Título:

Autor:

Editorial:

Tema:

Sinopsis

Precio: $550.00

Año: 2006

Edición: 1ª

ISBN: 9783540362364

This book, designed for advanced graduate students and post-graduate researchers, provides an introduction to Lie algebras and some of their applications to the spectroscopy of molecules, atoms, nuclei and hadrons. In the first part, a concise exposition is given of the basic concepts of Lie algebras, their representations and their invariants. The second part contains a description of how Lie algebras are used in practice in the treatment of bosonic and fermionic systems. Physical applications considered include rotations and vibrations of molecules (vibron model), collective modes in nuclei (interacting boson model), the atomic shell model, the nuclear shell model, and the quark model of hadrons. One of the key concepts in the application of Lie algebraic methods in physics, that of spectrum generating algebras and their associated dynamic symmetries, is also discussed. The book contains many examples that help to elucidate the abstract algebraic definitions. It provides a summary of many formulas of practical interest, such as the eigenvalues of Casimir operators and the dimensions of the representations of all classical Lie algebras.