1. Record Nr. UNINA9910806814403321

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Titolo	Analysis for diffusion processes on Riemannian manifolds / / Feng-Yu Wang, Beijing Normal University, China & Swansea University, UK
Pubbl/distr/stampa	New Jersey : , : World Scientific, , [2014] 2014
ISBN	981-4452-65-3
Descrizione fisica	1 online resource (xii, 379 pages) : illustrations
Collana	Advanced Series on Statistical Science & Applied Probability ; ; Volume 18
Disciplina	516.373
Soggetti	Riemannian manifolds Diffusion processes
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface; Contents; 1. Preliminaries; 1.1 Riemannian manifold; 1.1.1 Differentiable manifold; 1.1.2 Riemannian manifold; 1.1.3 Some formulae and comparison results; 1.2 Riemannian manifold with boundary; 1.3 Coupling and applications; 1.3.1 Transport problem and Wasserstein distance; 1.3.2 Optimal coupling and optimal map; 1.3.3 Coupling for stochastic processes; 1.3.4 Coupling by change of measure; 1.4 Harnack inequalities and applications; 1.4.1 Harnack inequality; 1.4.2 Shift Harnack inequality; 1.5 Harnack inequality and derivative estimate 1.5.1 Harnack inequality and entropy-gradient estimate1.5.2 Harnack inequality and L2-gradient estimate; 1.5.3 Harnack inequalities and gradient-gradient estimates; 1.6 Functional inequalities and applications; 1.6.1 Poincar e type inequality and essential spectrum; 1.6.2 Exponential decay in the tail norm; 1.6.3 The F-Sobolev inequality; 1.6.4 Weak Poincare inequality; 1.6.5 Equivalence of irreducibility and weak Poincare inequality; 2. Diffusion Processes on Riemannian Manifolds without Boundary; 2.1 Brownian motion with drift; 2.2 Formulae for Pt and RicZ 2.3 Equivalent semigroup inequalities for curvature lower bound2.4 Applications of equivalent semigroup inequalities; 2.5 Transportation-cost inequality; 2.5.1 From super Poincare to weighted log-Sobolev

Sommario/riassunto

Stochastic analysis on Riemannian manifolds without boundary has been well established. However, the analysis for reflecting diffusion processes and sub-elliptic diffusion processes is far from complete. This book contains recent advances in this direction along with new ideas and efficient arguments, which are crucial for further developments. Many results contained here (for example, the formula of the curvature using derivatives of the semigroup) are new among existing monographs even in the case without boundary.