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Book Notices

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The dust jacket on Professor Slichter’s book emphasizes that a formal course in solid state physics is not necessary to read it, assuming the reader has a background in quantum mechanics. The statement should have been reversed, to emphasize the need of a working knowledge of quantum mechanics. The book is basically a general theory of nuclear magnetic resonance, with a chapter on electron spin resonance. It is not a text for someone who wants to learn how to do experiments in magnetic resonance.

The author attempts to analyze principles underlying the resonant behavior of nuclei, and he does a good job. The word nuclear might have been mentioned in the title. It is a textbook, written for those interested graduate students who have just completed courses in quantum mechanics and statistical mechanics. It can also serve as a reference text for experimentalists in the field, because it brings into one volume the contents of many original papers and because it has an excellent bibliography. (Because of the elegance of presentation, one might get the impression that the theory emerged from its shell neatly tied together with all of the correct answers.)

The subject matter begins simply, with a descriptive analysis of resonance, then quickly moves to general equations of motion of spins and various solutions of the Bloch equations. Separate chapters are devoted to interactions responsible for broadening, shaping, and splitting of resonance lines. These include dipolar, hyperfine, relaxation, and quadrupolar interactions. Since much of the theory of nuclear resonance is applicable directly to electrons, the author devotes only one chapter to electron spin resonance. The distinctions between nuclear and electron resonance are presented, and the V_k center experiments are discussed as an example.

Problems relating to all but the introductory first chapter are given at the end of the text. Mathematical arguments, too lengthy for inclusion in the text, are given in five appendixes. An excellent bibliography, divided into subject headings, is presented, but the index is quite short.

ROBERT A. LEVY


This book is one of a series for college biology or advanced high school students. The author has tried to make the concepts of developmental biology come alive and in the process has presented information about embryos of invertebrates and vertebrates, bacteria and viruses, fungi and higher plants. The illustrations are well done and include some fine electron micrographs.

E. D. RUDOLPH