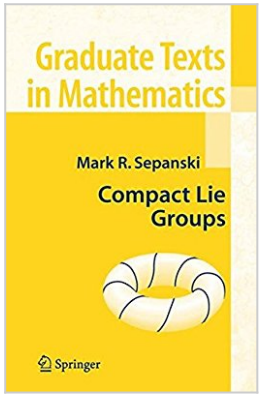

Compact Lie Groups (Graduate Texts in Mathematics)

By Mark R. Sepanski

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Blending algebra, analysis, and topology, the study of compact Lie groups is one of the most beautiful areas of mathematics and a key stepping stone to the theory of general Lie groups. Assuming no prior knowledge of Lie groups, this book covers the structure and representation theory of compact Lie groups. Coverage includes the construction of the Spin groups, Schur Orthogonality, the Peter-Weyl Theorem, the Plancherel Theorem, the Maximal Torus Theorem, the Commutator Theorem, the Weyl Integration and Character Formulas, the Highest Weight Classification, and the Borel-Weil Theorem. The book develops the necessary Lie algebra theory with a streamlined approach focusing on linear Lie groups.

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Compact Lie Groups (Graduate Texts in Mathematics) By Mark R. Sepanski Bibliography

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Editorial Review

Review

From the reviews:

"Groups serve to parameterize the symmetries of mathematical objects and the ways symmetries combine. … offers students willing to take a few things on faith a vital vista on a subject they may wish to pursue at the graduate level. Summing Up: Recommended. Upper-division undergraduates through professionals." (D. V. Feldman, CHOICE, Vol. v4 (3), November, 2007)

"The representation theory of compact groups is an old and venerable subject. The problems and solutions are now well understood and serve as a guide for the more advanced parts of the representation theory. … The present one is intended as a textbook within the reach of a good undergraduate student. … The reading should be pleasant both for students and for teachers preparing a course on the subject." (David A. Renard, Mathematical Reviews, Issue 2008 a)

“This book offers an introduction to the theories of compact Lie groups and of Lie algebras, which is organized in an unusual way. … For the ambitious reader many exercises are provided.” (A. Cap, Monatshefte für Mathematik, Vol. 158 (2), October, 2009)

From the Back Cover

Blending algebra, analysis, and topology, the study of compact Lie groups is one of the most beautiful areas of mathematics and a key stepping stone to the theory of general Lie groups. Assuming no prior knowledge of Lie groups, this book covers the structure and representation theory of compact Lie groups. Included is the construction of the Spin groups, Schur Orthogonality, the Peter–Weyl Theorem, the Plancherel Theorem, the Maximal Torus Theorem, the Commutator Theorem, the Weyl Integration and Character Formulas, the Highest Weight Classification, and the Borel–Weil Theorem. The necessary Lie algebra theory is also developed in the text with a streamlined approach focusing on linear Lie groups.

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• Provides an approach that minimizes advanced prerequisites

• Self-contained and systematic exposition requiring no previous exposure to Lie theory

• Advances quickly to the Peter–Weyl Theorem and its corresponding Fourier theory

• Streamlined Lie algebra discussion reduces the differential geometry prerequisite and allows a more rapid transition to the classification and construction of representations

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This beginning graduate-level text, aimed primarily at Lie Groups courses and related topics, assumes familiarity with elementary concepts from group theory, analysis, and manifold theory. Students, research mathematicians, and physicists interested in Lie theory will find this text very useful.

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