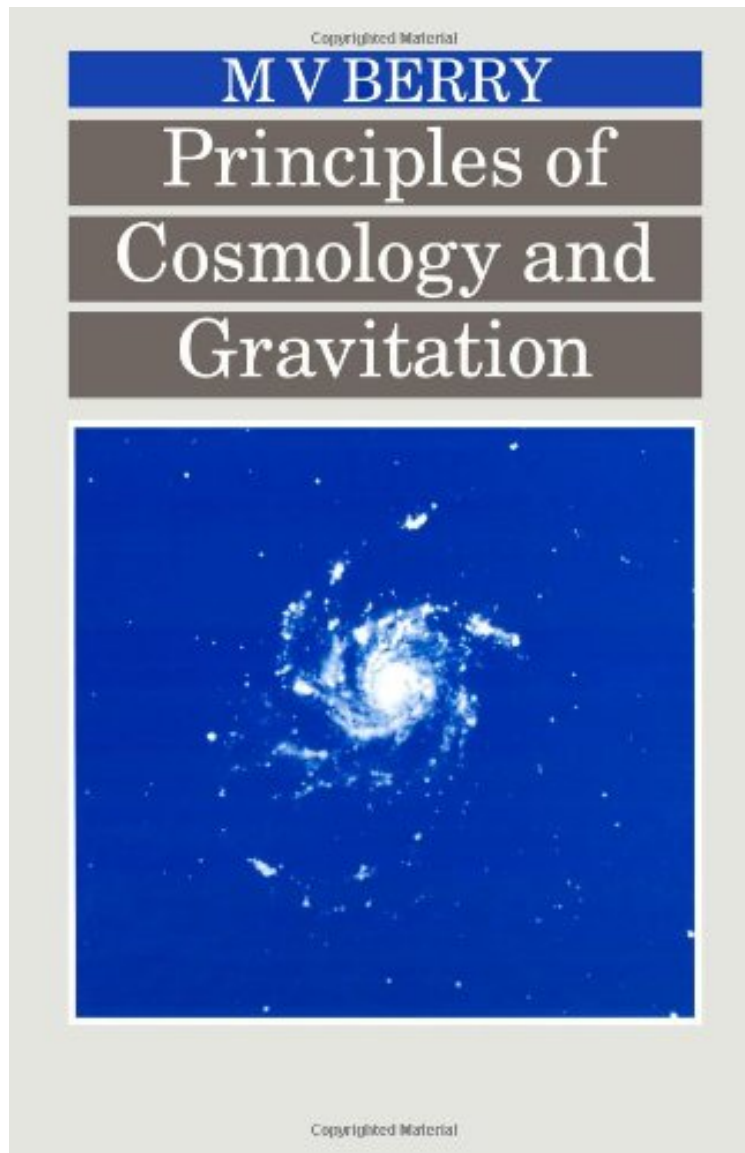


[Download] Principles of Cosmology and Gravitation

Principles of Cosmology and Gravitation

Michael V Berry

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Michael V Berry : Principles of Cosmology and Gravitation before purchasing it in order to gage whether or not it would be worth my time, and all praised Principles of Cosmology and Gravitation:

5 of 5 people found the following review helpful. The minimum general relativity everyone should know-- and can!By Ryoji WatanabeThis book doesn't seem as well known as it should be. I think it gets lost between some famous special relativity books on the one side and standard advanced texts on the other. But it's really a uniquely tight, transparent,

thoughtful piece of teaching. The unique position of this book is it succeeds as an introduction to general relativity and cosmology that is *fully honest*-- eg, quantitative-- and at the same time understandable at the undergraduate level. The typical drill of a standard text is to first inculcate you with very general (and abstract) tensor math power tools, and then to clothe ("hide"?) the physics in that. This book, on the other hand, demonstrates the surprising amount of low hanging fruit that you can satisfyingly consume before or without all that. Put the general case aside for the moment, and look at some basic cases, straight-on. It is satisfying because those simple models apply to some systems you will probably care about. Eg, the fabric of the entire universe as a whole, for one-- that's the "cosmology" part. There is a lot of fundamental intuition that becomes transparent, and which you will probably retain because it is simple and specific. The only minuses: I wish it were cheaper (not that the teaching isn't worth it). I also wish for an update: It would make a really interesting read to apply the basics to recent observations, like the "accelerating universe" problem (or is it just a layer of cosmological smog between us and them dim supernovas?...). However, the cosmological constant: it's there. So this book is absolutely the straightest, shortest path to bringing any curious reader up to speed on fully enjoying cosmological sightings in the news.

3 of 3 people found the following review helpful.
 Excellent introduction to the subject
 By A Customer
 Berry's book is definitely one of the more accessible yet rigorous treatments of this fascinating subject. It assumes a sound knowledge of Special Relativity and a good command of Calculus, Differential Equations and Vector Algebra, but without the onerous use of tensors and as such it is a serious book for the Physics student rather than a popular presentation of science. All of the fundamentals are covered here: an outline of cosmography, distance and velocity measurements, the rationale for General Relativity based on a critical assessment of the shortcomings of both the Newtonian model and Special Relativity, the Principle of Equivalence, Curved Space-time, geodesics, Gravitational Waves, Black holes, and Cosmic models. The author makes excellent use of diagrams and the discussion of the physical principles is balanced by a careful presentation of the mathematics. A highly recommended book!

6 of 6 people found the following review helpful. Excellent but dense.
 By Brian M. O'Neill
 This was an excellent book. We used it in my intro course for Astrophysics. This book is not a "pop-culture" overview of the expanding universe, but rather explores the mathematical and physical explanation for the structure and state of the universe. Expect to spend a fair bit of time on each page, and each paragraph. Though straight forward writing and math, the ideas and implications are mind bending. It is quite difficult to think on the scale of the universe, but this book boils it down to the relevant observations we can make and the equations that might explain them. This became my Cosmological Bible.

General relativity and quantum mechanics have become the two central pillars of theoretical physics. Moreover, general relativity has important applications in astrophysics and high-energy particle physics. Covering the fundamentals of the subject, *Principles of Cosmology and Gravitation* describes the universe as revealed by observations and presents a theoretical framework to enable important cosmological formulae to be derived and numerical calculations performed. Avoiding elaborate formal discussions, the book presents a practical approach that focuses on the general theory of relativity. It examines different evolutionary models and the gravitational effects of massive bodies. The book also includes a large number of worked examples and problems, half with solutions.

..." very successful introduction and treatment... exceptionally methodical...deserves to be read and recommended as an introduction....I recommended this book in 1976 and I will continue to do so." *Space Science s ...* " an ideal text for undergraduates studying cosmology ..."
 Europe and Astronomy ry successful introduction and treatment...
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