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Nota di contenuto	Preface; Contents; 1. Preliminaries; 1.1 Introduction; 1.2 Cauchy and Holder inequalities; 1.3 Inequalities for transformed series and functions; 1.4 Applications in probability; 1.5 Hardy's inequality; 1.6 Inequalities for discrete martingales; 1.7 Martingales indexed by continuous parameters; 1.8 Large deviations and exponential inequalities; 1.9 Functional inequalities; 1.10 Content of the book; 2. Inequalities for Means and Integrals; 2.1 Introduction; 2.2 Inequalities for means in real vector spaces; 2.3 Holder and Hilbert inequalities; 2.4 Generalizations of Hardy's inequality 2.5 Carleman's inequality and generalizations 2.6 Minkowski's inequality and generalizations; 2.7 Inequalities for the Laplace transform; 2.8 Inequalities for multivariate functions; 3. Analytic Inequalities; 3.1 Introduction; 3.2 Bounds for series; 3.3 Cauchy's inequalities and convex mappings; 3.4 Inequalities for the mode and the median; 3.5 Mean residual time; 3.6 Functional equations; 3.7 Carlson's inequality; 3.8 Functional means; 3.9 Young's inequalities; 3.10 Entropy and information; 4. Inequalities for Martingales; 4.1 Introduction 4.2 Inequalities for sums of independent random variables 4.3 Inequalities for discrete martingales; 4.4 Inequalities for martingales indexed by R^+ ; 4.5 Poisson processes; 4.6 Brownian motion; 4.7 Diffusion processes; 4.8 Level crossing probabilities; 4.9 Martingales in the plane; 5. Functional Inequalities; 5.1 Introduction; 5.2 Exponential

inequalities for functional empirical processes; 5.3 Exponential inequalities for functional martingales; 5.4 Weak convergence of functional processes; 5.5 Differentiable functionals of empirical processes; 5.6 Regression functions and biased length
5.7 Regression functions for processes
6. Inequalities for Processes; 6.1 Introduction; 6.2 Stationary processes; 6.3 Ruin models; 6.4 Comparison of models; 6.5 Moments of the processes at T_a ; 6.6 Empirical process in mixture distributions; 6.7 Integral inequalities in the plane; 6.8 Spatial point processes; 7. Inequalities in Complex Spaces; 7.1 Introduction; 7.2 Polynomials; 7.3 Fourier and Hermite transforms; 7.4 Inequalities for the transforms; 7.5 Inequalities in \mathbb{C} ; 7.6 Complex spaces of higher dimensions; 7.7 Stochastic integrals; Appendix A Probability
A.1 Definitions and convergences in probability spaces
A.2 Boundary-crossing probabilities; A.3 Distances between probabilities; A.4 Expansions in $L^2(\mathbb{R})$; Hermite polynomials; Bibliography; Index

Sommario/riassunto

The book is aimed at graduate students and researchers with basic knowledge of Probability and Integration Theory. It introduces classical inequalities in vector and functional spaces with applications to probability. It also develops new extensions of the analytical inequalities, with sharper bounds and generalizations to the sum or the supremum of random variables, to martingales and to transformed Brownian motions. The proofs of the new results are presented in great detail.
