algorithms are given. There are many good and important papers on these special algorithms which are not mentioned or referred to.

7. *Some Applications of Discrete Fourier Transforms.* A very brief but useful sketch of the application of the FFT algorithm to convolution calculations is given. This can also go under the names of correlation, covariance, digital filtering, and so on. The author fails to point out how his treatment can handle all of these and what alterations must be made in the basic techniques in order to handle the special cases. There is very little said about the power spectrum except to state that it is the magnitude of the Fourier transform. The two-dimensional transform is simply described as a row-column iteration of the FFT algorithm. Nothing about special considerations such as how to treat real data is given.

8. *Discrete Hilbert Transforms.* Although this topic is important in systems and signal processing, it has a disproportionate amount of attention in this book. A student who has to study at the level presented here will not only fail to see the significance but will have difficulty going through the intricate derivations. Furthermore, it does not seem pedagogically wise to present, in the first full-scale application, a case where the integrals do not even exist in the sense in which the reader has understood them throughout the book. He should have some understanding of principle value definitions of integrals and of the theory of distributions. He should also know something about the problems in treating such integrals numerically. Of course, it goes without saying that he should have a better understanding of why the Hilbert transform is important.

*Summary.* The book has a good introduction to the Fourier theory needed for understanding its numerical applications. Either as a textbook or as source of information for a practicing engineer, the book is somewhat uneven in quality. The FFT sections are very good, but as mentioned above, they should contain more about prime factor algorithms. It is a rather short book of 141 pages. The bibliography is extensive and well referenced in the text. However, as one may expect from a book written in Eastern Europe, one is often disappointed to find references, which one would like to read, published in Russian.

The book probably served its purpose very well when written and used where access to books on the subject were perhaps limited and where one had the author to teach and explain. The English language book could probably be used effectively with supporting material. It has very few examples, it has no problems or exercises for the student and surprisingly, it gives no program listings. Among the many books on the subject in the English language, there are far more useful books for teaching or for reference.

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**18[33–00, 65A05].**—MILTON ABRAMOWITZ & IRENE A. STEGUN (Editors), *Pocketbook of Mathematical Functions—Abridged edition of Handbook of Mathematical Functions, Milton Abramowitz and Irene A. Stegun (eds.)*, Material selected by Michael Danos and Johann Rafelski, Verlag Harri Deutsch, Thun, Frankfurt/Main, 1984, 468 pp., 24 cm. Price $20.00.

As noted in the Preface, the need for numerical tables, particularly those of the elementary mathematical functions, has been largely obviated by the advent of microelectronics in the interim of more than two decades since the original Handbook first appeared (see the review in [1]). Accordingly, in this abridged edition only one-third of the original numerical tables have been retained, and further reduction has been achieved through the omission of the first and final two chapters as well as, regrettably, the lists of references at the ends of successive chapters.

Otherwise, the body of the original text, including the numbering of the formulas, has been preserved to permit direct cross reference to the original. An improvement has resulted from the correction of most of the known typographical errors and the slight enlargement of the original second chapter, including the updating of tabulated physical constants.

For many users of the original, bulky volume this portable abridgment should be a convenient, adequate substitute.

J.W.W.

1. RMT 1, *Math. Comp.*, v. 19, 1965, pp. 147–149.

**19a[33–04, 33A45, 65A05].**—H. F. BAUER & W. EIDEL, *Tables of Roots with Respect to the Degree of a Cross Product of Associated Legendre Functions of First and Second Kind*, Forschungsbericht der Universität der Bundeswehr München, Institut für Raumfahrttechnik, LRT-WE-9-FB-9, 1986, 81 pp.

**b[33–04, 33A45, 65A05].**—HELMUT F. BAUER & W. EIDEL, *Tables of Roots with Respect to the Degree of a Cross Product of Associated Legendre Functions and Derivative of First and Second Kind*, Forschungsbericht der Universität der Bundeswehr München, Institut für Raumfahrttechnik, LRT-WE-9-FB-14, 1986, 183 pp.

**c[33–04, 33A45, 65A05].**—H. F. BAUER & W. EIDEL, *Tables of Roots with Respect to the Degree of a Cross Product at the First Derivative of Associated Legendre Functions of First and Second Kind*, Forschungsbericht der Universität der Bundeswehr München, Institut für Raumfahrttechnik, LRT-WE-9-FB-15, 1986, 83 pp.

Helmut F. Bauer has previously written about Legendre functions [1] and has published tables of zeros of the associated Legendre function of the first kind, $P_\lambda^m(\cos\alpha)$, and its derivative [2], [3]. The three tables reviewed here are an extension of that work. The tables supply five-decimal values of the first ten $\lambda$-zeros of the following cross products:

(FB-9) $$P_\lambda^m(\cos\alpha)Q_\lambda^m(\cos\beta) - P_\lambda^m(\cos\beta)Q_\lambda^m(\cos\alpha),$$

(FB-14) $$P_\lambda^{m'}(\cos\alpha)Q_\lambda^m(\cos\beta) - P_\lambda^m(\cos\beta)Q_\lambda^{m'}(\cos\alpha),$$

(FB-15) $$P_\lambda^{m'}(\cos\alpha)Q_\lambda^{m'}(\cos\beta) - P_\lambda^{m'}(\cos\beta)Q_\lambda^{m'}(\cos\alpha).$$