



Group Theory in a Nutshell for Physicists

By A. Zee

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Although group theory is a mathematical subject, it is indispensable to many areas of modern theoretical physics, from atomic physics to condensed matter physics, particle physics to string theory. In particular, it is essential for an understanding of the fundamental forces. Yet until now, what has been missing is a modern, accessible, and self-contained textbook on the subject written especially for physicists.

Group Theory in a Nutshell for Physicists fills this gap, providing a user-friendly and classroom-tested text that focuses on those aspects of group theory physicists most need to know. From the basic intuitive notion of a group, A. Zee takes readers all the way up to how theories based on gauge groups could unify three of the four fundamental forces. He also includes a concise review of the linear algebra needed for group theory, making the book ideal for self-study.

- Provides physicists with a modern and accessible introduction to group theory
- Covers applications to various areas of physics, including field theory, particle physics, relativity, and much more
- Topics include finite group and character tables; real, pseudoreal, and complex representations; Weyl, Dirac, and Majorana equations; the expanding universe and group theory; grand unification; and much more
- The essential textbook for students and an invaluable resource for researchers
- Features a brief, self-contained treatment of linear algebra
- An online illustration package is available to professors
- Solutions manual (available only to professors)



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Editorial Review

Review

Honorable Mention for the 2017 PROSE Award in Textbook/Best in Physical Sciences and Mathematics, Association of American Publishers

"Another excellent entry in the 'Nutshell' series, Zee's latest has it all: broad scope, depth, thorough explanations, history, and an appealing sense of humor. The author's knowledge of mathematics and physics is encyclopedic, and he leavens the text generously with episodes and asides drawn from the life and work of the major figures in the development of group theory and its applications in physics."--**Choice**

"In *Group Theory in a Nutshell for Physicists*, Anthony Zee . . . combines clarity of presentation with mathematical detail at a level of rigor acceptable to physicists. The result is a tour de force that guides readers through the universe of group theory and leads them to recent particle physics, cosmology, and condensed matter. The book is unique in its laid-back presentation."--**Physics Today**

"This book lives up to my high expectations and can stand shoulder to shoulder with Zee's other two *Nutshell* books."--**Johannes Koelman, Science 2.0**

From the Back Cover

"Zee's lovely book on the theory of group representations is comprehensive and complete, both from the mathematical and physical points of view. While it doesn't discuss the representations of the symmetric groups, the book's got almost everything on the mathematical side, including roots and weights in the theory of compact Lie groups. The physics applications are mainly from high energy physics but also include some from chemical and condensed matter physics. Clearly written, this book makes an ideal text for a graduate course in physics on the subject."--**Barry Simon, California Institute of Technology**

"This excellent book stands out by its clarity of presentation."--**Eugene Demler, Harvard University**

"This is an ambitious book. Zee brings together a lot of material not easily found in one place."--**Savdeep S. Sethi, University of Chicago**

"*Group Theory in a Nutshell for Physicists* fills a gap in the market. Zee turns group theory into a less intimidating topic."--**Katrin Becker, Texas A&M University**

About the Author

A. Zee is professor of physics at the Kavli Institute for Theoretical Physics at the University of California, Santa Barbara. His books include *Quantum Field Theory in a Nutshell*, *Einstein Gravity in a Nutshell*, and *Fearful Symmetry: The Search for Beauty in Modern Physics* (all Princeton).

Users Review

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Latasha Sutterfield:

This Group Theory in a Nutshell for Physicists book is absolutely not ordinary book, you have it then the world is in your hands. The benefit you get by reading this book is information inside this publication incredible fresh, you will get information which is getting deeper you actually read a lot of information you will get. That Group Theory in a Nutshell for Physicists without we know teach the one who studying it become critical in contemplating and analyzing. Don't possibly be worry Group Theory in a Nutshell for Physicists can bring when you are and not make your bag space or bookshelves' grow to be full because you can have it with your lovely laptop even mobile phone. This Group Theory in a Nutshell for Physicists having great arrangement in word along with layout, so you will not truly feel uninterested in reading.

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