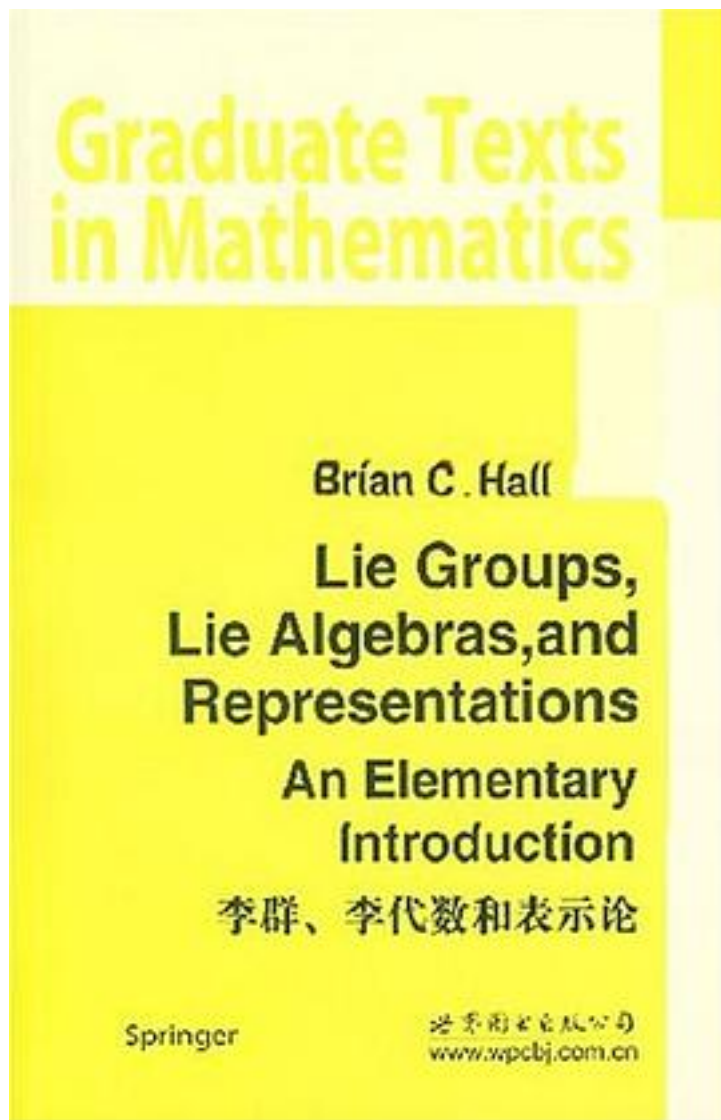


李群、李代数和表示论



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著者:Brian C. Hall

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This book provides an introduction to Lie groups, Lie algebras, and representation theory, aimed at graduate students in mathematics and physics. Although there are already several excellent books that cover many of these same topics, this book has two distinctive features that I hope will make it a useful addition to the literature. First, it treats Lie groups (not just Lie algebras) in a way that minimizes the amount of manifold theory needed. Thus, I neither assume a prior course on differentiable manifolds nor provide a condensed such course in the beginning chapters. Second, this book provides a gentle introduction to the machinery of semisimple groups and Lie algebras by treating the representation theory of $SU(2)$ and $SU(3)$ in detail before going to the general case. This allows the reader to see roots, weights, and the Weyl group "in action" in simple cases before confronting the general theory.

The standard books on Lie theory begin immediately with the general case: a smooth manifold that is also a group. The Lie algebra is then defined as the space of left-invariant vector fields and the exponential mapping is defined in terms of the flow along such vector fields. This approach is undoubtedly the right one in the long run, but it is rather abstract for a reader encountering such things for the first time. Furthermore, with this approach, one must either assume the reader is familiar with the theory of differentiable manifolds (which rules out a substantial part of one's audience) or one must spend considerable time at the beginning of the book explaining this theory (in which case, it takes a long time to get to Lie theory proper).

作者介绍:

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标签

数学

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评论

The Baker-Campbell-Hausdorff Formula (shows that all the information about the group product, at least near the identity, is "encoded" in the Lie) 替代了the Frobenius theorem证明, 证明李代数同构那么李群局部同构

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前五章。典型的自学读物，比较啰嗦，练习题也不难。适合本科生。第三章和附录DE有特色，第五章是个大栗子

非常非常适合像我这样数学功底差的入门。

非常易懂，命题证明命题证明一条一条地来，适合咱学物理的

这才是李理论的入门读物

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书评

对于一个关心对称函数，关心表示论的组合方向的人来说，这本书有着致命的诱惑。最早发现这本书是在网上看到它的先行版本，只有100多页，现在的书加上附录有三百多页，新版更厚。

诱惑的原因，是这本书试图躲开分析的影子，也就是丢掉一般性的，流形上的方法来讨论矩阵Lie群。 ...

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