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Soggetti	Spectral theory (Mathematics) Nonselfadjoint operators Laguerre polynomials Partial differential equations -- Spectral theory and eigenvalue problems -- General topics in linear spectral theory Operator theory -- Groups and semigroups of linear operators, their generalizations and applications -- Markov semigroups and applications to diffusion processes Approximations and expansions -- Approximations and expansions -- Asymptotic approximations, asymptotic expansions (steepest descent, etc.) Probability theory and stochastic processes -- Distribution theory -- Infinitely divisible distributions; stable distributions

Harmonic analysis on Euclidean spaces -- Nontrigonometric harmonic analysis -- General harmonic expansions, frames
Sequences, series, summability -- Inversion theorems -- Tauberian theorems, general
Functions of a complex variable -- Entire and meromorphic functions, and related topics -- Functional equations in the complex domain, iteration and composition of analytic functions
Integral transforms, operational calculus -- Integral transforms, operational calculus -- Transforms of special functions

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Nota di contenuto

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the set of co-eigenfunctions -- 10.1. Estimates for the $\|\cdot\|_{\text{Lip}}$ norm of ∇u -- 10.2. Completeness of $\{\nabla u\}_{u \in \mathcal{O}}$ in $\|\cdot\|_{\text{Lip}}$ -- Chapter 11. Hilbert sequences, intertwining and spectrum -- 11.1. Proof of Theorem ??? -- Chapter 12. Proof of Theorems ???, ??? and ??? -- 12.1. Proof of Theorem 1.3.1 (2) -- 12.2. Proof of Theorem ??? (???) -- 12.3. Heat kernel expansion -- 12.4. Expansion of the adjoint semigroup: Proof of Theorem ??? -- 12.5. Proof of Theorem ???: Rate of convergence to equilibrium -- Bibliography -- Back Cover.

Sommario/riassunto

"We provide the spectral expansion in a weighted Hilbert space of a substantial class of invariant non-self-adjoint and non-local Markov operators which appear in limit theorems for positive-valued Markov processes. We show that this class is in bijection with a subset of negative definite functions and we name it the class of generalized Laguerre semigroups. Our approach, which goes beyond the framework of perturbation theory, is based on an in-depth and original analysis of an intertwining relation that we establish between this class and a self-adjoint Markov semigroup, whose spectral expansion is expressed in terms of the classical Laguerre polynomials. As a by-product, we derive smoothness properties for the solution to the associated Cauchy problem as well as for the heat kernel. Our methodology also reveals a variety of possible decays, including the hypocoercivity type phenomena, for the speed of convergence to equilibrium for this class and enables us to provide an interpretation of these in terms of the rate of growth of the weighted Hilbert space norms of the spectral projections. Depending on the analytic properties of the aforementioned negative definite functions, we are led to implement several strategies, which require new developments in a variety of contexts, to derive precise upper bounds for these norms"--