1. Record Nr. UNINA9910450367603321

Autore	Paris R. B.
Titolo	Asymptotics and Mellin-Barnes integrals / / R.B. Paris, D. Kaminski [[electronic resource]]
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2001
ISBN	1-107-12112-4 1-280-41805-2 9786610418053 1-139-14661-0 0-511-17409-8 0-511-06706-2 0-511-06075-0 0-511-32800-1 0-511-54666-1 0-511-06919-7
Descrizione fisica	1 online resource (xvi, 422 pages) : digital, PDF file(s)
Collana	Encyclopedia of mathematics and its applications ; ; volume 85
Disciplina	515/.723
Soggetti	Mellin transform Asymptotic expansions
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references (p. [409]-418) and index.
Nota di contenuto	Order Relations -- Asymptotic Expansions -- Other Expansions -- Biographies of Mellin and Barnes -- Fundamental Results -- The Gamma Function [Gamma] (z) -- The Asymptotic Expansion of [Gamma] (z) -- The Stirling Coefficients -- Bounds for [Gamma] (z) -- Expansion of Quotients of Gamma Functions -- Inverse Factorial Expansions -- A Recursion Formula when [alpha subscript r] = [beta subscript r] -- An Algebraic Method for the Determination of the A [subscript j] -- Special Cases -- The Asymptotic Expansion of Integral Functions -- Convergence of Mellin-Barnes Integrals -- Order Estimates for Remainder Integrals -- Lemmas -- Properties of Mellin Transforms -- Basic Properties -- Translational and Differential Properties -- The Parseval Formula -- Analytic Properties -- Inverse

Mellin Transforms -- Integrals Connected with e[superscript -z] -- Some Standard Integrals -- Discontinuous Integrals -- Gamma-Function Integrals -- Ramanujan-Type Integrals -- Barnes' Lemmas -- Mellin-Barnes Integral Representations -- The Confluent Hypergeometric Functions -- The Gauss Hypergeometric Function -- Some Special Functions -- Applications of Mellin Transforms -- Transformation of Series -- The Mellin Transform Method -- The Poisson-Jacobi Formula -- An Infinite Series -- A Smoothed Dirichlet Series -- A Finite Sum -- Number-Theoretic Examples -- A Harmonic Sum -- Euler's Product -- Ramanujan's Function -- Some Other Number-Theoretic Sums -- Solution of Differential Equations -- Potential Problems in Wedge-Shaped Regions.

Sommario/riassunto

Asymptotics and Mellin-Barnes Integrals, first published in 2001, provides an account of the use and properties of a type of complex integral representation that arises frequently in the study of special functions typically of interest in classical analysis and mathematical physics. After developing the properties of these integrals, their use in determining the asymptotic behaviour of special functions is detailed. Although such integrals have a long history, the book's account includes recent research results in analytic number theory and hyperasymptotics. The book also fills a gap in the literature on asymptotic analysis and special functions by providing a thorough account of the use of Mellin-Barnes integrals that is otherwise not available in other standard references on asymptotics.