Y should be used instead. The Gaussian hypergeometric function ${}_2F_1$ should be written in this form or simply as F, but not in both ways even on the same page. For the probability integral $\Phi(x)$, the term "error function $\operatorname{erf} x$" is more appropriate, especially as it already occurs in several places and the letter Φ is used for two other functions. In particular, by using the complementary error function $\operatorname{erfc} x = 1 - \Phi(x)$, a number of formulas can be simplified. The inconsistent notation for the theta functions in 6.16 and 8.18–19 should not have survived five editions. At the very least, the notation for elementary functions should be used consistently.

The excessive and arbitrary use of the possessive in function names is annoying. It is also unusual to extend the term Riemann zeta function to the generalized zeta function $\zeta(z, q)$.

In general, the formulas are given in a readable form; although, considering the ease with which typesetting can now be handled, a more skillful layout seems often possible. For example, a number of exponentials have an exponent that reaches down to the main line, e.g., in 7.386. This is unusual and unprofessional. There are also a number of typographical inconsistencies. Last but not least, a more economical, legible, and visually satisfying presentation of many formulas, illustrated by the simple example $\Gamma(\frac{1}{2} + \nu)$ instead of $\Gamma\left(\dfrac{1}{2} + \nu\right)$, should be adopted in a next, hopefully more carefully prepared, edition.

K. S. Kölbig

CERN
CH-1211 Geneva 23
Switzerland

1. Y. Luke, Review **5**, Math. Comp. **36** (1981), 310–312.
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5. Table Errata **601**, Math. Comp. **41** (1983), 780–783.
6. Table Errata **607**, Math. Comp. **47** (1983), 768.
7. M. Abramowitz and I. A. Stegun, eds., *Handbook of mathematical functions with formulas, graphs, and mathematical tables*, 9th printing with corrections, Dover, New York, 1972.

2[60–02, 60H05, 60H10, 65C05, 81S40].—A. D. Egorov, P. I. Sobolevsky & L. A. Yanovich, *Functional Integrals: Approximate Evaluation and Applications*, Mathematics and Its Applications, Vol. 249, Kluwer, Dordrecht, 1993, x + 418 pp., $24\frac{1}{2}$ cm. Price \$172.00/Dfl.295.00.

There exists a large family of problems, deterministic or probabilistic in nature, which require the evaluation of an integral, with respect to the law of a stochastic process, of a functional on the space of the trajectories of the process. The book under review provides a good sampling of examples coming from physics, like Feynman integrals; some other less classical examples are: in

Random Mechanics (problems of crack propagation, for example), the computation of the probability that a stochastic process crosses a threshold during a fixed time interval; in Finance, the pricing of exotic options which depend on the trajectory of the underlying asset; in Neutronics, the computation of fluxes.

For a probabilist, a natural way of approximating such integrals is to develop Monte-Carlo methods based upon the simulation of stochastic processes. The present book gives a large overview on a different methodology: integrals with respect to countably additive measures, in particular the measures generated by random processes, are approximated by mean of deterministic procedures, some of them generalizing to infinite dimension the well-known quadrature formulae used in finite-dimensional spaces.

Chapters 1–3 are devoted to abstract considerations on cylindric measures, quasi-measures and measures induced by stochastic processes on general linear topological spaces. Chapter 2 focuses on Gaussian measures, with some notions on Wick products, while Chapter 3 focuses on integrals in product spaces.

Chapters 4, 5, 9, and 12 give a generic presentation of the main topics of the book: the approximation problem of functional integrals; as in the finite-dimensional case, the guiding principle is to construct formulae which preserve some important statistics of the underlying measure; interpolation or quadrature formulae, which are exact for the integration of specific functionals (polynomial, trigonometric, or other functionals), approximation of the characteristics functional preserving a given number of moments, formulae which are exact for polynomials of Wick powers, etc.

In Chapters 6–11 and 14, typical applications are described: integrals with respect to Gaussian measures, Wiener measure, laws of stationary processes with independent increments, laws of solutions of stochastic differential equations on the whole space or on manifolds. The crucial questions of convergence and convergence rate are investigated.

Chapter 13 briefly presents a completely different approach, the Monte-Carlo method, and to conclude, the authors in Chapter 15 exhibit some problems coming from physics which have solutions expressible in terms of functional integrals.

The reader is assumed to be familiar with functional integration, cylindric measures, etc. For such a reader, the presentation is excellent, extremely clear and easy to read; according to his own level of interest in the field, he will find pleasing reviews as well as technical discussions. To my mind, the numerical aspects are treated too lightly: the authors give no indication as to the limitations of the procedures and their numerical behavior; they do not give bases of comparison between them; and the proportion of Eastern European authors in the bibliography is probably too large. These remarks, however, should not detract from the very positive qualities of the book, which indeed gives a pleasant and instructive overview on the state of the art of new mathematical problems.

Denis Talay

INRIA
2004 Route des Lucioles
B.P.93
F-06902 Sophia-Antipolis
France