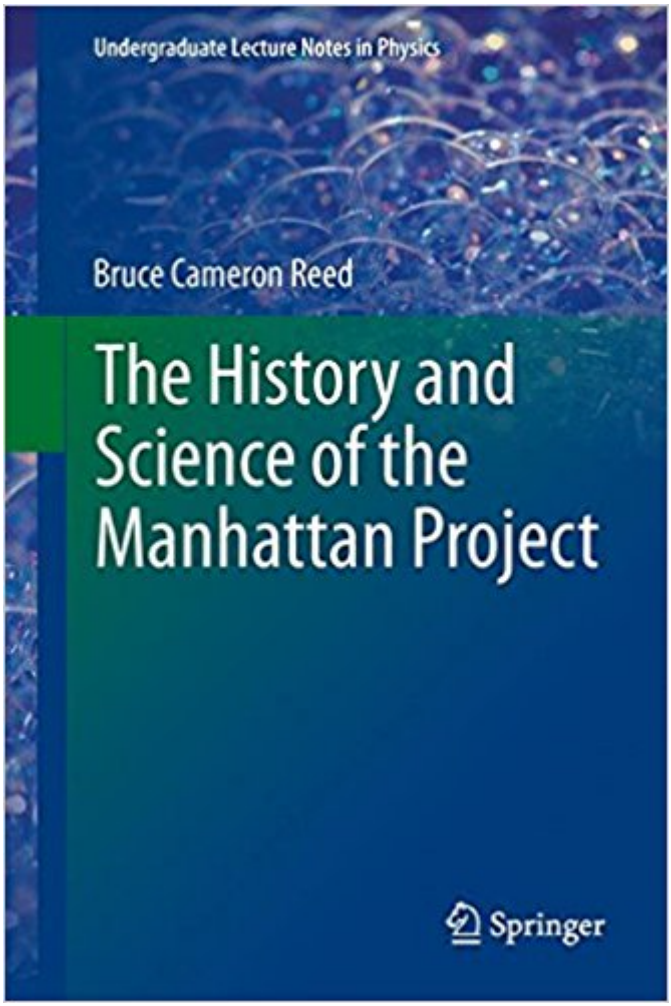
The History And Science Of The Manhattan Project (Undergraduate Lecture Notes In Physics)



Synopsis

The development of atomic bombs under the auspices of the U. S. Armyâ ™s Manhattan Project during World War II is considered to be the outstanding news story of the twentieth century. In this book, a physicist and expert on the history of the Project presents a comprehensive overview of this momentous achievement. The first three chapters cover the history of nuclear physics from the discovery of radioactivity to the discovery of fission, and would be ideal for instructors of a sophomore-level â œModern Physicsâ • course. Student-level exercises at the ends of the chapters are accompanied by answers. Chapter 7 covers the physics of first-generation fission weapons at a similar level, again accompanied by exercises and answers. For the interested layman and for non-science students and instructors, the book includes extensive qualitative material on the history, organization, implementation, and results of the Manhattan Project and the Hiroshima and Nagasaki bombing missions. The reader also learns about the legacy of the Project as reflected in the current world stockpiles of nuclear weapons.Â

Book Information

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Customer Reviews

From the book reviews:â œThis new text by Cameron successfully marries the science with the history of the Manhattan Project in 472 pages and 173 illustrations (most of them original). â | I definitely recommend this book to anyone who is interested in learning about the history of the Manhattan Project and all the nuclear physics behind the project, which is written in a very

approachable and educational way.â • (Dimitris Mihailidis, Medical Physics, Vol. 41 (9), September, 2014)â œReed (Alma College) provides a well-written scientific, organizational, military, and diplomatic history of the American (and British!) programs leading to the construction and use of the worldâ ™s first nuclear weapon. â | The book, part of Springerâ ™s â ˆUndergraduate Lecture Notes in Physicsâ ™ series, is well suited for undergraduates and others who have successfully completed a good introductory college physics course. â | Summing Up: Recommended. Upper-division undergraduates and above; general readers.â • (A. M. Saperstein, Choice, Vol. 51 (9), May, 2014)â œThis work, published in the Springer Undergraduate Lecture Notes in Physics series, is intended as a college-level science text on the Manhattan Project, but serves well as a resource for scientists and non-scientists. â | Each chapter concludes with problems for students and an extensive bibliography.â • (ALSOS Digital Library for Nuclear Issues, alsos.wlu.edu, 2014)

The development of atomic bombs under the auspices of the U. S. Armyâ ™s Manhattan Project during World War II is considered to be the outstanding news story of the twentieth century. In this book, a physicist and expert on the history of the Project presents a comprehensive overview of this momentous achievement. The first three chapters cover the history of nuclear physics from the discovery of radioactivity to the discovery of fission, and would be ideal for instructors of a sophomore-level â œModern Physicsâ • course. Student-level exercises at the ends of the chapters are accompanied by answers. Chapter 7 covers the physics of first-generation fission weapons at a similar level, again accompanied by exercises and answers. For the interested layman and for non-science students and instructors, the book includes extensive qualitative material on the history, organization, implementation, and results of the Manhattan Project and the Hiroshima and Nagasaki bombing missions. The reader also learns about the legacy of the Project as reflected in the current world stockpiles of nuclear weapons.Â

If you want to begin to understand the science and physics behind the development of the first atomic bombs, this is the book!The very first book I read on the Manhattan Project was, serendipitously, Richard Rhodes' Pulitzer classic "The Making of the Atomic Bomb", probably the best and most comprehensive book on the topic. But it is primarily a history book; it contains enough science to tell the story but not to give a full understanding. It left me salivating, wanting to know more about fission, atoms, energy release, breeding plutonium. So ever since reading it, I have been searching for the "how it all works" book. THIS BOOK IS IT! It takes the reverse perspective of Rhodes; it's a science book that contains enough history to put the science into context. And it does

a great job of it.How much technical background do you need to understand or enjoy this book? I'll answer in several ways: If you are intrigued by the Manhattan Project and are curious to know more about the technology, then regardless of your technical level, you will probably enjoy large parts of it. If, in addition to that, you did well in high school physics, chemistry or math, you will likely comprehend most or all of it. I have a bachelor in engineering from the early 80's, worked a few years in industry but not related to physics, then left technology for 30 years, so I am left with a vague recollection of my intro physics and math classes from back then. With dedication, and by referencing the vast resources of the web, I was able to work thru and understand pretty much everything in the book. I enjoyed everything in the book. The author's deep understanding and love for the subject is woven into it.Most chapters of the book end with some questions. It's not necessary to do them to enjoy the book, but doing them can add additional understanding. They range from requiring no math, to simple math, to some algebra. There is one problem that involves an integral, the answer to which can be looked up on the web. The book provides answers for all the questions.After reading Rhodes, my library expanded to some 20 books searching for better understanding of the technology. Hoddeson et al, a wonderful compendium of the details of the history of the technological developments, was not it. Nothing else I read was it. Until this book.

The genrÃ© of historical technology is of interest to many. And there are an abundance of books on the subject. About just about everything. Each book delves into its subject matter in different levels; some superficially, some in great depth. This book, The History and Science of the Manhattan Project, is one that goes Ã¢Â Âœall the way.Ã¢Â Â• It is relatively expensive, and esoteric. Every aspect of the Manhattan Project is described in great detail. This can present a problem for some readers as nearly every page contains extremely detailed equations relating to the subject matter. If the reader is a physicist or mathematician, no problem. However, for the less sophisticated of us it could be frustrating. This need not be a problem; it is not necessary to study and understand each equation. The equations support the text and it is a simple matter to understand the concepts presented in the text and move on. Well, youÃ¢Â Â™ve paid for the equations, so it is unfortunate to not take full advantage. But, if the history of the Manhattan Project is one of your passions and youÃ¢Â Â™ve read most of the other books on the subject, then this will be Ã¢Â Âœthe icing on the cake.Ã¢Â Â• If the subject is of interest, take the plunge and buy the #$%^&* thing.

Excellent book for everything you've always wanted to know about the mechanics of the Manhattan Project. Lots of mathematical equations that dig deep into the science.

Just about anything you'd ever want to know about the Manhattan Project is in this book. The technical material is accessible to anyone with solid high-school / college pre-calculus level mathematics background. Reed has another book along similar lines except it has all of the heavy-duty math. Junior-year undergrad students should have enough advanced calculus and differential equations to handle this material.

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great stuff! but not for tree huggers...

Best combined account of this ultimate mega-project. The only place I have seen decent descriptions of Hanford and Oak Ridge production facilities. A good supplemental work to this is "Critical Assembly" if you are interested in more scientific and technical detail. No question but that this project dwarfs all others I am aware of, including Apollo, for its breadth and speed of discover and adaptation.

Physical Properties of Crystals (Lecture Notes in Physics) Landau Theory Of Phase Transitions, The: Application To Structural, Incommensurate, Magnetic And Liquid Crystal Systems (World Scientific Lecture Notes in Physics) Lattice Models of Polymers (Cambridge Lecture Notes in Physics) Quantum Thermodynamics: Emergence of Thermodynamic Behavior Within Composite Quantum Systems (Lecture Notes in Physics) Diagrammatica: The Path to Feynman Diagrams (Cambridge Lecture Notes in Physics) From Gravity to Thermal Gauge Theories: The AdS/CFT Correspondence (Lecture Notes in Physics) The Physics of the Manhattan Project