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Autore	Pilipovic Stevan
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Nota di contenuto	Preface; Contents; I. Asymptotic Behavior of Generalized Functions; 0 Preliminaries; 1 S-asymptotics in $F'g$; 1.1 Definition; 1.2 Characterization of comparison functions and limits; 1.3 Equivalent definitions of the S-asymptotics in F' ; 1.4 Basic properties of the S-asymptotics; 1.5 S-asymptotic behavior of some special classes of generalized functions; 1.5.1 Examples with regular distributions; 1.5.2 Examples with distributions in subspaces of D' ; 1.5.3 S-asymptotics of ultradistributions and Fourier hyperfunctions - Comparisons with the S-asymptotics of distributions 1.6 S-asymptotics and the asymptotics of a function 1.7 Characterization of the support of $T F'$; 1.8 Characterization of some generalized function spaces; 1.9 Structural theorems for S-asymptotics in F' ; 1.10 S-asymptotic expansions in $F'g$; 1.10.1 General definitions and assertions; 1.10.2 S-asymptotic Taylor expansion; 1.11 S-asymptotics in subspaces of distributions; 1.12 Generalized S-asymptotics; 2 Quasi-asymptotics in F' ; 2.1 Definition of quasi-asymptotics at infinity over a cone; 2.2 Basic properties of quasi-asymptotics over a cone 2.3 Quasi-asymptotic behavior at infinity of some generalized functions 2.4 Equivalent definitions of quasi-asymptotics at infinity; 2.5 Quasi-asymptotics as an extension of the classical asymptotics; 2.6 Relations between quasi-asymptotics in $D'(R)$ and $S'(R)$; 2.7 Quasi-

asymptotics at \pm ; 2.8 Quasi-asymptotics at the origin; 2.9 Quasi-asymptotic expansions; 2.10 The structure of quasi-asymptotics. Up-to-date results in one dimension; 2.10.1 Remarks on slowly varying functions; 2.10.2 Asymptotically homogeneous functions 2.10.3 Relation between asymptotically homogeneous functions and quasi-asymptotics 2.10.4 Associate asymptotically homogeneous functions; 2.10.5 Structural theorems for negative integral degrees. The general case; 2.11 Quasi-asymptotic extension; 2.11.1 Quasi-asymptotics at the origin in $D'(R)$ and $S'(R)$; 2.11.2 Quasi-asymptotic extension problem in $D'(0, \infty)$; 2.11.3 Quasi-asymptotics at infinity and spaces $V'_\beta(R)$; 2.12 Quasi-asymptotic boundedness; 2.13 Relation between the S-asymptotics and quasi-asymptotics at ∞ ; II. Applications of the Asymptotic Behavior of Generalized Functions 3 Asymptotic behavior of solutions to partial differential equations 3.1 S-asymptotics of solutions; 3.2 Quasi-asymptotics of solutions; 3.3 S-asymptotics of solutions to equations with ultra-differential or local operators; 4 Asymptotics and integral transforms; 4.1 Abelian type theorems; 4.1.1 Transforms with general kernels; 4.1.2 Special integral transforms; 4.2 Tauberian type theorems; 4.2.1 Convolution type transforms in spaces of distributions; 4.2.2 Convolution type transforms in other spaces of generalized functions; 4.2.3 Integral transforms of Mellin convolution type 4.2.4 Special integral transforms

Sommario/riassunto

The asymptotic analysis has obtained new impulses with the general development of various branches of mathematical analysis and their applications. In this book, such impulses originate from the use of slowly varying functions and the asymptotic behavior of generalized functions. The most developed approaches related to generalized functions are those of Vladimirov, Drozhinov and Zavyalov, and that of Kanwal and Estrada. The first approach is followed by the authors of this book and extended in the direction of the S-asymptotics. The second approach - of Estrada, Kanwal and Vindas - is related
