An Introduction to Non-Abelian Discrete Symmetries for Particle Physicists [
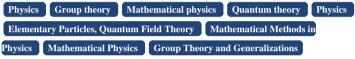
Ishimori, Hajime

Springer Berlin Heidelberg :
Imprint: Springer,
2012

Physics   Group theory   Mathematical physics   Quantum theory   Physics
Elementary Particles, Quantum Field Theory   Mathematical Methods in
Physics   Mathematical Physics   Group Theory and Generalizations

Monografía

These lecture notes provide a tutorial review of non-Abelian discrete groups and show some applications to issues in physics where discrete symmetries constitute an important principle for model building in particle physics. While Abelian discrete symmetries are often imposed in order to control couplings for particle physics - in particular model building beyond the standard model - non-Abelian discrete symmetries have been applied to understand the three-generation flavor structure in particular.Indeed, non-Abelian discrete symmetries are considered to be the most attractive choice for the flavor sector: model builders have tried to derive experimental values of quark and lepton masses, and mixing angles by assuming non-Abelian discrete flavor symmetries of quarks and leptons, yet, lepton mixing has already been intensively discussed in this context, as well. The possible origins of the non-Abelian discrete symmetry for flavors is another topic of interest, as they can arise from an underlying theory - e.g. the string theory or compactification via orbifolding (QA(B(3C (Bthereby providing a possible bridge between the underlying theory and the corresponding low-energy sector of particle physics.This text explicitly introduces and studies the group-theoretical aspects of many concrete groups and shows how to derive conjugacy classes, characters, representations, and tensor products for these groups (with a finite number) when algebraic relations are given, thereby enabling readers to apply this to other groups of interest

Título: An Introduction to Non-Abelian Discrete Symmetries for Particle Physicists Recurso electrónico] by Hajime Ishimori, Tatsuo Kobayashi, Hiroshi Ohki, Hiroshi Okada, Yusuke Shimizu, Morimitsu Tanimoto

Editorial: Berlin, Heidelberg Springer Berlin Heidelberg Imprint: Springer 2012

Descripción física: XII, 283 p. 8 illus. digital

Mención de serie: Lecture Notes in Physics 0075-8450 858

Documento fuente: Springer eBooks

Contenido: Introduction -- Basics of Finite Groups -- Subgroups and Decompositions of Multiplets -- Anomalies -- Non-Abelian Discrete Symmetry in Quark/Lepton Flavor Models -- Useful Theorems -- Representations of S4 in Different Bases -- Representations of A4 in Different Bases -- Representations of A5 in Different Bases -- Representations of T1 in Different Bases -- Other Smaller Groups -- References

Restricciones de acceso: Acceso restringido a miembros del Consorcio de Bibliotecas Universitarias de Andalucía

Detalles del sistema: Modo de acceso: World Wide Web

Fuente de adquisición directa: Springer (Phys)

ISBN: 9783642308055 9783642308048 ed. impresa)

Autores: Kobayashi, Tatsuo Ohki, Hiroshi Okada, Hiroshi Shimizu, Yusuke Tanimoto, Morimitsu

Entidades: SpringerLink (Online service)