

Table of Contents

Part I Sergio Albeverio: Theory of Dirichlet forms and applications

0	Introduction	4
1	Functional analytic background: semigroups, generators, resolvents	7
2	Closed symmetric coercive forms associated with C_0 -contraction semigroups	18
3	Contraction properties of forms, positivity preserving and submarkovian semigroups	33
4	Potential Theory and Markov Processes associated with Dirichlet Forms	43
5	Diffusions and stochastic differential equations associated with classical Dirichlet forms	51
6	Applications	64
	References	75
	Index	103

Part II Walter Schachermayer: Introduction to the Mathematics of Financial Markets

1	Introduction: Bachelier's Thesis from 1900	111
2	Models of Financial Markets on Finite Probability Spaces	127
3	The Binomial Model, Bachelier's Model and the Black-Scholes Model	140

4	The No-Arbitrage Theory for General Processes	153
5	Some Applications of the Fundamental Theorem of Asset Pricing	173
	References	177

Part III Michel Talagrand: Mean field models for spin glasses: a first course

1	Introduction	185
2	What this is all about: the REM	188
3	The Sherrington-Kirkpatrick model at high temperature ..	201
4	The p -spin interaction model	213
5	External field and the replica-symmetric solution	221
6	Exponential inequalities	240
7	Central limit theorems and the Almeida-Thouless line	253
8	Emergence and separation of the lumps in the p -spin interaction model	269
	Bibliography	284