1. Record Nr. UNINA9910778809703321 Autore Ahmed N. U (Nasir Uddin) **Titolo** Generalized functionals of Brownian motion and their applications [[electronic resource]]: nonlinear functionals of fundamental stochastic processes / / N.U. Ahmed Singapore; ; Hackensack, : World Scientific, c2012 Pubbl/distr/stampa **ISBN** 1-280-37753-4 9786613555441 981-4366-37-4 Descrizione fisica 1 online resource (314 p.) Disciplina 515.3 Soggetti Brownian motion processes Stochastic processes Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Includes bibliographical references (p. 291-296) and index. Nota di bibliografia Nota di contenuto Preface; Contents; 1. Background Material; 1.1 Introduction; 1.2 Wiener Process and Wiener Measure; 1.3 Stochastic Differential Equations in Rd; 1.4 Stochastic Differential Equations in H; 1.4.1 Measure Solutions; 1.5 Nonlinear Filtering; 1.5.1 Finite Dimensional Filtering; 1.5.2 Infinite Dimensional Filtering; 1.6 Elements of Vector Measures; 1.7 Some Problems for Exercise; 2. Regular Functionals of Brownian Motion; 2.1 Introduction; 2.2 Functionals of Scalar Brownian Motion; 2.3 Functionals of Vector Brownian Motion; 2.4 Functionals of Gaussian Random Field (GRF) 5.6 Some Problems for Exercise6. Lp-Based Generalized Functionals of White Noise III; 6.1 Introduction; 6.2 Homogeneous Functionals of Degree n; 6.3 Nonhomogeneous Functionals; 6.4 Weighted Generalized Functionals; 6.5 Some Examples Related to Section 6.4; 6.6 Generalized Functionals of Random Fields Applied; 6.7 Fq-Valued Vector Measures with Application; 6.8 Some Problems for Exercise; 7. Wp,m-Based Generalized Functionals of White Noise IV; 7.1 Introduction; 7.2 Homogeneous Functionals; 7.3 Nonhomogeneous Functionals; 7.4 Inductive and Projective Limits

8.7.2 Smoothness under H ormander's Conditions

Sommario/riassunto

This invaluable research monograph presents a unified and fascinating theory of generalized functionals of Brownian motion and other fundamental processes such as fractional Brownian motion and Levy process - covering the classical Wiener-Ito class including the generalized functionals of Hida as special cases, among others. It presents a thorough and comprehensive treatment of the Wiener-Sobolev spaces and their duals, as well as Malliavin calculus with their applications. The presentation is lucid and logical, and is based on a solid foundation of analysis and topology. The monograph develop