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Altri autori (Persone)	KrayevAlexey V
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Nota di contenuto	Frontmatter -- Preface -- Contents -- Part I. Foundations of the mathematical apparatus -- Chapter 1. Basic concepts of group theory -- Chapter 2. Basic concepts of group representation theory -- Chapter 3. The permutation group -- Chapter 4. Continuous groups -- Chapter 5. Point groups -- Chapter 6. Dynamic groups -- Part II. Qualitative intramolecular quantum dynamics -- Chapter 7. The philosophy of using the symmetry properties of internal dynamics -- Chapter 8. Internal dynamics of rigid molecules -- Chapter 9. Molecules with torsional transitions of the exchange type -- Chapter 10. Molecules with pseudorotations of the exchange type -- Chapter 11. Molecules with transitions of the nonexchange type between equivalent configurations -- Chapter 12. On the meaning of the Born-Oppenheimer Approximation -- Chapter 13. Molecules with transitions of the exchange and nonexchange types between equivalent configurations -- Chapter 14. On the construction of extended point groups -- Chapter 15. Nonrigid molecular systems with continuous axial symmetry groups -- Chapter 16. Molecules with different isomeric forms in a single electronic state -- Chapter 17. Molecules with different isomeric forms in different electronic states -- Chapter 18. Algebraic models of the global description of molecular spectrum -- Chapter 19. Description of the Zeeman and Stark effects -- Chapter 20. Additional remarks on describing intramolecular dynamics --

Sommario/riassunto

The main goal of this book is to give a systematic description of intramolecular quantum dynamics on the basis of only the symmetry principles. In this respect, the book has no analogs in the world literature. This approach does not introduce a configuration space of the molecular system in explicit form at all and, consequently, does not consider in explicit form the wave functions of the coordinates of this space. However, precisely because of its deep philosophical and technical difference this approach is the only possible for the solution of many topical problems of the internal dynamics of molecules. The obtained models lead to a simple, purely algebraic, scheme of calculation and are rigorous in the sense that their correctness is limited only to the correct choice of symmetry of the internal dynamics. The book is basically intended for scientists working in the field of molecular spectroscopy, quantum and structural chemistry. The reader is not supposed to know the apparatus of group representation theory needed for application of symmetry methods in quantum intramolecular dynamics since the first part of the book is dedicated to it.

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