

bibliography and the inclusion of at least a few problems after each chapter.

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The reviewer, an assistant professor at Sonoma State College in California, specializes in quantum statistical mechanics and mathematical physics.

Classical numerical analysis

ANALYSIS OF NUMERICAL METHODS. By Eugene Isaacson, Herbert B. Keller. 541 pp. Wiley, New York, 1966. \$11.95

by George H. Weiss

Techniques of numerical analysis are finding their way into the solution of increasing numbers of problems of theoretical and applied physics from the solution of partial differential equations of hydrodynamics and superconductivity to the application of Padé approximant methods in nuclear physics and many-body theory. A new exposition on numerical analysis is therefore of potential interest to physicists. The text under review is, however, addressed more to the mathematician than to the physicist. My comment is not meant in any disparaging sense, since the authors would not claim to be addressing an audience of physicists.

Nevertheless, omission of such topics as rational approximations, Padé approximants and data-smoothing techniques makes the book less useful than it might otherwise be in the context of physical application. The topics which have been included (and which might by now be referred to as "classical" numerical analysis) are discussed clearly and accurately from the mathematical point of view. The discussion of solutions of linear and nonlinear equations are particularly lucid. Other topics are discussed with commendable concern for roundoff and truncation errors. This book can be highly recommended as a readable introduction to a considerable part of numerical analysis. There are important gaps, however, for potential applicants of the theory.

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The reviewer works in the division of computer research and technology at the National Institutes of Health.

Eigenvalue and scattering problems

VARIATIONAL PRINCIPLES. By B. L. Moiseiwitsch. 310 pp. Interscience, New York, 1966. \$14.00

by Joseph Gillis

The main purpose of this text is to demonstrate the application of variational methods to two types of quantum mechanical problems: steady-state problems where the variational techniques are used to obtain eigenvalues, and scattering problems where they are applied to the evaluation of scattering amplitudes and phase shifts.

The book opens with a careful and methodical formulation of the basic ideas of the subject and of their application to both classical and relativistic mechanics. The chapter on eigenvalue problems includes the first textbook treatment so far available of recent work on two-electron atoms. And the chapter on scattering theory includes, of course, an account of the Schwinger variational principle as well as of some of the many other such principles that have come in its wake.

The subject is a difficult one and, in spite of the high quality of the exposition, the book is not easy reading. There are not many books that cover this sort of ground and the reviewer knows none that do it as well as this.

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The reviewer is professor of applied mathematics and former dean of the graduate school at the Weizmann Institute of Science, Rehovoth, Israel.

Introduction to quanta

WAVE MECHANICS FOR CHEMISTS. By C. W. N. Cumper. 382 pp. Academic Press, New York, 1966. \$11.50

by Donald A. McQuarrie

This book is apparently meant as an introduction to quantum mechanics for students at the undergraduate level. Its use as a first introduction would be utterly disastrous, though, since it presents quantum mechanics as an esoteric, mysterious subject, bristling with difficult mathematics, from which the student must be spared. Such an introduction could lead to

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