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Nota di contenuto	Lévy Processes and Applications -- The Lévy–Itô Decomposition and Path Structure -- More Distributional and Path-Related Properties -- General Storage Models and Paths of Bounded Variation -- Subordinators at First Passage and Renewal Measures -- The Wiener–Hopf Factorisation -- Lévy Processes at First Passage -- Exit Problems for Spectrally Negative Processes -- More on Scale Functions -- Ruin Problems and Gerber-Shiu Theory -- Applications to Optimal Stopping Problems -- Continuous-State Branching Processes -- Positive Self-similar Markov Processes -- Epilogue -- Hints for Exercises -- References -- Index.
Sommario/riassunto	Lévy processes are the natural continuous-time analogue of random walks and form a rich class of stochastic processes around which a robust mathematical theory exists. Their application appears in the theory of many areas of classical and modern stochastic processes including storage models, renewal processes, insurance risk models, optimal stopping problems, mathematical finance, continuous-state branching processes and positive self-similar Markov processes. This textbook is based on a series of graduate courses concerning the theory and application of Lévy processes from the perspective of their path fluctuations. Central to the presentation is the decomposition of

paths in terms of excursions from the running maximum as well as an understanding of short- and long-term behaviour. The book aims to be mathematically rigorous while still providing an intuitive feel for underlying principles. The results and applications often focus on the case of Lévy processes with jumps in only one direction, for which recent theoretical advances have yielded a higher degree of mathematical tractability. The second edition additionally addresses recent developments in the potential analysis of subordinators, Wiener-Hopf theory, the theory of scale functions and their application to ruin theory, as well as including an extensive overview of the classical and modern theory of positive self-similar Markov processes. Each chapter has a comprehensive set of exercises. Andreas Kyprianou has a degree in Mathematics from the University of Oxford and a Ph.D. in Probability Theory from The University of Sheffield. He is currently a Professor of Probability at the University of Bath, having held academic positions in Mathematics and Statistics Departments at the London School of Economics, Edinburgh University, Utrecht University and Heriot-Watt University, besides working for nearly two years as a research mathematician in the oil industry. His research isfocused on pure and applied probability.