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Entire functions of several complex variables. (English) [Zbl 0583.32001](#)

Grundlehren der Mathematischen Wissenschaften, 282. Berlin etc.: Springer-Verlag. XI, 270 p. DM 148.00 (1986).

The study of entire functions of several complex variables has often received a fillip whenever there has arisen a necessity for its application to a specific problem in another area. Such applications make it imperative to find solutions satisfying certain growth conditions. The classical methods of several complex variables based on Sheaf theory and Differential geometry yield only existence for solutions whereas new constructive methods are needed to deal with those problems where the central theme is the monitoring and the growth of the solution. The present monograph by the two exponents of the theory of entire functions of several complex variables presents these new techniques which have been developed over the past few decades. While identifying the central areas of current research in entire functions of several complex variables, the book also lays stress on certain applications to other areas of analysis which will be of interest to researchers in other fields.

The book contains a wealth of material presented in a well-organised manner. Some of the results appear for the first time. The proofs are clear, concise and sometimes new. Written in a distinct and elegant style, the book gives a self-contained treatment of the subject. The only pre-requisite required of the reader is some knowledge in the theory for one complex variable, integration, the calculus of differential forms and the theory of distributions.

The chapter headings are as follows: "Introduction. I. Measures of growth. II. Local metric properties of zero sets and positive closed currents. III. The relationship between the growth of an entire function and the growth of its zero set. IV. Functions of regular growth. V. Holomorphic mappings from \mathbb{C}^n to \mathbb{C}^m . IV. Application of entire functions in number theory. VII. The indicator of growth theorem. VIII. Analytic functionals. IX. Convolution operators on linear spaces of entire functions. Appendix I. Subharmonic and plurisubharmonic functions. Appendix II. The existence of proximate orders. Appendix III. Solution of the $\bar{\partial}$ -equation with growth conditions."

An extensive bibliography consisting of more than 300 items is provided at the end of the book. A short historical note explaining the origin of the given results at the end of each chapter makes the reading of the book more interesting. The book is a valuable addition to the literature on entire functions of several complex variables.

Reviewer: [O.P.Juneja](#)

MSC:

- [32A15](#) Entire functions of several complex variables
- [32-02](#) Research exposition (monographs, survey articles) pertaining to several complex variables and analytic spaces
- [32A22](#) Nevanlinna theory; growth estimates; other inequalities of several complex variables

Cited in **5** Reviews
Cited in **84** Documents

Keywords:

entire functions of several complex variables; zero sets; currents; Holomorphic mappings; entire functions in number theory; indicator; Analytic functionals; plurisubharmonic functions; $\bar{\partial}$ - equation; growth conditions; bibliography