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Nota di contenuto	Cover -- Title page -- Chapter 1. Introduction -- 1.1. Chapter Outline -- Chapter 2. Markov Processes and the Main Result -- Chapter 3. Preliminaries: Nonstandard Analysis -- 3.1. The Hyperreals -- 3.2. Nonstandard Extensions of General Metric Spaces -- Chapter 4. Internal Probability Theory -- 4.1. Product Measures -- 4.2. Nonstandard Integration Theory -- Chapter 5. Measurability of Standard Part Map -- Chapter 6. Hyperfinite Representation of a Probability Space -- Chapter 7. General Hyperfinite Markov Processes -- Chapter 8. Hyperfinite Representation for Discrete-time Markov Processes -- 8.1. General properties of the transition probability -- 8.2. Hyperfinite Representation for Discrete-time Markov Processes -- Chapter 9.

Hyperfinite Representation for Continuous-time Markov Processes -- 9.1. Construction of Hyperfinite State Space -- 9.2. Construction of Hyperfinite Markov Processes -- Chapter 10. Markov Chain Ergodic Theorem -- Chapter 11. The Feller Condition -- 11.1. Hyperfinite Representation under the Feller Condition -- 11.2. A Weaker Markov Chain Ergodic Theorem -- Chapter 12. Push-down Results -- 12.1. Construction of Standard Markov Processes -- 12.2. Push down of Weakly Stationary Distributions -- 12.3. Existence of Stationary Distributions -- Chapter 13. Merging of Markov Processes -- Chapter 14. Miscellaneous Remarks -- Acknowledgement -- Bibliography -- Back Cover.

Sommario/riassunto

"The Markov chain ergodic theorem is well-understood if either the time-line or the state space is discrete. However, there does not exist a very clear result for general state space continuous-time Markov processes. Using methods from mathematical logic and nonstandard analysis, we introduce a class of hyperfinite Markov processes-namely, general Markov processes which behave like finite state space discrete-time Markov processes. We show that, under moderate conditions, the transition probability of hyperfinite Markov processes align with the transition probability of standard Markov processes. The Markov chain ergodic theorem for hyperfinite Markov processes will then imply the Markov chain ergodic theorem for general state space continuous-time Markov processes"--
