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Group Theory In A Nutshell For Physicists



Synopsis

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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Customer Reviews

Thank you "Dear Professor"!! One can simply not find a better author from which to learn physics!

Zee stokes the flames of passion for physics. Reading his books i feel invigorated and confident. One positive aspect, i find, is that in some sections he proceeds "painfully slow" so as not to confuse the reader and he "beats to death" the rotation group $SO(N)$ This is a book (all books really) you absolutely HAVE to work through examples and problems as you go through the text. You cannot expect to learn group and representation theory simply by reading. Practice. And our "dear professor" reiterates this idea throughout the formal part of the book. (So far i am 140pages in) our Dear Professor offers many many examples of finite groups (which i personally feel is more tricky than continuous groups) and helps you construct character tables and deduce the irreps with his guidance. So far (since ive only gone through some of the formalisms of group theory) i have not felt as though i am "falling in love" with group theory (as is a pervasive theme in his other two nutshell books - READ AND WORK THROUGH THEM!) But as a physicist i already have a working knowledge of group theory and appreciate the power of the subject. I suspect as the book delves into physics and the use of groups in physics readers will certainly fall in love with the subject. (I will update my review as i work through the book) One interesting idea behind our Dear Professor's books is that they are VERY conversational. I'm simply venturing to guess that millenials (such as myself) prefer these types of expositions over more formal and sterile expositions.

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