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	Autore	Le Gall J. F (Jean-Francois)
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Nota di contenuto

Part I. Measure Theory -- Chapter 1. Measurable Spaces -- Chapter 2. Integration of Measurable Functions -- Chapter 3. Construction of Measures -- Chapter 4. L_p Spaces -- Chapter 5. Product Measure -- Chapter 6. Signed Measures -- Chapter 7. Change of Variables -- Part II. Probability Theory -- Chapter 8. Foundations of Probability Theory -- Chapter 9. Independence -- Chapter 10. Convergence of Random Variables -- Chapter 11. Conditioning -- Part III. Stochastic Processes -- Chapter 12. Theory of Martingales -- Chapter 13. Markov Chains -- Chapter 14. Brownian Motion. .

Sommario/riassunto

This textbook introduces readers to the fundamental notions of modern probability theory. The only prerequisite is a working knowledge in real analysis. Highlighting the connections between martingales and Markov chains on one hand, and Brownian motion and harmonic functions on the other, this book provides an introduction to the rich interplay between probability and other areas of analysis. Arranged into three parts, the book begins with a rigorous treatment of measure theory, with applications to probability in mind. The second part of the book focuses on the basic concepts of probability theory such as random variables, independence, conditional expectation, and the different types of convergence of random variables. In the third part, in which all chapters can be read independently, the reader will encounter three important classes of stochastic processes: discrete-time martingales, countable state-space Markov chains, and Brownian motion. Each chapter ends with a selection of illuminating exercises of varying difficulty. Some basic facts from functional analysis, in particular on Hilbert and Banach spaces, are included in the appendix. Measure Theory, Probability, and Stochastic Processes is an ideal text for readers seeking a thorough understanding of basic probability theory. Students interested in learning more about Brownian motion, and other continuous-time stochastic processes, may continue reading the author's more advanced textbook in the same series (GTM 274).
