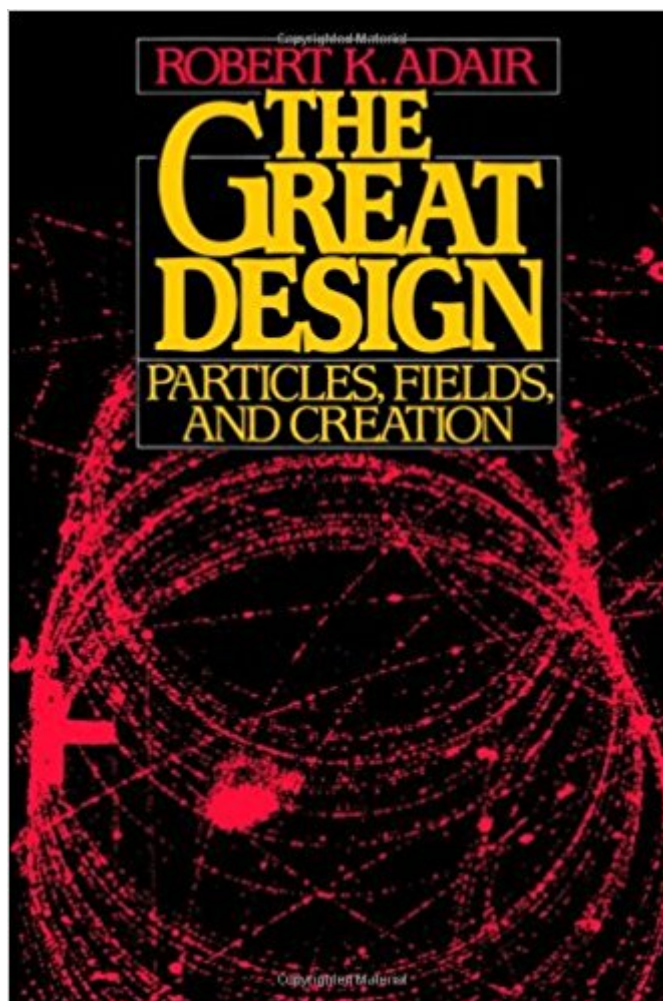


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The Great Design: Particles, Fields, And Creation



Synopsis

Although modern physics surrounds us, and newspapers constantly refer to its concepts, most nonscientists find the subject extremely intimidating. Complicated mathematics or gross oversimplifications written by laypersons obscure most attempts to explain physics to general readers. Now, at long last, we have a comprehensive--and comprehensible--account of particles, fields, and cosmology, written by a working physicist who does not burden the reader with the weight of ponderous scientific notation. Exploring how physicists think about problems, Robert K. Adair considers the assumptions they make in order to simplify impossibly complex relationships between objects, how they determine on what scale to treat the problem, how they make measurements, and the interplay between theory and experiment. Adair gently guides the reader through the ideas of particles, fields, relativity, and quantum mechanics. He explains the great discoveries of this century--which have caused a revolution in how we view the universe--in simple, logical terms, comprehensible with a knowledge of high school algebra. Performing the difficult task of predigesting complex concepts, Adair gives nonscientists access to what often appears to be an arcane discipline, and captures the joy of discovery which lies at the heart of research.

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Customer Reviews

Adair's aim is to explain the underlying ideas of modern physics to the educated layperson while avoiding mathematics as much as possible. Considering the difficulty of the task, he does a creditable job. Still, there is a fair amount of algebraic notation, using Greek letters and sub- and

superscripts, which may intimidate some readers, and the author tacitly assumes familiarity with scientific terminology. This is a good book for anyone who has studied some physics at the undergraduate level but never really grasped its unifying concepts. It is also recommended to readers with a scientific background interested in the present state of the art in quantum mechanics, particle physics, and astrophysics. Harold D. Shane, Mathematics Dept., Baruch Coll. , Copyright 1987 Reed Business Information, Inc. --This text refers to an out of print or unavailable edition of this title.

"A delicious and, in many ways, a profound popularization of what physics is and how physicists reach and accept conclusions."--New Technical Books
"A good book for anyone who has studied some physics at the undergraduate level but never really grasped its unifying concepts. It is also recommended to readers with a scientific background interested in the present state of the art in quantum mechanics, particle physics, and astrophysics."--Library Journal
"Adair...has digested many of the seemingly impossible-to-understand concepts for general readers, and has presented these concepts in this book....Excellent illustrations are used throughout. Highly recommended."--Choice
"A thoughtful, scholarly book that describes the foundations of physics and the methods by which these foundations have been formed....Highly recommended for anyone with more than a passing curiosity about physics and our attempts to observe and understand the universe in which we live."--Science Books and Films
"A straightforward, unfussy, and well-ordered account of the core concepts of relativistic particle physics....Adair is on many topics an excellent guide and mentor, with a good teacher's ability to anticipate the difficulties the student will have."--Nature
"We found this book to be an excellent and often illuminating review of the basic concepts of modern physics. It brings the reader right to the frontier of Grand Unified Theories and the more shadowy world of superstrings and rolled-up dimensions. Controversial topics are presented evenhandedly, and our present level of understanding of new topics is stated clearly. . . .the author frequently uses very intuitive, simple, and often brilliant analogies to get his ideas across. . . .For undergraduate physics students seeking a broad overview, or for readers from other disciplines of science who want to see what their colleagues are up to, this would be an excellent book. It would benefit a much wider range of readers--including senators and university presidents--as well." --American Scientist
"This is a clean, readable account of contemporary thought by physicists. I have recommended it to our physics majors as a cultural undertaking."--Albert C. Claus, Loyola University

This is a clear but challenging book.

This is a very deep book, conveying a lot of important physics in an understandable way for those who want to put in some mental effort and who want to see how the concepts fit together without math beyond a good High School level. If you study it (and it has to be "studied," not just "read," to get something worthwhile out of it) and want to work through examples of the concepts and to see some of their derivations and additional details, I don't hesitate to recommend studying the book in conjunction with the author's "Concepts in Physics" from 1969 which was aimed at Yale undergraduates who wanted a physics course without intending to become physicists. The level of knowledge of people entering university has changed over the years and that latter book would make a very worthwhile book to study in the summer vacation for an intending physics major at a good college/university. The two books together would be even better.

I've been drudging through this book for months now. It's not an easy read, and not because of the mathematics. It's just not written in a style that flows very well. This could just be personal taste though. I have a background in physics and mathematics, but I often like to read physics books written for the general public. Such writing is an art and there are many people who excel at making the very complex accessible to the general public. I don't think this author has that ability. While I have gotten insights into things and it has provoked thought and I have learned from it, it's been a chore to read. I've read many other books that get the same ideas across in much more interesting and accessible ways. As for the mathematics, it's hard to figure out the target audience. If you're not familiar with concepts such as div, grad and curl you'll be lost in the first few chapters. If you are familiar with those ideas, you get a very cursory reference to them that doesn't really seem to be necessary. Again, this could just be a case of personal taste like a good teacher and a good student who just don't mesh well, but I do know I've read many other books by authors who seem to have that artistry I spoke of. This seems more of a collage of sheltered physics and an attempt to be humorous and accessible to those with no background in physics and it doesn't do a very good job. I'd almost get the impression that the author is a physicist who just always wanted to write a book and so he whipped this up and got it published. Again, it has given me insights and if you can ignore many unimportant parts of the writing you can come away with a lot of ideas, but if you have no background in physics (or math) and want to get a book that will introduce and explain the history of physics or modern physics, this is not the book for you.

The Great Design: Particles, Fields, and Creation by Robert Kemp Adair is a great book of physics that explains concepts that are important such as Faraday's fields to nonphysicists and people who want to learn more. This book explained a lot and cleared up a fog of questions about physics. It describes, in short, the many concepts physicists use to try to find the universal unified field and the universal theory and equation. Major components of physics like quantum mechanics and theories like the general and special theories of relativity are explained clearly and effectively. What I liked most about the book is the information Adair chooses to write and the way it is put together with enhancements. This way, it adds to the experience because it helped the reader clearly understand the point Adair tries to make in each chapter. This book was great in the sense that it is easy to understand once you grasp a little meaning of the concept. But I personally felt that the chapters were too long so that it was kind of repetitive, and that this book would be better if Adair spent more space telling of other subjects in physics than emphasizing minute details on individual ones. The Great Design was an overall good read and specially designed for people who thirst for the truth. All in all, I give it a good rating and I suggest people to read this book.

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