demonstrate the Equivalence Principle, etc.The book covers a broad field: Some historical aspects, Special and General Relativity, the Big Bang and various cosmic models, dark matter, and large scale structure.The glossary and the authors’ web site provide further information on the subject.

This is a great cosmology textbook used in some universities for undergraduates. The math involved is about college-level algebra, so you don’t need to know calculus with this book. Make sure you get the 2nd edition (2005) which includes the major discoveries and updates in cosmology that happened in 1998.

I got this book from my university library. Pretty easy reading considering I’m an engineering student. But then, this book isn’t just for physics/astronomy students, as the authors have mentioned. It starts by giving a brief history of cosmology, continuing to current understanding before going to the current problems. The book is not math intensive as it emphasize on understanding the concepts. That’s why it is something like a popular-science book. For those who have an interest in cosmology, consept-wise, I recommend this title. Those requiring intensive math,

look elsewhere. The other cosmology book I've read is by Martin Roos.

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