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Stochastic Analysis and Diffusion Processes (Paperback)

By Professor Emeritus Gopinath Kallianpur, Professor of Mathematics P Sundar

Oxford University Press, United Kingdom, 2014. Paperback. Book Condition: New. 232 x 154 mm. Language: English . Brand New Book. Stochastic Analysis and Diffusion Processes presents a simple, mathematical introduction to Stochastic Calculus and its applications. The book builds the basic theory and offers a careful account of important research directions in Stochastic Analysis. The breadth and power of Stochastic Analysis, and probabilistic behavior of diffusion processes are told without compromising on the mathematical details. Starting with the construction of stochastic processes, the book introduces Brownian motion and martingales. The book proceeds to construct stochastic integrals, establish the Ito formula, and discuss its applications. Next, attention is focused on stochastic differential equations (SDEs) which arise in modeling physical phenomena, perturbed by random forces. Diffusion processes are solutions of SDEs and form the main theme of this book. The Stroock-Varadhan martingale problem, the connection between diffusion processes and partial differential equations, Gaussian solutions of SDEs, and Markov processes with jumps are presented in successive chapters. The book culminates with a careful treatment of important research topics such as invariant measures, ergodic behavior, and large deviation principle for diffusions. Examples are given throughout the book to illustrate concepts and results. In addition,...



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