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| Descrizione fisica | 1 online resource (321 p.) |
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| Altri autori (Persone) | MazzeoRafe |
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| Note generali | Description based upon print version of record. |
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| Nota di contenuto | Front matter -- Contents -- Preface -- Chapter 1. Introduction -- Part I. Wright-Fisher Geometry and the Maximum Principle -- Chapter 2. Wright-Fisher Geometry -- Chapter 3. Maximum Principles and Uniqueness Theorems -- Part II. Analysis of Model Problems -- Chapter 4. The Model Solution Operators -- Chapter 5. Degenerate Hölder Spaces -- Chapter 6. Hölder Estimates for the 1-dimensional Model Problems -- Chapter 7. Hölder Estimates for Higher Dimensional Corner Models -- Chapter 8. Hölder Estimates for Euclidean Models -- Chapter 9. Hölder Estimates for General Models -- Part III. Analysis of Generalized Kimura Diffusions -- Chapter 10. Existence of Solutions -- Chapter 11. The Resolvent Operator -- Chapter 12. The Semi-group on °(P) -- Appendix A: Proofs of Estimates for the Degenerate 1-d Model -- Bibliography -- Index |
| Sommario/riassunto | This book provides the mathematical foundations for the analysis of a class of degenerate elliptic operators defined on manifolds with corners, which arise in a variety of applications such as population |

genetics, mathematical finance, and economics. The results discussed in this book prove the uniqueness of the solution to the Martingale problem and therefore the existence of the associated Markov process. Charles Epstein and Rafe Mazzeo use an "integral kernel method" to develop mathematical foundations for the study of such degenerate elliptic operators and the stochastic processes they define. The precise nature of the degeneracies of the principal symbol for these operators leads to solutions of the parabolic and elliptic problems that display novel regularity properties. Dually, the adjoint operator allows for rather dramatic singularities, such as measures supported on high co-dimensional strata of the boundary. Epstein and Mazzeo establish the uniqueness, existence, and sharp regularity properties for solutions to the homogeneous and inhomogeneous heat equations, as well as a complete analysis of the resolvent operator acting on Hölder spaces. They show that the semigroups defined by these operators have holomorphic extensions to the right half-plane. Epstein and Mazzeo also demonstrate precise asymptotic results for the long-time behavior of solutions to both the forward and backward Kolmogorov equations.