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Nota di contenuto	1 Description and properties of the basic stochastic models -- 2 The Hurst index estimators for a fractional Brownian motion -- 3 Estimation of the Hurst index from the solution of a stochastic differential equation -- 4 Parameter estimation in the mixed models via power variations -- 5 Drift parameter estimation in diffusion and fractional diffusion models -- 6 The extended Orey index for Gaussian processes -- 7 Appendix A: Selected facts from mathematical and functional analysis -- 8 Appendix B: Selected facts from probability, stochastic processes and stochastic calculus.
Sommario/riassunto	This book is devoted to parameter estimation in diffusion models involving fractional Brownian motion and related processes. For many years now, standard Brownian motion has been (and still remains) a popular model of randomness used to investigate processes in the natural sciences, financial markets, and the economy. The substantial limitation in the use of stochastic diffusion models with Brownian motion is due to the fact that the motion has independent increments, and, therefore, the random noise it generates is “white,” i.e., uncorrelated. However, many processes in the natural sciences,

computer networks and financial markets have long-term or short-term dependences, i.e., the correlations of random noise in these processes are non-zero, and slowly or rapidly decrease with time. In particular, models of financial markets demonstrate various kinds of memory and usually this memory is modeled by fractional Brownian diffusion. Therefore, the book constructs diffusion models with memory and provides simple and suitable parameter estimation methods in these models, making it a valuable resource for all researchers in this field. The book is addressed to specialists and researchers in the theory and statistics of stochastic processes, practitioners who apply statistical methods of parameter estimation, graduate and post-graduate students who study mathematical modeling and statistics.