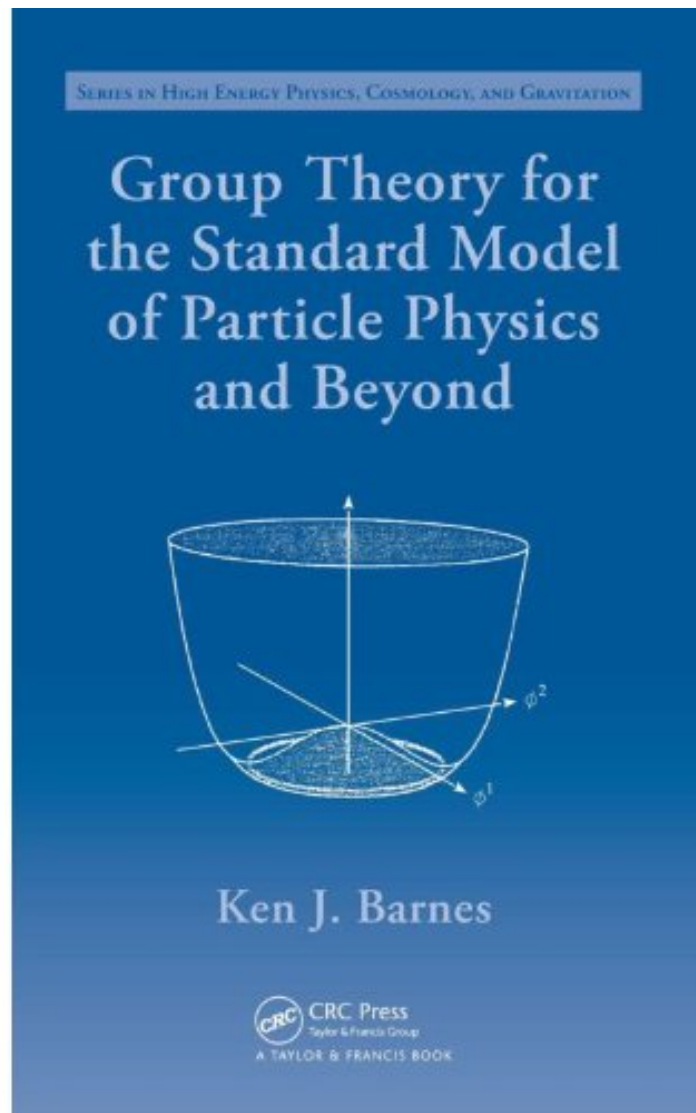


(Download free ebook) Group Theory for the Standard Model of Particle Physics and Beyond (Series in High Energy Physics, Cosmology and Gravitation)

Group Theory for the Standard Model of Particle Physics and Beyond (Series in High Energy Physics, Cosmology and Gravitation)

Ken J. Barnes

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Ken J. Barnes : Group Theory for the Standard Model of Particle Physics and Beyond (Series in High Energy Physics, Cosmology and Gravitation) before purchasing it in order to gage whether or not it would be worth my time, and all praised Group Theory for the Standard Model of Particle Physics and Beyond (Series in High Energy Physics, Cosmology and Gravitation):

4 of 4 people found the following review helpful. quick review of lie theory in hepBy ChristineThis book is a (perhaps

too) quick graduate level review of the way symmetry appears in high energy physics as expressed in Lie groups and algebras. This text is neither an introduction nor an overview. Rather it is a brief statement of the ideas without proof and little motivation. The Kindle version is nicely presented as a print replica rather than the mobi format (which is quite ill suited to texts with significant mathematical content.) 0 of 2 people found the following review helpful. Five Stars
By MariaOhhhh! mind boggling thing!!!

Based on the author's well-established courses, *Group Theory for the Standard Model of Particle Physics and Beyond* explores the use of symmetries through descriptions of the techniques of Lie groups and Lie algebras. The text develops the models, theoretical framework, and mathematical tools to understand these symmetries. After linking symmetries with conservation laws, the book works through the mathematics of angular momentum and extends operators and functions of classical mechanics to quantum mechanics. It then covers the mathematical framework for special relativity and the internal symmetries of the standard model of elementary particle physics. In the chapter on Noether's theorem, the author explains how Lagrangian formalism provides a natural framework for the quantum mechanical interpretation of symmetry principles. He then examines electromagnetic, weak, and strong interactions; spontaneous symmetry breaking; the elusive Higgs boson; and supersymmetry. He also introduces new techniques based on extending spacetime into dimensions described by anticommuting coordinates. Designed for graduate and advanced undergraduate students in physics, this text provides succinct yet complete coverage of the group theory of the symmetries of the standard model of elementary particle physics. It will help students understand current knowledge about the standard model as well as the physics that potentially lies beyond the standard model.

The book is clearly written... In addition to references, there are copious problems at the end of each chapter which add to the value of the book... This readable text will be of value to theoreticians entering the area of quantum field theory and also to more seasoned researchers in other areas of physics who wish to remind themselves of the basic group theoretical underpinning of that most fundamental of all physical theories. ?Allan I. Solomon, *Contemporary Physics*, 52, 2011 This book provides a lucid and readable account of group theory relevant to gauge theories and is a welcome addition to the available texts in the area. ... The presentation of difficult topics is clear and suitable for a reader new to the subject, while enough material is included to make this book useful as a reference for more experienced researchers. ... The material is a pleasure to read and enlightening. ... Overall, this book is well written and presents this important topic in an excellent and clear way. ... readers with a more theoretical background will find this book an essential read. In conclusion, every student and researcher in high energy physics should read this excellent book. ?Robert Appleby, s, Volume 11, Issue 2, 2010
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