

# Lie Groups - Daniel Bump - 9781461480242 - 2013 - Springer Science & Business Media, 2013 - 551 pages

This book addresses Lie groups, Lie algebras, and representation theory. In order to keep the prerequisites to a minimum, the author restricts attention to matrix Lie groups and Lie algebras. This book is sure to become a standard textbook for graduate students in mathematics and physics with little or no prior exposure to Lie theory. Brian Hall is an Associate Professor of Mathematics at the University of Notre Dame. This book is an introduction to the theory of Lie groups and their representations at the advanced undergraduate or beginning graduate level. It covers the essentials of the subject starting from basic undergraduate mathematics. The correspondence between linear Lie groups and Lie algebras is developed in its local and global aspects. The classical groups are analyzed in detail, first with Lie group homomorphisms. Riemannian geometry of Lie groups. Maximal Tori. Weyl group. Reference books: C. Chevalley, *Theory of Lie Groups*, Vol I, Princeton. J.J. Duistermaat, J.A.C. Kořik, *Lie Groups*, Springer, 2000. F.W. Warner, *Foundations of Differentiable Manifolds and Lie Groups*, Graduate Texts in Mathematics, 94, Springer, 1983. A. Kirillov, Jr., *Introduction to Lie Groups and Lie Algebras*, Cambridge Studies in Advanced Mathematics, 113. Cambridge University Press, 2008. Knots and exceptional Lie groups as building blocks of high energy particle physics. *Chaos, Solitons & Fractals*, Vol. 41, Issue. 4, p. 1799. Describing many of the most important aspects of Lie group theory, this book presents the subject in a 'hands on' way. Rather than concentrating on theorems and proofs, the book shows the applications of the material to physical sciences and applied mathematics. Many examples of Lie groups and Lie algebras are given throughout the text.