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Collana	Wiley series in probability and statistics. Probability and statistics
Altri autori (Persone)	EllisRichard S <1947-> (Richard Steven)
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Nota di contenuto	A Weak Convergence Approach to the Theory of Large Deviations; Preface; Contents; 1. Formulation of Large Deviation Theory in Terms of the Laplace Principle; 1.1. Introduction; 1.2. Equivalent Formulation of the Large Deviation Principle; 1.3. Basic Results in the Theory; 1.4. Properties of the Relative Entropy; 1.5. Stochastic Control Theory and Dynamic Programming; 2. First Example: Sanov's Theorem; 2.1. Introduction; 2.2. Statement of Sanov's Theorem; 2.3. The Representation Formula; 2.4. Proof of the Laplace Principle Lower Bound; 2.5. Proof of the Laplace Principle Upper Bound 3. Second Example: Mogulskii's Theorem3.1. Introduction; 3.2. The Representation Formula; 3.3. Proof of the Laplace Principle Upper Bound and Identification of the Rate Function; 3.4. Statement of Mogulskii's Theorem and Completion of the Proof; 3.5. Cramer's Theorem; 3.6. Comments on the Proofs; 4 Representation Formulas for Other Stochastic Processes; 4.1. Introduction; 4.2. The Representation Formula for the Empirical Measures of a Markov Chain; 4.3. The Representation Formula for a Random Walk Model; 4.4. The Representation Formula for a Random Walk Model with State-Dependent Noise

4.5. Extensions to Unbounded Functions; 4.6. Representation Formulas for Continuous-Time Markov Processes; 4.6.1. Introduction; 4.6.2. Formal Derivation of Representation Formulas for Continuous-Time Markov Processes; 4.6.3. Examples of Continuous-Time Representation Formulas; 4.6.4. Remarks on the Proofs of the Representation Formulas; 5 Compactness and Limit Properties for the Random Walk Model; 5.1. Introduction; 5.2. Definitions and a Representation Formula; 5.3. Compactness and Limit Properties; 5.4. Weaker Version of Condition 5.3.1

6 Laplace Principle for the Random Walk Model with Continuous Statistics; 6.1. Introduction; 6.2. Proof of the Laplace Principle Upper Bound and Identification of the Rate Function; 6.3. Statement of the Laplace Principle; 6.4. Strategy for the Proof of the Laplace Principle Lower Bound; 6.5. Proof of the Laplace Principle Lower Bound Under Conditions 6.2.1 and 6.3.1; 6.6. Proof of the Laplace Principle Lower Bound Under Conditions 6.2.1 and 6.3.2; 6.7. Extension of Theorem 6.3.3 To Be Applied in Chapter 10; 7. Laplace Principle for the Random Walk Model with Discontinuous Statistics

7.1. Introduction; 7.2. Statement of the Laplace Principle; 7.3. Laplace Principle for the Final Position Vectors and One-Dimensional Examples; 7.4. Proof of the Laplace Principle Upper Bound; 7.5. Proof of the Laplace Principle Lower Bound; 7.6. Compactness of the Level Sets of I_x ; 8. Laplace Principle for the Empirical Measures of a Markov Chain; 8.1. Introduction; 8.2. Compactness and Limit Properties of Controls and Controlled Processes; 8.3. Proof of the Laplace Principle Upper Bound and Identification of the Rate Function; 8.4. Statement of the Laplace Principle

8.5. Properties of the Rate Function

Sommario/riassunto

Applies the well-developed tools of the theory of weak convergence of probability measures to large deviation analysis--a consistent new approach. The theory of large deviations, one of the most dynamic topics in probability today, studies rare events in stochastic systems. The nonlinear nature of the theory contributes both to its richness and difficulty. This innovative text demonstrates how to employ the well-established linear techniques of weak convergence theory to prove large deviation results. Beginning with a step-by-step development of the approach, the book skillfully guides r
