

Contents

Preface	ix
The Contact Process, 1974–1989 RICK DURRETT	1
Is the Contact Process Dead? LAWRENCE F. GRAY	19
Limiting Behavior of a One-Dimensional System with Long Range Interactions THOMAS M. LIGGETT	31
Topics in Percolation CHARLES M. NEWMAN	41
The Lace Expansion and the Upper Critical Dimension for Perco- lation GORDON SLADE	53
Mandelbrot Percolation in Two and Three Dimensions GLEN H. SWINDLE	65
Intersection Probabilities for Random Walks GREGORY F. LAWLER	73
A Summary of Results about Cyclic Cellular Automata ROBERT FISCH	87
Hydrodynamical Behavior of Asymmetric Attractive Particle Systems One Example: One-Dimensional Nearest-Neighbors Asymmetric Simple Exclusion Process JEAN-PIERRE FOUQUE	97
Statistical Mechanics Applied to Random-Media Problems GEORGE STELL	109
A Control Formulation for Constrained Markov Processes THOMAS G. KURTZ	139

Diffusion Approximation for a Class of Transport Processes with Physical Reflection Boundary Conditions C. COSTANTINI	151
Random Perturbations of Dynamical Systems: A New Approach YURI KIFER	163
Partial Differential Systems with a Small Parameter and Diffusion Process with a Discrete Component A. EIZENBERG AND M. FREIDLIN	175
Asymptotics for the Solution of the Exterior Dirichlet Problem for Second-order Elliptic Operators with Small First-order Perturbations DIMITRI IOFFE AND ROSS PINSKY	185
Asymptotic Behavior of Invariant Density of Diffusion Process with Small Fluctuation TOSHIO MIKAMI	193
Lyapunov Exponents for White and Real Noise Driven Two-Dimensional Systems MARK PINSKY AND VOLKER WIHSTUTZ	201
Asymptotic Methods for Markov Jump Processes B. J. MATKOWSKY, Z. SCHUSS, AND C. TIER	215
Uniform Solution of Kramers' Problem by a Direct Approach T. NAEH, M. M. KLÖSEK, B. J. MATKOWSKY, AND Z. SCHUSS	241
On Random Differential Delay Equations with a Small Parameter G. YIN AND K. M. RAMACHANDRAN	269
Homogenization Error Estimates for Random Elliptic Operators V. YURINSKIĬ	285
The Effective Conductivity of Composites OSCAR P. BRUNO	293
On a General Concept in Optimal Material Layout K. A. LURIE	301
Microstructure and Effective Properties of Random Media S. TORQUATO	323
Classical Transport in Quasiperiodic Media KENNETH GOLDEN	359
Tuning Up a Quasicrystal J. D. MAYNARD	375

Localization Estimates for Off-Diagonal Disorder WILLIAM G. FARIS	391
Order Statistics and Renormalization WILLIAM G. FARIS	407
Wave and Particle Propagation in One-Dimensional and Quasi- One-Dimensional Random Media L. A. PASTUR	417
Water Waves in Shallow Channels of Randomly Varying Depth A. NACHBIN AND G. C. PAPANICOLAOU	429
Approximations by Delta-correlated Random Processes and Diffusive Approximation in Stochastic Problems V. I. KLYATSKIN	447
Some Aspects of Wave Propagation Theory in Layer Random Media V. I. GOLAND, V. I. KLYATSKIN, AND I. O. YAROSHCHUK	477
Reflection of Waves by Randomly Layered Media WERNER KOHLER, GEORGE PAPANICOLAOU, AND BENJAMIN WHITE	487