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19. Applications of Group Theory to Physical Chemistry -- 20. Theory of Continuous Groups.

Sommario/riassunto

The second edition of this book has been extensively revised so that readers can gain ready access to advanced topics of mathematical physics including the theory of analytic functions and continuous groups. This easy accessibility helps to create a deeper and clearer insight into mathematical physics, with emphasis on quantum mechanics and electromagnetism along with the theory of linear vector spaces and group theory. The basic nature of the book remains unchanged. The contents are targeted at graduate and undergraduate students majoring in chemistry to supply them with the practical and intuitive methodology of mathematical physics. In parallel, advanced mathematical topics are dealt with in the last chapters of each of the four individual parts so that a close connection among those topics is highlighted. Several important revisions are found in this second edition, however, and they include: (a) a description of set theory and topology that helps to comprehend the essence of the theory of analytic functions and continuous groups; (b) a deep connection between angular momenta and continuous groups; (c) development of the theory of exponential functions of matrices, which is useful to solve differential equations; and (d) updated content on lasers and their applications. This new edition thus provides a balanced selection of new and basic material for chemists and physicists. .