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Program of the 74th Statistical Mechanics Meeting

Department of Mathematics, Rutgers University
December 17–19, 1995

Here are the titles of the talks presented at the semiannual Statistical Mechanics Meeting held in December 1995. The meeting included a special program in honor of Y. Sinai's 60th birthday. As usual these titles are informal, and, in many cases, there is only one speaker listed, although the work may have been done with collaborators. Also, the addresses are incomplete. Anyone who is interested in communicating with a speaker and requires a more complete address may obtain it by writing to me or contacting me by electronic mail: lebowitz@fermat.rutgers.edu.

The next program, the 75th, is scheduled for Thursday and Friday, May 9 and 10, 1996.

Joel L. Lebowitz

REVIEW TALKS

Magnetophoresis of Tagged Polymers
G. Schutz, Oxford

Granular Dynamics in a Vibrating Bed: Thermodynamics and Hydrodynamics
D. Hong, Lehigh

Self-Consistent Treatment of Repulsive and Attractive forces in Non-uniform Liquids
J. Weeks, Maryland

Exact Results for Phase Segregation in Systems with Long-Range Interactions
G. Giacomin, Zürich

Some Geometrical Aspects in the Late Stage of Phase Separation Process
H. Tomita, Illinois, and Kyoto University

Dynamics of Phase Boundaries in Alloys
G. Caginalp, Pittsburgh

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Monte Carlo Simulation of Spinodal Decomposition and Porous Media
G. Barkema, IAS

Interface Roughening in a Hydrodynamic Model of Phase Separation
D. Rothman, MIT

Growth Dynamics and Scaling Laws for the Phase Separation in a 3D Lattice-Gas Model for Two Immiscible Fluids
C. Appert, École Normale Supérieure, Paris

A Lattice-Gas Model of Microemulsions
B. Boghosian, Boston University

Late Stage Kinetics of Phase Ordering or Spinodally Decomposing Systems with Competing Interactions
R. Desai, Toronto

Failure of the Cahn–Hilliard Description for Phase Separation in the Driven Lattice Gas
R. Zia, Virginia Tech

Two-Time Correlations in Phase Ordering Dynamics
C. Yeung, Penn State, Erie

New Results about the Freezing Phase Transition in Heteropolymers
A. Grosberg, MIT

Scaling a Glass: Evidence for a True Glass Transition
S. Nagel, University of Chicago

Integrable Turbulence
V. Zakharov, Landau Institute/IAS

Anomalous Scaling in Passive-Scalar Turbulence
S. Chen, IBM

Statistical Properties of the Random-Force-Driven Burgers Equation
V. Yakhot, Princeton

Turbulence and Quantum Field Theory
S. Polyakov, Princeton

Clues from Burgers Turbulence
R. Kraichnan, Robert H. Kraichnan, Inc.

Statistical Properties of Burgers Turbulence
Weinan E, Courant Institute

2D Pressureless Gas Dynamics
Y. Sinai, Princeton

Random Frenkel–Kontorova Model
K. Khanin, Princeton

Uniqueness of Gibbs States in the Framework of the Pirogov–Sinai Theory
A. Mazel, Princeton

Renormalization and Homogenization for PDE and Statistical Mechanics
T. Spencer, IAS

The Continuum Limits for Critical Percolation and Related Processes
M. Aizenman, Princeton
Sinai–Bowen–Ruelle Measures and Nonequilibrium Statistical Mechanics
G. Gallavotti, Rome University/Rutgers
Periodic Activity of Coupled Chaotic Neurons
M. Rabinovich, University of California, San Diego
Chaotic Focusing Billiards in 3D
L. Bunimovich, Georgia Institute of Technology
Diffusion in a Periodic Hamiltonian System of Two Degrees of Freedom
J. Mather, Princeton
Statistical Mechanics of Spatial-Temporal Chaos
Y. Pesin, Penn State
Quasiclassical Asymptotics, Universality in Matrix Model, Orthogonal Polynomials, and Riemann–Hilbert Problem
P. Bleher, Indiana
Spacing Distributions for Eigenvalues and Zeros
P. Sarnak, Princeton
Statistical Properties of Sinai–Ruelle–Bowen Measures for Maps with Unbounded Derivatives
M. Jakobson, University of Maryland

SHORT COMMUNICATIONS

Frozen Disorder in a Driven Lattice Gas
B. Schmittmann, Virginia Tech, and K. E. Bassler, Louisiana State University
Correlations in Biased Diffusion of Two Species
G. Korniss, B. Schmittmann, and R. K. P. Zia, Virginia Tech
The Effect of Shifted Boundary Conditions on the Co-existence Curve in a Driven Lattice Gas
Mark J. Anderson and R. K. P. Zia, Virginia Tech
Phase Transitions in a Driven Bilayer Lattice Gas
Colin Hill, B. Schmittmann, and R. K. P. Zia, Virginia Tech
1D Random Walk on Random Background with One Directional Impurity: An Application to Gel Electrophoresis
Zoltan Toroczkai and R. K. P. Zia, Virginia Tech
Critical Phenomena in 2D Deterministic Cellular Automata
Kari Eloranta, Helsinki University
Universality Class of Trails in Two Dimensions
H. W. J. Bloete, Technische Universiteit, Delft, I. Guim, Villanova University, and T. W. Burkhardt, Temple University

Self-Organized Branching Processes: A Mean-Field Theory for Avalanches
Kent B. Lauritsen, S. Zapperi, and H. Eugene Stanley, Boston University
The Traveling Salesman Problem: Finite Size Scaling and Dimensional Dependence
Allon G. Percus and Olivier C. Martin, Université Paris-Sud
Statistical Inference, Occam's Razor and Statistical Mechanics on the Space of Probability Densities
V. Balasubramanian, Princeton University
Supervised Learning from Clustered Input Examples
Sara A. Solla, Niels Bohr Institute, Carmela Marangi, Università de Bari, Michael Biehl and Peter Riegler, Würzburg University
Random Fibre Networks and Paper Structure
Nick Provatas, University of Helsinki
Ergodic Properties of a Pair of Gravitating Spheres
B. N. Miller and V. P. Youngkins, Texas Christian University
Self-Trapping Transition in a One Dimensional Lattice Gas
B. N. Miller and H. Guo, Texas Christian University
Source of Relaxation in a One Dimensional Gravitating System
B. N. Miller, Texas Christian University
The Phase Transition of the Number-Theoretical Spin Chain
Pierluigi Contucci, University of Virginia, and Andreas Knauf, Technische Universität, Berlin
An Intermediate Phase for a Classical Continuum Model
L. Chayes, UCLA, and R. Kotecky, Charles University, Prague
Diffusion of Adatom or Vacancy Single-Layer Clusters: Langevin Analysis Adapted from Straight Steps
T. Einstein, University of Maryland
Peierls Instability of a One-Dimensional Quantum Liquid
Eugene B. Kolomeisky, Cornell, and Joseph P. Straley, University of Kentucky
Phase Transition in a One-Dimensional System of Peierls Dislocations
Joseph P. Straley, University of Kentucky, and Eugene B. Kolomeisky, Cornell
Statistical Mechanics of the Burst Model
H. F. Chau, IAS
Asymptotic Stability of Metastable States for a Conserved Dynamics: From a Microscopic Model to a PDE
Amine Asselah, Rutgers
Phase Segregation with Momentum Conservation
Sorin Bastea, Rutgers
Kinetics of Joint Ordering and Decomposition in Binary Alloys
Vladimir Gorentsveig, Rutgers

Phase Separation and Long-Range Correlations in Lattice Gas Automata
H. J. Bussemaker, University of Maryland, and M. H. Ernst, University of Utrecht

Modelling Martensitic Transformations in Shape Memory Alloys
Turab Lookman and Yanan Wu, University of Western Ontario, Avadh Saxena, Los Alamos, S. Shenoy, ICTP, Trieste, and A. Bishop, Los Alamos

Decay of Autocorrelation for Conserved Phase-Ordering Systems
Yanan Wu and Turab Lookman, University of Western Ontario, David Huse, AT&T Bell Labs, and Francis J. Alexander, Boston University

Radial Symmetry Results for Ginzburg–Landau Vortices
Michael Kiessling, Rutgers

Coarsening Dynamics of the Voter Model
E. Ben-Naim, University of Chicago, L. Frachebourg, Boston University, and P. L. Krapivsky, Courant Institute

On War: The Dynamics of Vicious Civilizations
I. Ispolatov, Boston University, P. L. Krapivsky, Courant Institute, and S. Redner, Boston University

Borderline Aggregation Kinetics in "Wet" and "Dry" Environments
P. L. Krapivsky, Courant Institute, and S. Redner, Boston University

Critical Phenomena and Metastability in Models of Earthquake Faults
C. D. Ferguson and W. Klein, Boston University, and J. B. Rundle, University of Colorado

Topics in Bak–Sneppen Model of Biological Evolution
Sergei Maslov, Brookhaven National Laboratory

Possible Mechanism of Knot Control over RNA Splicing: Biological Applications and Statistical Mechanics of Knot Dynamics
Yuri Magarshak, Biology and Technology International, Inc.

Structures and Their Designability in a Simple Model of Protein Folding
Hao Li, Chao Tang, and Ned Wingreen, NEC Research Institute, Inc., and Robert Helling, University of Hamburg

Can Surface Effects Explain Metastability and Spinodal in Statistical Mechanics?
P. D. Gujrati, University of Akron

Self-Consistent Ornstein–Zernike Theory for Lattice Gases
Ron Dickman, Lehman College, CUNY, and George Stell, SUNY, Stony Brook

Density–Density Correlation Length Universality in Ionic Fluids
Benjamin P. Lee and Michael E. Fisher, University of Maryland

Thermodynamic Limit for Dipolar Fluids and Solids
S. Banerjee, M. Widom, and R. B. Griffiths, Carnegie-Mellon University

Nearest-Neighbor Statistics in a One-Dimensional Random Sequential Adsorption Process
M. Rintoul and S. Torquato, Princeton University, and G. Tarjus, Université Pierre et Marie Curie

Ferrofluid Labyrinths: A Frustrated Hyperbolic Crystal?
Jose Miranda and Michael Widom, Carnegie-Mellon University

Freezing of Extended States in Spin Glasses with Long Range Interactions
Boris Vugmeister, Princeton, D. Nowakowski, Harvard, and D. L. Huber, University of Wisconsin, Madison

Classical and Quantum Transition State Theory for Noble Gas Diffusion in Sodalite
Amy L. R. Bug and Michael J. Murphy, Swarthmore College, and Gregory A. Voth, University of Pennsylvania

The Virial Expansion for Quantum Particles
T. L. Reese, Swarthmore College, B.N. Miller and G. Worrell, Texas Christian University

Delocalization Transition in the Lowest Landau Band
Hiroshi Matsuoka, Illinois State University

An Effective Field Approach to the Gaussian Random Matrix Model
Alex Bulatov, CUNY

Long Range Correlations in Nonequilibrium Quantum Lorentz Gases
M. Yoshimura and T. R. Kirkpatrick, University of Maryland

Scaling Properties of Closed Particle Trajectories
M. S. Cao and E. G. D. Cohen, Rockefeller University

One-Dimension Scattering Problems and Dynamics of Hamiltonian Systems
C. G. Ragazzo, Princeton University

Thermodynamic Formalism for Chaos Properties in Lorentz Lattice Gases. Dominant Role of Large Clusters
C. Appert and H. van Beijeren, University of Utrecht, J. R. Dorfman, University of Maryland, and M. H. Ernst, University of Utrecht

Lyapunov Exponents for 2- and 3-Dimensional Random Lorentz Gases
A. Latz, University of Maryland, H. van Beijeren, University of Utrecht, and J. R. Dorfman, University of Maryland

Lyapunov Spectra of an Atomic Liquid: Numerical Results and Product of Random Matrices Calculation Using Instantaneous Normal Modes
Srikanth Sastry, National Institutes of Health, Bethesda

Statistical Mechanics of Aperiodic Tilings
Steven A. Janowsky and Hans Koch, University of Texas at Austin

Exact Results for the Fully Packed Loop Model
Jane Kondev, Brown University, Jan DeGier and Bernard Nienhuis, University of Amsterdam

Modular Invariance of Finite Size Corrections and a Vortex Critical Phase
Charles Nash, St. Patrick's College, Ireland, and Denjoe O'Connor, Dublin Institute for Advanced Studies

Alternating Sign Matrices and Perimeter Bethe Ansatz
Vladimir Korepin, SUNY at Stony Brook

Lindstedt Series, Ultraviolet Divergences and Moser's Theorem
F. Bonetto and G. Gallavotti, Università di Roma, G. Gentile, IHES, and V. Mastropietro, Università di Roma 2

Phase Transitions near Incommensurability in the 2D Frustrated XY Model
C. Denniston, Princeton, and C. Tang, NEC Research Institute

Decay to Equilibrium in Random Spin Systems on a Lattice
Alice Guionnet, Courant Institute and CNRS, and B. Zegarlinski, Imperial College

Evidence for Complex Subleading Exponents from the High-Temperature Expansion of the Hierarchical Ising Model
Y. Meurice, G. Ordaz, and V. G. J. Rodgers, University of Iowa

Invaded Cluster Algorithm
J. Machta, Y. S. Choi, A. Lucke, and T. Schweizer, University of Massachusetts, and L. Chayes, UCLA

Percolation and Other Related Models in Low-Dimensional Inhomogeneity
Charles Newman, Courant Institute, and Chris Wu, Penn State

Construction and Scale Invariance of the Incipient Infinite Cluster
C. Borgs, Universität Leipzig, J. T. Chayes, UCLA, H. Kesten, Cornell, and J. Spencer, Courant Institute

Disorder, River Patterns and Universality
Amos Maritan, Trieste, Marek Cieplak, Polish Academy of Sciences, and Jayanth R. Banavar, Penn State

A New Method for Gel Electrophoresis The Old Ball and Chain
Daniel P. Aalberts, University of Leiden, Netherlands

Phase Separation of Liquid Crystal Polymers
Weinan E, Courant Institute, P. Palffy-Mohuray, Kent State University, and A. Liu, UCLA

The Stability of Interfaces
Dirk Jan Bukman and B. Widom, Cornell

New Type of Traveling Waves in Reaction-Diffusion Systems: Traveling Spike Autosoliton
V. V. Osipov, Russian Science Center "Orion", Moscow, and C. B. Muratov, Boston University

Continuum Limit, Galilean Invariance, and Solitons in the Quantum Equivalent of the Noisy Burgers Equation
Hans C. Fogedby, University of Aarhus, Denmark, Anders B. Eriksson and Lev V. Mikheev, Nordita

The Kardar–Parisi–Zhang Equation Above Two Dimensions
Michael Laessig, Max-Planck-Institut
Statistical Mechanics of Nonconservative Systems and New Inertial Range Turbulent Spectra
Liang Lu, Los Alamos
Convection, Stability and Turbulence
C. R. Doering, Los Alamos, and P. Constantin, Chicago
Anomalous Scaling in Passive Scalar Turbulence
Boris I. Shraiman, AT&T Bell Labs, and Eric D. Siggia, Cornell