

1. Record Nr.	UNINA9910144601803321
Autore	Albeverio Sergio
Titolo	Lectures on Probability Theory and Statistics : Ecole d'Eté de Probabilités de Saint-Flour XXX - 2000 // by Sergio Albeverio, Walter Schachermayer ; edited by Pierre Bernard
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2003
ISBN	3-540-44922-1
Edizione	[1st ed. 2003.]
Descrizione fisica	1 online resource (X, 298 p.)
Collana	École d'Été de Probabilités de Saint-Flour, , 0721-5363 ; ; 1816
Disciplina	576.58
Soggetti	Probabilities Mathematical physics Economics, Mathematical Probability Theory and Stochastic Processes Theoretical, Mathematical and Computational Physics Quantitative Finance
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Sergio Albeverio: Theory of Dirichlet forms and applications -- Functional analytic background: semigroups, generators, resolvents -- Closed symmetric coercive forms associated with Co-contraction semigroups -- Contraction properties of forms, positivity preserving and submarkovian semigroups -- Potential Theory and Markov Processes associated with Dirichlet Forms -- Diffusions and stochastic differential equations associated with classical Dirichlet forms -- Applications -- Walter Schachermayer: Introduction to the Mathematics of Financial Markets -- Introduction: Bachelier's Thesis from 1900 -- Models of Financial Markets on Finite Probability Spaces -- The Binomial Model, Bachelier's Model and the Black-Scholes Model -- The No-Arbitrage Theory for General Processes -- Some Applications of the Fundamental Theorem of Asset Pricing -- Michel Talagrand: Mean field models for spin glasses: a first course -- What this is all about: the REM -- The Sherrington-Kirkpatrick model at high temperature -- The p-spin interaction model -- External field and the replica-symmetric

solution -- Exponential inequalities -- Central limit theorems and the Almeida-Thouless line -- Emergence and separation of the lumps in the p-spin interaction model.

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Sommario/riassunto

In World Mathematical Year 2000 the traditional St. Flour Summer School was hosted jointly with the European Mathematical Society. Sergio Albeverio reviews the theory of Dirichlet forms, and gives applications including partial differential equations, stochastic dynamics of quantum systems, quantum fields and the geometry of loop spaces. The second text, by Walter Schachermayer, is an introduction to the basic concepts of mathematical finance, including the Bachelier and Black-Scholes models. The fundamental theorem of asset pricing is discussed in detail. Finally Michel Talagrand, gives an overview of the mean field models for spin glasses. This text is a major contribution towards the proof of certain results from physics, and includes a discussion of the Sherrington-Kirkpatrick and the p-spin interaction models.

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