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Nota di contenuto	Preface; Contents; 1. Preliminaries and Discrete Parameter White Noise; 1.1 Preliminaries; 1.2 Discrete parameter white noise; 1.3 Invariance of the measure ; 1.4 Harmonic analysis arising from O(E) on the space of functionals of Y = {Y (n)}; 1.5 Quadratic forms; 1.6 Differential operators and related operators; 1.7 Probability distributions and Bochner-Minlos theorem; 2. Continuous Parameter White Noise; 2.1 Gaussian system; 2.2 Continuous parameter white noise; 2.3 Characteristic functional and Bochner-Minlos theorem; 2.4 Passage from discrete to continuous 2.5 Stationary generalized stochastic processes3. White Noise Functionals; 3.1 In line with standard analysis; 3.2 White noise functionals; 3.3 Infinite dimensional spaces spanned by generalized linear functionals of white noise; 3.4 Some of the details of quadratic functionals of white noise; 3.5 The T -transform and the S-transform; 3.6 White noise (t) related to -function; 3.7 Infinite dimensional space generated by Hermite polynomials in (t)'s of higher degree; 3.8 Generalized white noise functionals; 3.9 Approximation to Hida distributions 3.10 Renormalization in Hida distribution theory4. White Noise

Analysis; 4.1 Operators acting on (L2)-; 4.2 Application to stochastic differential equation; 4.3 Differential calculus and Laplacian operators; 4.4 Infinite dimensional rotation group O(E); 4.5 Addenda; 5. Stochastic Integral; 5.1 Introduction; 5.2 Wiener integrals and multiple Wiener integrals; 5.3 The Ito integral; 5.4 Hitsuda-Skorokhod integrals; 5.5 Levy's stochastic integral; 5.6 Addendum : Path integrals; 6. Gaussian and Poisson Noises; 6.1 Poisson noise and its probability distribution 6.2 Comparison between the Gaussian white noise and the Poisson noise, with the help of characterization of measures6.3 Symmetric group in Poisson noise analysis; 6.4 Spaces of quadratic Hida distributions and their dualities; 7. Multiple Markov Properties of Generalized Gaussian Processes and Generalizations; 7.1 A brief discussion on canonical representation theory for Gaussian processes and multiple Markov property; 7.2 Duality for multiple Markov Gaussian processes in the restricted sense; 7.3 Uniformly multiple Markov processes
9.3 Stable distribution

Sommario/riassunto

This book provides the mathematical definition of white noise and gives its significance. White noise is in fact a typical class of idealized elemental (infinitesimal) random variables. Thus, we are naturally led to have functionals of such elemental random variables that is white noise. This book analyzes those functionals of white noise, particularly the generalized ones called Hida distributions, and highlights some interesting future directions. The main part of the book involves infinite dimensional differential and integral calculus based on the variable which is white noise. The present