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to speech and radar signal processing.

Both books were written by the right pairs of individuals. Oppenheim and Schafer are professors of Electrical Engineering (at MIT and Georgia Tech, respectively), and the pedagogical touch in their book is just right. Rabiner and Gold are industrial research scientists (at Bell Labs and Lincoln Lab, respectively), and the practical problems of implementation are appropriately emphasized. All four authors are well known and widely respected for their research contributions to the field of digital signal processing.

The increased usage of digital computers and digital components in laboratory equipment appears to imply that many experimental scientists are going to find themselves confronting the problems of digital signal processing. These two books should form the basic library for anyone faced with such problems: Oppenheim and Schafer for the basic concepts and theory, and Rabiner and Gold for practical implementations and advanced concepts.

* * *

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Angular Momentum Theory for Diatomic Molecules

B. R. Judd

238 pp. Academic, New York, 1975.

\$22.50

This book represents a rather successful attempt to introduce to molecular spectroscopists the extensive tensorial formalism developed historically for treating angular-momentum problems in atoms. Brian Judd has been an active research worker for some years in applying tensorial methods to atomic problems, and his thorough understanding of his own field evidently lies at the root of the particularly clear writing and the careful choice of a surprisingly large range of examples of significant interest to the molecular spectroscopist. Examples discussed include: the rigid rotator, Friedrich Hund's coupling cases in a $^2\Phi$ state, the electronic structure of the hydrogen molecular ion, the fine-structure Hamiltonian for the hydrogen molecule in a $^3\Pi_u$ state, nuclear quadrupole splittings in a $^3\Pi_{0u}$ state of the iodine molecule, Λ -type doubling in a $^3\Pi$ state, Stark and Zeeman effects, diamagnetic shielding, and others.

The book is skillfully pedagogical.

Readers with no previous exposure to the subject can clearly benefit from the text, especially since the first chapter is devoted to such topics as rotation matrices, spherical tensors, the Wigner-Eckart theorem, and 3-j, 6-j and 9-j symbols. Significant benefits for the previously unexposed will undoubtedly require, however, some effort directed toward solving the problems at the end of each chapter.

Readers with previous knowledge of the subject will be delighted by the detailed discussions of the examples chosen, and by the up-to-date and extensive references. Some familiarity with group theory is supposed. In fact, readers without a good understanding of the continuous rotation group in three dimensions may have difficulty with the discussions of the continuous rotation group in four dimensions, which play a significant role in treating various topics throughout the book.

This reviewer's only criticism of the volume is perhaps more in the nature of a warning. Because tensorial notation is so compact, so powerful, and so widely applicable, it is often possible to derive formally admissible but physically incorrect results, primarily as a result of paying insufficient attention to the connection between the physics of the situation and the mathematics that is to mirror this physics. In the hands of an experienced worker no such misfortune need arise. But Judd's clear exposé may tempt others, after acquiring only a superficial knowledge, to venture forth on their own in uncharted waters. Such voyages are not uniformly successful.

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Course of Theoretical Physics, Volume 4: Relativistic Quantum Theory

V. B. Berestetskii (part one only), E. M. Lifshitz, L. P. Pitaevskii

616 pp. Addison-Wesley, Reading, Mass., 1971 (part one), 1973 (part two). \$16.00 (part one), \$12.50 (part two)

These books will sell well because they constitute volume 4 in the "Landau-Lifshitz" course in theoretical physics. Owners of volumes 1, 2, 3, 5, 6, and so on will not find it possible to resist putting volume 4 in its proper place.

Unfortunately, the Landau-Lifshitz series is not the proper place for these books. I suppose this is partly because of the absence of Landau, but even more because of the nature of the subject matter. The authors observe