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Nota di contenuto	Preface -- Biography of Carlos A. Coelho -- Overview of Carlos A. Coelho’s contributions included in the book and related research -- C. A. Coelho: The Generalized Integer Gamma Distribution – a Basis for Distributions in Multivariate Statistics. Journal of Multivariate Analysis -- C. A. Coelho: Addendum to the paper ’The Generalized Integer Gamma Distribution - a Basis for Distributions in Multivariate Analysis’ -- C. A. Coelho: The Generalized Near-Integer Gamma distribution – a basis for ’near-exact’ approximations to the distributions of statistics which are the product of an odd number of particular independent Beta random variables -- C. A. Coelho: The wrapped Gamma distribution and wrapped sums and linear combinations of independent Gamma

and Laplace distributions -- Coelho and J. T. Mexia: On the distribution of the product and ratio of independent generalized Gamma-ratio random variables -- C. A. Coelho and F. J. Marques: The advantage of decomposing elaborate hypotheses on covariance matrices into conditionally independent hypotheses in building near-exact distributions for the test statistics -- C. A. Coelho, B. C. Arnold, and F. J. Marques: Near-exact distributions for certain likelihood ratio test statistics -- F. J. Marques, C. A. Coelho, and B. C. Arnold: A general near-exact distribution theory for the most common likelihood ratio test statistics used in Multivariate Analysis -- B. C. Arnold, C. A. Coelho, and F. J. Marques: The distribution of the product of powers of independent Uniform random variables – a simple but useful tool to address and better understand the structure of some distributions -- C. A. Coelho, F. J. Marques, and B. C. Arnold: The exact and near-exact distributions of the main likelihood ratio test statistics used in the complex multivariate normal setting -- C. A. Coelho and A. Roy: Testing the hypothesis of a doubly exchangeable covariance matrix -- C. A. Coelho: On the Distribution of Linear Combinations of Chi-Square Random Variables -- C. A. Coelho and R. P. Alberto: On the Distribution of the Product of Independent Beta Random Variables – Applications -- C. A. Coelho: Testing equality of mean vectors with block-circular and block compound-symmetric covariance matrices -- C. A. Coelho and J. Pielaszkiewicz: The Likelihood Ratio Test of Equality of Mean Vectors with a Doubly Exchangeable Covariance Matrix.

Sommario/riassunto

This book of selected works exhibits a significant part of Carlos A. Coelho’s research activity in multivariate statistics, focusing on topics related to likelihood ratio tests. After two introductory chapters, including a biography and an overview of the contributions and related research, the articles are presented in their chronological order of publication, thus also showing the research path followed by the author. The volume shows how likelihood ratio tests useful in multivariate analysis can be developed, and how in most cases exact distributions can be obtained for their statistics in a manageable form. Furthermore, it shows how extremely sharp asymptotic (near-exact) approximations can be found in the remaining cases. Circular distributions are also addressed and, more generally, distributions of products of random variables. The book will be useful for advanced students as well as researchers and practitioners who deal with likelihood ratio tests in multivariate analysis.