

## PUBLICATION LIST OF RICHARD S. ELLIS

(1) Chapman-Enskog-Hilbert Expansion for a Markovian model of the Boltzmann Equation. *Communications on Pure and Applied Mathematics*, Volume 26, Number 3, 327–359 (1973).

(2) Limit Theorems for Model Boltzmann Equations with Several Conserved Quantities (with Mark Pinsky). *Indiana University Mathematics Journal*, Volume 23, Number 4, 287–307 (1973).

(3) Limit Theorems for Random Evolutions with Explicit Error Estimates. *Zeitschrift für Wahrscheinlichkeitstheorie und verwandte Gebiete*, Volume 28, Number 3, 249–256 (1974).

(4) An Application of Stochastic Optimal Control Theory to the Optimal Rescheduling of Airplanes (with Ray Rishel). *IEEE Transactions on Automatic Control*, Volume AC-19, Number 2, 139–142 (1974).

(5) Chapman-Enskog-Hilbert Expansion for the Ornstein-Uhlenbeck Process and the Approximation of Brownian Motion. *Transactions of the American Mathematical Society*, Volume 199, 65–74 (1974).

(6) The Asymptotic Behavior of the First Real Eigenvalue of Second Order Elliptic Operators with a Small Parameter in the Highest Derivatives, II (with Allen Devinatz and Avner Friedman). *Indiana University Mathematics Journal*, Volume 23, Number 11, 991–1011 (1974).

(7) Asymptotic Nonuniqueness of the Navier-Stokes Equations in Kinetic Theory (with Mark Pinsky). *Bulletin of the American Mathematical Society*, Volume 80, Number 6, 1160–1164 (1974).

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(9) Asymptotic Equivalence of the Linear Navier-Stokes and Heat Equations in One Dimension (with Mark Pinsky). *Journal of Differential Equations*, Volume 17, Number 2, 406–420 (1975).

(10) The First and Second Fluid Approximations to the Linearized Boltzmann Equation (with Mark Pinsky). *Journal de Mathématiques Pures et Appliquées*, Volume 54, Number 2, 125–156 (1975).

(11) The Projection of the Navier-Stokes Equations upon the Euler Equations (with Mark Pinsky). *Journal de Mathématiques Pures et Appliquées*, Volume 54, Number 2, 157–182 (1975).

(12) A Simple Proof of the GHS and Further Inequalities (with James Monroe). *Communications in Mathematical Physics*, Volume 41, Number 1, 33–38 (1975).

(13) Concavity of Magnetization for a Class of Even Ferromagnets. *Bulletin of the American Mathematical Society*, Volume 81, Number 5, 925–929 (1975).

(14) Asymptotics and Limit Theorems for the Linearized Boltzmann Equation. In: *Probabilistic Methods in Differential Equations*, 143–151 (1975). *Proceedings of the Conference Held at University of Victoria, August 19–20, 1974*. Edited by Mark A. Pinsky. Springer Lecture Notes in Mathematics, Number 451. Springer-Verlag (Berlin).

(15) The GHS and Other Correlation Inequalities for a Class of Even Ferromagnets (with James Monroe and Charles Newman). *Communications in Mathematical Physics*, Volume 46, Number 2, 167–182 (1976).

(16) Volume of an N-Simplex by Multiple Integration. *Elemente der Mathematik*, Volume 31, Number 3, 57–59 (1976).

(17) Quantum Mechanical Soft Springs and Reverse Correlation Inequalities (with Charles Newman). *Journal of Mathematical Physics*, Volume 17, Number 9, 1682–1683 (1976).

(18) Diffusion Approximation for Transport Processes with Boundary Conditions (with Walter Rosenkrantz). *Indiana University Mathematics Journal*, Volume 26, Number 6, 1075–1096 (1977).

(19) Monotone Decrease of Characteristic Functions. *Journal of Statistical Physics*, Volume 16, Number 1, 117–118 (1977). Erratum: *Journal of Statistical Physics*, Volume 18, Number 1, 107 (1978).

(20) Necessary and Sufficient Conditions for the GHS Inequality with Applications to Analysis and Probability (with Charles Newman). *Transactions of the American Mathematical Society*, Volume 237, 83–99 (March, 1978).

(21) Fluctuations in Curie-Weiss Exemplis (with Charles Newman). In: *Mathematical Problems in Theoretical Physics*, 313–324 (1978). *Proceedings of the International Conference Held in Rome, June 6–15, 1977*. Edited by G. Dell’Antonio, S. Doplicher, and G. Jona-Lasinio. Springer Lecture Notes in Physics, Number 80. Springer-Verlag (Berlin).

(22) Limit Theorems for Sums of Dependent Random Variables Occurring in Statistical Mechanics (with Charles Newman). *Zeitschrift für Wahrscheinlichkeitstheorie und verwandte Gebiete*, Volume 44, Number 2, 117–139 (1978).

(23) The Statistics of Curie-Weiss Models (with Charles Newman). *Journal of Statistical Physics*, Volume 19, Number 2, 149–161 (1978).

(24) Extensions of the Maximum Principle: Exponential Preservation by the Heat Equation (with Charles Newman). *Journal of Differential Equations*, Volume 30, Number 3, 365–379 (1978).

(25) Limit Theorems for Sums of Dependent Random Variables Occurring in Statistical Mechanics, II: Conditioning, Multiple Phases, and Metastability (with Charles Newman and Jay Rosen). *Zeitschrift für Wahrscheinlichkeitstheorie und verwandte Gebiete*, Volume 51, Number 2, 153–169 (1980).

(26) Asymptotic Expansions of Gaussian Integrals (with Jay Rosen). *Bulletin (New Series) of the American Mathematical Society*, Volume 3, Number 1, 705–709 (1980).

(27) The GHS Inequality for a Large External Field (with Charles Newman and Michael O’Connell). *Journal of Statistical Physics*, Volume 26, Number 1, 37–50 (1981).

(28) Discussion of Karl F. Freed’s paper “Polymers as Self-Avoiding Walks.” *Annals of Probability*, Volume 9, Number 4, 551–554 (1981). Prepared at the invitation of Associate Editor Thomas G. Kurtz.

(29) Asymptotic Analysis of Gaussian Integrals, II: Manifold of Minimum Points (with Jay Rosen). *Communications in Mathematical Physics*, Volume 82, Number 2, 153–181 (1981).

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(38) Inequalities for Multivariate Compound Poisson Distributions. *Annals of Probability*, Volume 16, Number 2, 658–661 (1988).

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(46) Limit Theorems for Maximum Likelihood Estimators in the Curie-Weiss-Potts Model (with Kongming Wang). *Stochastic Processes and Their Applications*, Volume 40, Number 2, pages 251–288 (1992).

(47) Large Deviations for Markov Processes with Discontinuous Statistics, II: Random Walks (with Paul Dupuis). *Probability Theory and Related Fields*, Volume 91, pages 153–194 (1992).

(48) The Large Deviation Principle for Measures with Random Weights (with John Gough and Joseph V. Pulé). *Reviews in Mathematical Physics*, Volume 5, Number 4, pages 659–692 (1993).

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(54) The Theory of Large Deviations: From Boltzmann's 1877 Calculation to Equilibrium Macrostates in 2D Turbulence. *Physica D*, Volume 133, Numbers 1–4, pages 106–136 (1999). Reprinted in *Predictability: Quantifying Uncertainty in Models of Complex Phenomena* (Special issue originating from the 18<sup>th</sup> Annual International Conference of the Center for Nonlinear Studies, Los Alamos, NM, May 11–15 1998), 106–136 (1999). Edited by Shiyi Chen, Len Margolin, and David Sharp. Elsevier (Amsterdam).

(55) Large Deviations for Small Noise Diffusions with Discontinuous Statistics (with Michelle Boué and Paul Dupuis). *Probability Theory and Related Fields*, Volume 116, Number 1, pages 125–149 (2000).

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(77) Asymptotic Behavior of the Finite-Size Magnetization as a Function of the Speed of Approach to Criticality (with Jonathan Machta and Peter Tak-Hun Otto). *Annals of Applied Probability*, Volume 20, Number 6, pages 2118–2161 (2010).

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(79) Conditional Gaussian Fluctuations and Refined Asymptotics of the Spin in the Phase-Coexistence Region (with Jingran Li). *Journal of Statistical Physics*, Volume 149, pages 803–830 (2012).

## **ACCEPTED FOR PUBLICATION**

## **SUBMITTED FOR PUBLICATION**

(80) Large Deviation Analysis of a Droplet Model Having a Poisson Equilibrium Distribution" (with Shlomo Ta'asan). 66-page Latex manuscript. Submitted to *Journal of Statistical Physics*



## IN PREPARATION

(81) The Boltzmann-Sanov Large Deviation Principle and Applications to Statistical Mechanics (with Shlomo Ta'asan). Special Theme Issue on Large Deviation Techniques, *Philosophical Transactions A of the Royal Society*, 2015. Edited by Eitan Gross.

(82) “Large Deviations for Empirical Pairwise Displacement Measures” (with Shlomo Ta'asan)

## OTHER MATHEMATICAL WORK

(1) *Entropy and Asymptotic Problems in Probability Theory and Statistical Mechanics*. Lecture notes for an invited lecture series delivered at Institut für Angewandte Mathematik, Universität Heidelberg, Heidelberg, West Germany, July 1981.

(2) *Large Deviations and Applications to Statistical Mechanics*. Lecture notes for an invited postgraduate course (Troisième Cycle de la Physique) at Université de Lausanne, Lausanne, Switzerland, June 27–July 15, 1988.

(3) *A Weak Convergence Approach to the Theory of Large Deviations* (with Paul Dupuis). Preprint #93-6, Lefschetz Center for Dynamical Systems, Brown University, 1993. This 285-page manuscript was a preliminary version of our book noted in item (52).

(4) *The Theory of Large Deviations and Applications to Statistical Mechanics*. Lecture notes for the International Seminar on Extreme Events in Complex Dynamics, October 23–27, 2006 (115 pages). Max-Planck-Institut für Physik komplexer Systeme, Dresden, Germany.

(5) Ginzburg-Landau Polynomials and the Asymptotic Behavior of the Magnetization Near Critical and Tricritical Points (with Jonathan Machta and Peter Tak-Hun Otto). 75-page Latex manuscript. This unpublished paper contains details of proofs and calculations omitted from the paper listed in item (75). It is posted at <http://arxiv.org/abs/0803.0178>.

(6) *The Theory of Large Deviations and Applications to Statistical Mechanics*. Lecture notes for three lectures given August 5–8, 2008 at École d'Été de Physique Théorique in Les Houches, France during the August 2008 summer school devoted to long-range, interacting systems (123 pages).

(7) Refined Asymptotics of the Finite-Size Magnetization via a New Conditional Limit Theorem for the Spin (with Jingran Li). 78-page Latex manuscript. This

unpublished paper contains details of proofs omitted from the paper listed in item (79). It is posted at <http://arxiv.org/abs/1205.0970>.

(8) “Detailed Large Deviation Analysis of a Droplet Model Having a Poisson Equilibrium Distribution” (with Shlomo Ta’asan), 83-page Latex manuscript, posted at <http://arxiv.org/abs/1405.5091>. This is a companion paper to the paper listed in item (80). That paper omits a number of routine proofs, which are given with full details in this companion paper. The companion paper also contains additional background information.

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