

<<半群上的调和分析>>

图书基本信息

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内容概要

The purpose of this book is to provide a treatment of these positive definite functions on abelian semigroups with involution. In doing so we also discuss related topics such as negative definite functions, completely monotone functions and Hoeffding-type inequalities. We view these subjects as important ingredients of harmonic analysis on semigroups. It has been our aim, simultaneously, to write a book which can serve as a textbook for an advanced graduate course, because we feel that the notion of positive definiteness is an important and basic notion which occurs in mathematics as often as the notion of a Hilbert space. The already mentioned Laplace and Fourier transformations, as well as the generating functions for integer valued random variables, belong to the most important analytical tools in probability theory and its applications. Only recently it turned out that positive (resp. negative) definite functions allow a probabilistic characterization in terms of so-called Hoeffding-type inequalities.

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版权页：插图：Notes and Remarks In his fundamental paper "Recherches sur les fractions continues", Stieltjes formulated and solved the moment problem which bears his name. Later Hamburger generalized Stieltjes' result to moment sequences of measures on the whole real line. Moments of a measure have been studied, before Stieltjes, by Tchebycheff and others, but concerning the history of the moment problem we refer to Shohat and Tamarkin (1943). Our choice of the name "moment function" on a semigroup S is motivated by this classical theory, which corresponds to the semigroup $(\mathbb{N}_0, +)$. Likewise the symbol (S) reflects the name of Hamburger. The results in 1.6-1.11 seem to be new but are, of course, known for some concrete semigroups. For a detailed study of Hamburger's moment problem, in particular of the set $E_+(R, s)$, we refer the reader to the classical monographs by Akhiezer (1965) and Shohat and Tamarkin (1943). Results about denseness of the set of polynomials in $P(R, \mu)$ can be found in Berg and Christensen (1981, 1983a). The F-moment problem in the case $F = \{x \in R \mid p(x) \geq 0\}$, where p is a fixed polynomial, is studied in Berg and Maserick (1982). It contains a characterization of the polynomials p for which the set of $\{p \geq 0\}$ -moment sequences is equal to $\{s \mid s, p(E)s \in e(\mathbb{N}_0)\}$. Here the F-moment problem where $F = R \setminus \bigcup_{i=1}^n]a_i, b_i[$ and $a_1 < b_1 < a_2$

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