

## Bibliography

- Omer Adelman (1976). Some use of some "symmetries" of some random processes, Ann. Inst. Henri Poincaré 12, 193-197.
- F. Bertoin and A. Galves (1978). Une classe de systèmes de particules stable par association, Z. Wahrscheinlichkeitstheorie Verw. Geb. 41, 73-85.
- D. Blackwell (1958). Another countable Markov process with only instantaneous states, Annals of Mathematical Statistics 29, 313-316.
- M. Bramson and D. Griffeath (1978a). Renormalizing the 3-dimensional voter model, Annals of Probability, to appear.
- M. Bramson and D. Griffeath (1978b). Clustering and dispersion rates for some interacting particle systems on  $Z$ , Annals of Probability, to appear.
- S. Broadbent and J. Hammersley (1957). Percolation processes I. Crystals and mazes, Proc. Cambridge Phil. Soc. 53, 629-645.
- J. Chover (1975). Convergence of a local lattice process, Stochastic Processes and their Applications 3, 115-135.
- P. Clifford and A. Sudbury (1973). A model for spatial conflict, Biometrika 60, 581-588.
- D. Dawson (1974a). Information flow in discrete Markov systems, Journal of Applied Probability 11, 594-600.
- D. A. Dawson (1974b). Discrete Markov Systems, Carleton Math. Lecture Notes no. 10, Carleton University, Ottawa.
- D. Dawson (1975). Synchronous and asynchronous reversible Markov systems. Canadian Mathematical Bulletin 17, 633-649.
- D. A. Dawson (1978). The critical measure diffusion process, Z. Wahrscheinlichkeitstheorie Verw. Geb. 40, 125-145.
- D. Dawson and G. Ivanoff (1978). Branching diffusions and random measures, Advances in Probability 5, ed. A. Joffe, P. Ney, Dekker, New York.
- R. L. Dobrushin (1971). Markovian processes with a large number of locally interacting components, Problems of Information Transmission 7, 149-164 and 235-241.
- R. Durrett (1978). An infinite particle system with additive interactions, to appear.
- E. B. Dynkin and A. A. Yushkevich (1969). Markov Processes. Theorems and Problems, Plenum Press, New York.
- P. Erdős and P. Ney (1974). Some problems on random intervals and annihilating particles, Annals of Probability 2, 828-839.

- J. Fleischmann (1978). Limit theorems for critical branching random fields, T.A.M.S. 239, 353-389.
- H. O. Georgii (1976). Stochastische Prozesse Für Interaktionssysteme. Heidelberg.
- R. Glauber (1963). The statistics of the stochastic Ising model, Journal of Mathematical Physics 4, 294-307.
- L. Gray (1978). Controlled spin systems, Annals of Probability 6, 953-974.
- L. Gray and D. Griffeath (1976). On the uniqueness of certain interacting particle systems, Z. Wahrscheinlichkeitstheorie verw. Geb. 35, 75-86.
- L. Gray and D. Griffeath (1977). On the uniqueness and nonuniqueness of proximity processes, Annals of Probability 5, 678-692.
- D. Griffeath (1975). Ergodic theorems for graph interactions, Advances in Applied Probability 7, 179-194.
- D. Griffeath (1977). An ergodic theorem for a class of spin systems, Ann. Inst. Henri Poincaré 13, 141-157.
- D. Griffeath (1978a). Limit theorems for nonergodic set-valued Markov processes. Annals of Probability 8, 379-387.
- D. Griffeath (1978b). Annihilating and coalescing random walks on  $Z_d$ . Z. Wahrscheinlichkeitstheorie verw. Geb. 46, 55-65.
- D. Griffeath (1979). Pointwise ergodicity of the basic contact process, Annals of Probability 7, 139-143.
- R. Griffiths (1972). The Peierls argument for the existence of phase transitions, Mathematical Aspects of Statistical Mechanics, J.C.T. Pool (ed.), SIAM-AMS Proceedings, Providence, Amer. Math. Soc. 5, 13-26.
- J. Hammersley (1959). Bornes supérieures de la probabilité critique dans un processus de filtration. Le Calcul des Probabilités et ses Applications. Centre National de la Recherche Scientifique, Paris, 17-37.
- T. E. Harris (1960). Lower bound for the critical probability in a certain percolation process, Proc. Cambridge Phil. Soc. 56, 13-20.
- T. E. Harris (1972). Nearest neighbor Markov interaction processes on multi-dimensional lattices, Advances in Mathematics 9, 66-89.
- T. E. Harris (1974). Contact interactions on a lattice, Annals of Probability 2, 969-988.
- T. E. Harris (1976). On a class of set-valued Markov processes, Annals of Probability 4, 175-194.

- T. E. Harris (1977). A correlation inequality for Markov processes in partially ordered state spaces, Annals of Probability 5, 451-454.
- T. E. Harris (1978). Additive set-valued Markov processes and percolation methods, Annals of Probability 6, 355-378.
- L. L. Helms (1974). Ergodic properties of several interacting Poisson particles, Advances in Mathematics 12, 32-57.
- Y. Higuchi and T. Shiga (1975). Some results on Markov processes of infinite lattice spin systems, Journal of Mathematics of Kyoto University 15, 211-229.
- R. Holley (1970). A class of interactions in an infinite particle system, Advances in Mathematics 5, 291-309.
- R. Holley (1971). Free energy in a Markovian model of a lattice spin system, Communications in Mathematical Physics 23, 87-99.
- R. Holley (1972a). Markovian interaction processes with finite range interactions, Annals of Mathematical Statistics 43, 1961-1967.
- R. Holley (1972b). An ergodic theorem for interacting systems with attractive interactions, Z. Wahrscheinlichkeitstheorie verw. Geb. 24, 325-334.
- R. Holley (1974). Recent results on the stochastic Ising model, Rocky Mountain Journal of Mathematics 4, 479-496.
- R. Holley and T. M. Liggett (1975). Ergodic theorems for weakly interacting infinite systems and the voter model, Annals of Probability 3, 643-663.
- R. Holley and T. M. Liggett (1978). The survival of contact processes, Annals of Probability 6, 198-206.
- R. Holley and D. Stroock (1976a). A martingale approach to infinite systems of interacting processes, Annals of Probability 4, 195-228.
- R. Holley and D. Stroock (1976b). Applications of the stochastic Ising model to the Gibbs states, Communications in Mathematical Physics 48, 249-266.
- R. Holley and D. Stroock (1976c).  $L_2$  theory for the stochastic Ising model, Z. Wahrscheinlichkeitstheorie verw. Geb. 35, 87-101.
- R. Holley and D. Stroock (1976d). Dual processes and their application to infinite interacting systems, Advances in Mathematics, to appear.
- R. Holley and D. Stroock (1978). Nearest neighbor birth and death processes on the real line, Acta Math. 140, 103-154.
- R. Holley, D. Stroock and D. Williams (1977). Applications of dual processes to diffusion theory, Proc. Sympos. Pure Math. 31, 23-36. Amer. Math. Soc., Providence, R.I.

- F. P. Kelly (1977). The asymptotic behavior of an invasion process, Journal of Applied Probability 14, 584-590.
- W. C. Lee (1974). Random stirring of the real line, Annals of Probability 2, 580-592.
- T. M. Liggett (1972). Existence theorems for infinite particle systems, T.A.M.S. 165, 471-481.
- T. M. Liggett (1973). A characterization of the invariant measures for an infinite particle system with interactions, T.A.M.S. 179, 433-453.
- T. M. Liggett (1974). A characterization of the invariant measures for an infinite particle system with interactions II, T.A.M.S. 198, 201-213.
- T. M. Liggett (1975). Ergodic theorems for the asymmetric simple exclusion process, T.A.M.S. 213, 237-261.
- T. M. Liggett (1976). Coupling the simple exclusion process, Annals of Probability 4, 339-356.
- T. M. Liggett (1977). The stochastic evolution of infinite systems of interacting particles, Lecture Notes in Mathematics 598, 187-248. Springer-Verlag, New York.
- T. M. Liggett (1978). Attractive nearest neighbor spin systems on the integers, Annals of Probability 6, 629-636.
- K. Logan (1974). Time reversible evolutions in statistical mechanics, Cornell University, Ph.D. dissertation.
- J. C. Lootgieter (1977). Problèmes de récurrence concernant des mouvements aléatoires de particules sur  $Z$  avec destruction, Ann. Inst. Henri Poincaré 13, 127-139.
- V. A. Mal'ĭsev (1975). The central limit theorem for Gibbsian random fields, Soviet Math. Dokl. 16, 1141-1145.
- N. Matloff (1977). Ergodicity conditions for a dissonant voter model, Annals of Probability 5, 371-386.
- D. Mollison (1977). Spatial contact models for ecological and epidemic spread, J. Royal Statistical Soc. B, 39, 283-326.
- C. J. Preston (1974). Gibbs states on countable sets, Cambridge University Press.
- D. Richardson (1973). Random growth in a tessellation, Proc. Cambridge Phil. Soc. 74, 515-528.
- S. Sawyer (1976). Results for the stepping stone model for migration in population genetics, Annals of Probability 4, 699-728.
- S. Sawyer (1978). A limit theorem for patch sizes in a selectively-neutral migration model, to appear.

- D. Schwartz (1976). Ergodic theorems for an infinite particle system with births and deaths, Annals of Probability 4, 783-801.
- D. Schwartz (1977). Applications of duality to a class of Markov processes, Annals of Probability 5, 522-532.
- D. Schwartz (1978). On hitting probabilities for an annihilating particle model, Annals of Probability 6, 398-403.
- V. K. Shante and S. Kirkpatrick (1971). Introduction to percolation theory, Advances in Physics 20, 325-357.
- F. Spitzer (1970). Interaction of Markov processes, Advances in Mathematics 5, 246-290.
- F. Spitzer (1971). Random fields and interacting particle systems, M.A.A. Summer Seminar Notes, Williamstown, Mass.
- F. Spitzer (1974a). Recurrent random walk of an infinite particle system, T.A.M.S. 198, 191-199.
- F. Spitzer (1974b). Introduction aux processus de Markov à paramètres dans  $Z_v$ , Lecture Notes in Mathematics 390, Springer-Verlag, New York.
- F. Spitzer (1976). Principles of Random Walk, 2nd ed., Springer-Verlag, New York.
- F. Spitzer (1977). Stochastic time evolution of one dimensional infinite particle systems, B.A.M.S. 83, 880-890.
- O. N. Stavskaya (1975). Sufficient conditions for the uniqueness of a probability field and estimates for correlations, Matematicheskie Zametki 18, 609-620.
- O. N. Stavskaya and I. I. Pyatetskii-Shapiro (1968). On homogeneous networks of spontaneously active elements, Problemy kibernetiki, Nauka Moscow 20, 91-106.
- D. Stroock (1978). Lectures on Infinite Interacting Systems, Kyoto University Lectures in Math. no. 11.
- W. G. Sullivan (1974). A unified existence and ergodic theorem for Markov evolution of random fields, Z. Wahrscheinlichkeitstheorie verw. Geb. 31, 47-56.
- W. G. Sullivan (1975). Markov processes for random fields, Communications Dublin Inst., Advanced Studies A, No. 23.
- W. G. Sullivan (1976). Processes with infinitely many jumping particles, P.A.M.S. 54, 326-330.
- A. L. Toom (1968). A family of uniform nets of formal systems, Soviet Mathematics 9, 1338-1341.
- A. L. Toom (1974). Nonergodic multidimensional systems of automata, Problemy Peredachi Informatsii 10, 239-246.

L. N. Vasershtein (1969). Markov processes over denumerable products of spaces, describing large systems of automata, Problemy Peredachi Informatsii 5 (3), 64-73.

L. N. Vasershtein and A. M. Leontovich (1970). Invariant measures of certain Markov operators describing a homogeneous random medium, Problemy Peredachi Informatsii 6 (1), 71-80.

N. B. Vasilev (1969). Limit behavior of one random medium, Problemy Peredachi Informatsii 5 (4), 68-74.

N. B. Vasil'ev, L. G. Mityushin, I. I. Pyatetskii-Shapiro and A. L. Toom (1973). Stavskaya Operators (in Russian), Preprint no. 12, Institute of Applied Math., Academy of Sciences, U.S.S.R., Moscow.

T. Williams and R. Bjercknes (1972). Stochastic model for abnormal clone spread through epithelial basal layer, Nature 236, 19-21.

## Subject Index

Additive pregenerator 89  
additive system 14  
annihilating branching processes with parity 73  
annihilating random walks 5, 81  
anti-voter model 67

Biased voter model 55  
box 1

Cancellative pregenerator 89  
cancellative system 66  
coalescing branching processes 24  
coalescing random walks 3, 47, 58  
configuration 1  
contact systems 5, 44  
critical phenomenon 30  
cylinder function 22

Dense configuration 45  
distribution 2  
domain of attraction 8  
dual processes 16, 67  
dual substructure 11  
duality equations 17, 68

Edge 52  
equilibrium 6  
ergodic 7  
exclusion system (additive) 64  
explosion 90  
exponentially decaying correlations 20  
exponentially ergodic system 19  
extralineal substructure 10  
extralineal system 14  
extreme invariant measure 8

Feller system 7

Generalized voter models 77  
Gibbs measures 74  
graphical representation 3

Influence from  $\infty$  14  
invariant measure 6, 7

Jump rates 2

Lineal substructure 10  
lineal system 14  
local substructure 10  
local system 14

Monotone system 14  
minimal dual processes 91

Neighbor 44

One-sided contact systems 29

Particle process 1  
particle system 2  
path up 3, 10  
percolation substructure 5, 9  
pointwise ergodicity 8  
proximity system 24  
pure births 67

Random stirring 63  
recurrent density 47  
regular distribution 45

Self-dual substructure 29  
self-dual system 29  
site 1  
spin system 2  
stochastic Ising model 74  
strong correlations 53  
strong explosion 96  
strong influence from  $\infty$  14  
strongly ergodic 7  
substructure 5

Tame function 22  
time reversible system 14  
transient density 47  
translation invariant substructure 10  
translation invariant system 14

Unique system 89

Voter model 11, 46

Weak convergence 6  
weak correlations 53  
weak explosion 96  
weak influence from  $\infty$  15