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Soggetti Topological groups

Lie groups

Quantum field theory

String models

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**Probabilities** 

Topological Groups, Lie Groups

Quantum Field Theories, String Theory

Mathematical Physics

Abstract Harmonic Analysis

Probability Theory and Stochastic Processes

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Preface -- Introduction -- Reflection positive Hilbert spaces --Reflection positive Hilbert spaces -- Reflection positive subspaces as graphs -- The Markov condition -- Reflection positive kernels and distributions -- Reflection positivity in Riemannian geometry --Selfadjoint extensions and reflection positivity -- Reflection positive representations -- The OS transform of linear operators -- Symmetric Lie groups and semigroups -- Reflection positive representations --Reflection positive functions -- Reflection positivity on the real line --Reflection positive functions on intervals -- Reflection positive oneparameter groups -- Reflection positive operator-valued functions -- A connection to Lax-Phillips scattering theory -- Reflection positivity on the circle -- Positive definite functions satisfying KMS conditions --Reflection positive functions and KMS conditions -- Realization by resolvents of the Laplacian -- Integration of Lie algebra representations -- A geometric version of Fr"ohlich's Selfadjointness Theorem --Integrability for reproducing kernel spaces -- Representations on spaces of distributions -- Reflection positive distributions and representations -- Reflection positive distribution vectors --Distribution vectors -- Reflection positive distribution vectors --Spherical representation of the Lorentz group -- Generalized free fields -- Lorentz invariant measures on the light cone and their relatives --From the Poincar'e group to the euclidean group -- The conformally invariant case -- Reflection positivity and stochastic processes --Reflection positive group actions on measure spaces -- Stochastic processes indexed by Lie groups -- Associated positive semigroup structures and reconstruction -- A Background material -- A.1 Positive

Sommario/riassunto

Nota di contenuto

Refection Positivity is a central theme at the crossroads of Lie group representations, euclidean and abstract harmonic analysis, constructive quantum field theory, and stochastic processes. This book provides the first presentation of the representation theoretic aspects of Refection Positivity and discusses its connections to those different fields on a level suitable for doctoral students and researchers in related fields. It starts with a general introduction to the ideas and methods involving refection positive Hilbert spaces and the Osterwalder--Schrader transform. It then turns to Reflection Positivity in Lie group representations. Already the case of one-dimensional groups is extremely rich. For the real line it connects naturally with Lax--Phillips scattering theory and for the circle group it provides a new perspective on the Kubo--Martin--Schwinger (KMS) condition for states of operator algebras. For Lie groups Reflection Positivity connects unitary representations of a symmetric Lie group with unitary representations of its Cartan dual Lie group. A typical example is the duality between the Euclidean group E(n) and the Poincare group P(n) of special relativity. It discusses in particular the curved context of the duality between spheres and hyperbolic spaces. Further it presents some new integration techniques for representations of Lie algebras by unbounded operators which are needed for the passage to the dual group. Positive definite functions, kernels and distributions and used throughout as a central tool.

definite kernels -- A.2 Integral representations -- Index.