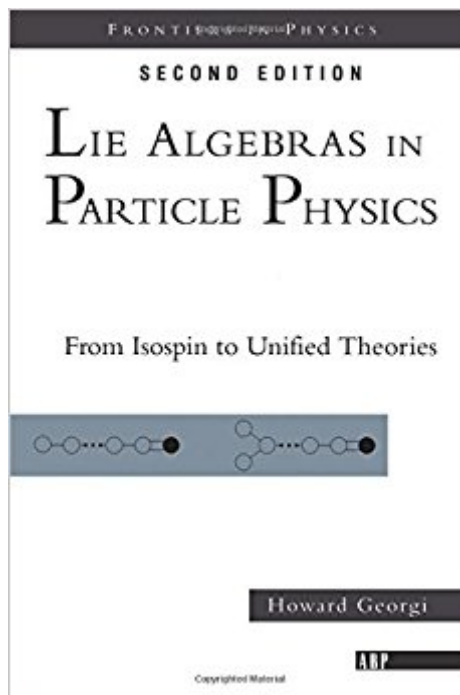


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Lie Algebras In Particle Physics: From Isospin To Unified Theories (Frontiers In Physics)



Synopsis

Howard Georgi is the co-inventor (with Sheldon Glashow) of the SU(5) theory. This extensively revised and updated edition of his classic text makes the theory of Lie groups accessible to graduate students, while offering a perspective on the way in which knowledge of such groups can provide an insight into the development of unified theories of strong, weak, and electromagnetic interactions.

Book Information

Series: Frontiers in Physics (Book 54)

Paperback: 344 pages

Publisher: Westview Press; 2 edition (October 22, 1999)

Language: English

ISBN-10: 0738202339

ISBN-13: 978-0738202334

Product Dimensions: 6 x 0.8 x 9 inches

Shipping Weight: 1.2 pounds (View shipping rates and policies)

Average Customer Review: 3.8 out of 5 stars 19 customer reviews

Best Sellers Rank: #419,871 in Books (See Top 100 in Books) #51 in [Books > Science & Math > Mathematics > Pure Mathematics > Group Theory](#) #56 in [Books > Science & Math > Physics > Nuclear Physics > Particle Physics](#) #82 in [Books > Science & Math > Mathematics > Pure Mathematics > Algebra > Abstract](#)

Customer Reviews

Howard Georgi is professor of physics at Harvard University.

I had a copy of this book in graduate school, on loan from our library. I found it to be a good introduction to Lie Algebra in general and its application to describing the spectrum of mesons and hadrons found in particle physics. I was glad to find it on line and it was one of the first books I purchased for my personal library as a physicist.

If I wasn't reading this side by side with a professor, many parts of it would have been baffling. There are two areas especially where something is presented as though proven but isn't actually proven. I would recommend this only if you have a professor to consult, if you don't intend to read every proof line-by-line, or if you are using it for review

great introduction for students and researchers alike.

I really like this book, He explained very well Lie group and Lie algebra with applications in particle physics. Properties of $SU(N)$ are shown very well in this book.

+Easy to read.+Gives many explicit examples.-Sometimes it is hard to comprehend the meaning of a single sentence!-> Good introduction for students with basic knowledge of Quantum Mechanics.

A nice book that lacks a common theme. Georgi was one of the first who wrote down a Grand Unified Theory, so he knows quite some group theory and why it is important in physics. Nevertheless, this vast knowledge does not transfer directly to great didactical explanations. The book seems to me as piecemeal. Some chapters were quite nice, others seemed really irrelevant and I didn't understand why they are there. Nowadays there are several books that offer better explanations of these topics, but Georgi's book will of course remain a classic and some chapters are still useful. As long as one does not expect a book that is read from cover to cover I can recommend this book

I know Lie Algebras from the mathematical side. I expected the author to give a physical argument of why it was applicable to elementary particles. He tries sort of, but mostly bluffs his way through the math and uses symbols of his own without defining them. I gave it two stars because nevertheless I was able to glean some little bits of insight from the book, but unfortunately not much.

The Dover books "Semi-Simple Lie Algebras and Their Representations" (Dover Books on Mathematics) and "Lie Groups, Lie Algebras, and Some of Their Applications" cover the topic, but maybe not as well and they leave out a good coverage of angles in groups and Young's combinatorial tableaux. The relationship of Dynkin diagrams to $SU(n)$ (A_n) and $SO(n)$ (D_n and B_n) groups is well covered. I liked the coverage of generalized Gell-Mann groups as well. The explanation of the relationship of $SU(3)$ to $SU(6)$ was also helpful. In general except for the price this is one of the better books on the market on this subject.

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