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   Descrizione fisica   1 online resource (204 p.)

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   Soggetti   Nonassociative rings
   Rings (Algebra)
   Quantum theory
   Topological groups
   Lie groups
   Geometry, Differential
   Non-associative Rings and Algebras
   Quantum Physics
   Topological Groups, Lie Groups
   Differential Geometry

   Lingua di pubblicazione   Inglese

   Formato   Materiale a stampa

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   Note generali   Description based upon print version of record.

   Nota di bibliografia   Includes bibliographical references and index.

   Nota di contenuto   Preface -- 1 Introduction -- 2 Preliminaries -- 3 Quantum Spin Systems and Their Operator Algebras -- 4 The Poisson Algebra of the Classical Spin System -- 5 Intermission -- 6 Symbol Correspondences for a Spin-j System -- 7 Multiplications of Symbols on the 2-Sphere -- 8 Beginning Asymptotic Analysis of Twisted Products -- 9 Conclusion -- Appendix -- Bibliography -- Index.

   Sommario/riassunto   In mathematical physics, the correspondence between quantum and classical mechanics is a central topic, which this book explores in more detail in the particular context of spin systems, that is, SU(2)-

symmetric mechanical systems. A detailed presentation of quantum spin-j systems, with emphasis on the SO(3)-invariant decomposition of their operator algebras, is first followed by an introduction to the Poisson algebra of the classical spin system, and then by a similarly detailed examination of its SO(3)-invariant decomposition. The book next proceeds with a detailed and systematic study of general quantum-classical symbol correspondences for spin-j systems and their induced twisted products of functions on the 2-sphere. This original systematic presentation culminates with the study of twisted products in the asymptotic limit of high spin numbers. In the context of spin systems it shows how classical mechanics may or may not emerge as an asymptotic limit of quantum mechanics. The book will be a valuable guide for researchers in this field, and its self-contained approach also makes it a helpful resource for graduate students in mathematics and physics.