Journal of Statistical Physics, Vol. 51, Nos. 3/4, 1988

Program of the 58th Statistical Mechanics Meeting

Department of Mathematics, Rutgers University, December 17 and 18, 1987

Dear Reader:

Here are the titles presented at the last semiannual Statistical Mechanics Meeting. 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.

The next meeting is scheduled for May 12 and 13, 1988. In addition to the talks, the program for these meetings has a "positions wanted" and "positions available" section. If you are interested in receiving the full program of these meetings, please send me a self-addressed envelope.

Joel L. Lebowitz

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Rutgers University
New Brunswick, New Jersey 08903

Short Talks

Estimation of the Information and the Free Energy Contents of Conformons, Quanta of Enzymic Action

Sungchul Ji, Rutgers University

Temperature Inversion Exhibited by Hard Sphere Fluid in a Collapsing Spherical Cavity

A. MacPherson, Lehigh University

Synergetics, Paradigm and Dichotomy...

Edward Siegel, 183 14th Avenue, San Francisco

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Remarks on Dobrushin–Shlosman Uniqueness of Phase Theorem Applied to Hard Squares and Computation of Vasserstein Distances
Joel L. Lebowitz, Dan C. Radulescu, Rutgers University, and Dan C. Styer, Oberlin College

String Theory of Charged Microemulsions
A. Kholodenko, Clemson University

Strings in the Scaling Limit of the 3D Ising Model
Peter Orland, Boston University

Peculiar Correlation Functions and Bare Transport Coefficients
Rod Varley and Guido Sandri, Boston University

Global Existence for a Model Boltzmann Equation
V. Protopopescu, Oak Ridge National Laboratory

Correlation Functions in the Nonequilibrium Stationary State of a Lattice Gas with Currents
J. L. Valles, M. Q. Zhang, Courant Institute, and J. L. Lebowitz, Rutgers University

Ising Critical Behavior in a Weak Magnetic Field
Miron Kaufman, Cleveland State University

Universal Amplitudes of the Potts Model on a Torus
Hyunggyu Park and Marcel den Nijs, University of Washington

Finite-Size Scaling Analysis of $S = 1$ Ising Model on the Triangular Lattice
Joseph B. Collins, Temple University, Per Arne Rikvold, and E. T. Gawlinski

Poisoning and Enhancement Effects in a Lattice-Gas Model of Two-Component Adsorption
P. A. Rikvold, Florida State University, J. B. Collins, J. D. Gunton, Temple University, and G. D. Hansen, ChemLink, Inc.

Results from Computing Partition Functions
G. Bhanot, Institute for Advanced Study, Princeton, R. Salvador, and R. Torol, Temple University

Phase Transitions on Hierarchical and Fractal Lattices
Bambi Hu, University of Houston

MD Simulations of Adsorption onto Glass Surfaces
S. H. Garofalini, Rutgers University

Adsorption of a Polymer Chain in Two Dimensions
Ihnsouk Guin and Theodore W. Burkhardt, Temple University

New Exactly Solvable Model for the Polymer Adsorption–Desorption Transition in 2D and 3D
V. Privman, G. Forgacs, Clarkson University, and H. L. Frisch, SUNY at Albany

Universal Properties of Linear and Ring Polymers
Marvin Bishop, Manhattan College, and Craig Saltiel Columbia University

Are Solids Really Crystalline?
J. Miekisz and C. Radin, University of Texas, Austin

The Origin of Long-Range Order in Low-Temperature Matter
Jacek Miekisz, University of Texas at Austin

Exact Solution of the One-Component Plasma in Two Dimensions for a Doubly Periodic Background
F. Cornu, B. Jancovici, and Lesser Blum, University of Puerto Rico

Wetting on the [1, 1] Surface
D. B. Abraham, Oxford University, L. F. Ko, and N. M. Svrakic, Clarkson University

Transmutation of the Vicinial Surface Exponent
Y. Avron, Caltech, and R. Zia, Virginia Tech

Preroughening Transitions in Crystal Surfaces
Koos Rommelse and Marcel den Nijs, University of Washington

Hydrodynamical Boundary Conditions on Solidification Front
Jacob G. Appelbaum, INSPI, California State University, Long Beach

Low-Dimensional Behavior in the Complex Ginzburg–Landau Equation
C. R. Doering, Clarkson University, J. D. Gibbon, Imperial College, D. D. Holm, and B. Nicolaenko, Los Alamos

Towards Degree of Freedom Reduction in Navier–Stokes Turbulence
Richard Pelz, Rutgers University

Renormalization-Group Studies of the Burgers' Equation with Correlated Noise
E. Medina, T. Hwa, and M. Kardar, MIT

Diffusion in a Singular Random Environment
D. Wick, University of Colorado

A Hydrodynamic Limit of the Contact Process with Large Range
Glen Swindle, Cornell University

Directed-Site Percolation Clusters: The Scaling Function in Dimensions Two to Six
Maria C. T. P. Carvalho, Clarkson University, and J. A. M. S. Duarte, Oporto University, Portugal

Semiclassical Mechanics for Nonintegrable Systems
Mario Feingold, James Franck Institute, University of Chicago

A New Diffusion Mechanism in Dynamical Systems
M. Feingold, L. P. Kadanoff, and O. Piro, James Franck Institute, University of Chicago

Chaos in Multicomponent Systems Due to a Total Energy (Mass) Constraint
J. French, University of Maine, S. R. McKay, and P. Kleban

Dynamical Critical Exponent of the $d=2$ Ising Model
Alan Ferrenberg and Robert Swendsen, Carnegie-Mellon University

Dynamical Spin System: Exact Solution and Mean Recurrence Time
H. Falk, CCNY/CUNY
The Origin of the Ultrametric Topology of Spin Glasses
Bernard Grossman, Rockefeller University
Structurally Dynamic Cellular Automata
Andrew Illachinski and Max Dresden, SUNY at Stony Brook
The N-R Model—A Generalized Spin-Glass
Ed Weinberger and Stuart Kauffman, University of Pennsylvania
Learning and Generalization in Layered Neural Networks
Sara A. Solla, AT&T Bell Laboratories
On the Storage Capacity of Neural Nets
H. J. Sussmann, Rutgers University
New Solution of the Star–Triangle Relations for the Chiral Potts Model
R. J. Baxter, Australian National University, J. H. H. Perk, and H. Au-Yang, SUNY at Stony Brook
Fluctuations of Fixed-Connectivity Solid Membranes
Joseph A. Aronovitz and Tom Lubensky, University of Pennsylvania
Transport Properties of Polydisperse Fluids
J. Xu and G. Stell, SUNY at Stony Brook
Analytic Treatment of Percolation in Simple Fluids
J. Xu and G. Stell, SUNY at Stony Brook
Interfacial Properties of Driven Diffusive Systems
Kwan-tai Leung, University of Georgia

Mini-Review

Proof of Phase Transition in the Random Field 3D Ising Model
Jean Bricmont, Princeton University
Mean Field Theories of Spin Glasses
Jennifer T. Chayes, UCLA
Wetting on Disordered Substrata: Exact Results
Gabor Forgacs, Clarkson University
New Monte Carlo Methods for Quantum Field Theory and Critical Phenomena, or How to Beat Critical Slowing-Down
Alan Sokal, New York University
Macroscopic Quantum Tunneling in Magnetic Systems
Eugene M. Chudnovsky, Tufts University
Stochastic Effects in Convecting Pattern Selection
P. C. Hohenberg, AT&T Bell Laboratories
Stability of Nonstationary States of Many-Body Dynamical Systems
Geoffrey Grinstein, IBM

Self-Organized Criticality and $1/f$ Noise
Per Bak, Brookhaven National Laboratory

Micro-Reviews

Molecular Dynamics of Moving Contact Lines
J. Koplik, J. Banavar, and J. Willemsen, Schlumberger-Doll Research
Dynamic Transitions in Fluid Flow Patterns in Porous Media
M. Cieplak and M. O. Robbins, Johns Hopkins University

Reviews

Experiments on Interfacial Pattern Formation: Macro/Micro Connections
Jerry Gollub, Haverford College and University of Pennsylvania
Derivation of Hydrodynamical Type Equations: Micro/Macro Connections
Errico Presutti, University of Rome

Roundtable on Statistical Mechanics of Random Systems

Jean Bricmont, Lincoln Chayes, Daniel Fisher, David Huse, T. R. Kirkpatrick, Andrew Ogielski, and Thomas Spencer; M. E. Fisher, Chair

Short Talks

Rational Approximants and the Billiard Problem
Philip R. Baldwin, University of Houston
Ergodicity For Glauber–Stirring Dynamics
Pablo A. Ferrari, University of Sao Paulo and Rutgers University
Phase Transitions and Universality in Nonequilibrium Steady States of Stochastic Ising Models
Jian-Sheng Wang and J. L. Lebowitz, Rutgers University
Nonequilibrium Critical Points in Surface Reaction Models
Ronald Dickman, Herbert H. Lehman College, CUNY
New Rigorous Results for Potts Models
Roberto Schonmann, Cornell University
Potts Spin-Glass on the Bethe Lattice
Yadin Y. Goldschmidt, University of Pittsburgh
Transmission of Order in Dilute Spin-Glass
Joan Adler, A. van Enter, and A. B. Harris, Technion, Tel Aviv, and University of Pennsylvania

Exact Scale Invariance of Nishimori's Randomness and Multicriticality in Spin-Glasses
Pierre De Doussal and A. Gearges, ENS Paris
Random Surface Fields at the Ordinary Transitions
K. K. Mon, University of Georgia, and M. P. Nightingale, University of Rhode Island
Competition in the Planar Rotator Model
Robert Caflisch, University of Rhode Island
Highly Diluted Asymmetric Systems
I. Kanter, Princeton University, H. Sompolinsiky, Hebrew University, and E. Barkai, Bar Ilan University
Decorated Lattice Gas Model for Supercritical Solubility
Glen C. Nielson, National Bureau of Standards, and J. M. H. Sengers
Optimized Direct Correlations and Orderings in the Hard Ellipsoid Fluid
John F. Marko, Massachusetts Institute of Technology
Compact Lattice Animals: Exact Solutions in Terms of q-Series
V. Privman and N. M. Svrakic, Clarkson University
Ground State Exact Solutions of a Frustrated Ising Model with 1-, 2-, and 3-Body Interactions
M. D. Lipkin, Cornell University
Efficient Parallel Simulations of Dynamic Ising Spin Systems
Boris D. Lubachevsky, AT&T Bell Labs
Energetics of Discrete Interface
G. Ord, J. K. Percus, and Michael Q. Zhang, Courant Institute, NYU
Interface Roughening in Systems with Quenched Random Impurities
Thomas Nattermann and Wolfgang Renz, KFA Julich, IFF
Reentrant Behavior of an Anti-Metamagnet in a Magnetic Field
Kenneth Hui, Massachusetts Institute of Technology
Frustrated Liquid Crystal Mixtures and Reentrant Phase Diagrams
J. F. Marko, J. O. Indekeu, and A. Nihat Berker, Massachusetts Institute of Technology
Rotated to Nonrotated Transition in Incommensurate Layers Close to a Commensurate State
W. Wang and M. Kardar, Massachusetts Institute of Technology
Infinitely Many Changes in the Character of Discommensurations
Kazuo Sasaki, Luis M. Floria, and Robert B. Griffiths, Carnegie-Mellon University
Random Tilings with Quasicrystal Order
Christopher L. Henley, Boston University
Finite-Size Effects in Surface Tension
Martin P. Gelfand and Michael E. Fisher, IPST, University of Maryland

Nucleation and Finite-Size Effects
L. Monette, William Klein, Boston University, and M. Zuckermann, McGill University

Molecular Dynamics Evidence for the Influence of the Spinodal on Crystalline Nucleation
Ju-xing Yang, Harvey Gould, Clark University, and William Klein, Boston University

Dynamical Scaling in the 3D Langevin Model
R. Toral, A. Chakrabarti, and J. Gunton, Temple University

Cell Dynamics Approach to Late-Stage Domain Growth
Amitabha Chakrabarti and J. D. Gunton, Temple University

Surface Energy Minimization and Orientation in Heterogeneous Nucleation
John W. Cahn and Jean E. Taylor, Rutgers University

Evolution of Surface Patterns on Swelling Gels
Terry Hwa and M. Kardar, Massachusetts Institute of Technology

Surface Phase Diagrams of Chalcogens on Ni(III)
Susan R. McKay, S. Thevuthasan, and W. Unertl, University of Maine

Breakdown of Hyperscaling in Long-Range Bond Percolation
Tane Ray and William Klein, Boston University

Scaling Theory for Oriented Percolation
Richard Durrett and Nelson Tanaka, Cornell University

Diffusion Limited near the Percolation Threshold
Paul Meakin, E. I. du Pont de Nemours and Company, Michael Murat, Exxon Research and Development Company, Amnon Aharony, Tel Aviv University, Jens Feder, and Torstein Jossang, University of Oslo

Resistance Jumps in Mercury Injection in Porous Media
Jean-Noel Roux and David Wilkinson, Schlumberger-Doll Research

Further Investigation of Scaling in an Interfacial Growth Instability
D. Jasnow, University of Pittsburgh, and Hong Guo, Temple University

The Rigid to Crumpled Transition in Elastic Networks
Maya Paczuski and Mehran Kardar, Massachusetts Institute of Technology

ε-Expansions for Crumpled Manifolds
M. Kardar, Massachusetts Institute of Technology, and D. R. Nelson, Harvard University

Statistical Mechanics of Two-Dimensional Vesicles
S. Leibler, R.-R. P. Singh, and Michael E. Fisher, University of Maryland

The Physics in Extreme Fluctuations
Phillip M. Duxbury, Michigan State University
Quantum Mechanical Approach for Optimization Problems
Paul Rujan, Kernforschungsanlage Jülich
The Valance Bond Basis for Singlet States on the Two-Dimensional Square Lattice
Jean Carlson and Glen Swindle, Cornell University
Dissipative Quantum Tunneling
H. Chang and P. S. Riseborough, Polytechnic University
Quantum Simulation of the Molecular Crystal Model in Two Dimensions
J. E. Gubernatis, Los Alamos National Laboratory
Debye–Fermi Screening: Relation with Friedel Sum Rule and Mott Transition
Om P. Sinha, Clark College
Ab Initio Statistical Mechanics of Gete
K. Rabe, AT&T Bell Labs, and J. D. Joannopoulos, Massachusetts Institute of Technology
Density Functional Theory for Hidden High-T_c Superconductivity
Akitomo Tachibana, University of North Carolina
Superconductivity of Itinerant Electrons Coupled to Spin Chains
Subir Sachdev and R. Shankar, Yale University
Peirels Instability in 2D Half-Filled Hubbard Model
Sanyee Tang and J. E. Hirsch, University of California, San Diego
Magnetism and High-T_c Superconductivity
Amnon Aharony (BU, MIT, TLV), R. J. Birgeneau (MIT), A. Coniglio (BU), M. Kastner (MIT), and H. E. Stanley (BU)
Effect of Quantum Fluctuations on the $T=0$ Helix–Ferromagnet Transition
A. B. Harris, University of Pennsylvania, and E. Rastelli, Parma
Recent Results on Dilute Central Force Networks
Jian Wang and A. B. Harris, University of Pennsylvania
The New Generalization of the Ornstein–Zernike Equation for Three- and Four-Particle Correlation Functions
J. Blawzdziewicz, SUNY at Stony Brook, B. Cichocki, Warsaw University, and R. Holyst, JChF PAN, Warsaw
Aperiodic Tilings with Nonsymmorphic Space Groups $p2^jgm$
David Rabson, Tin-Lun Ho, and David Mermin, Cornell University
Zero-Temperature States of a Spin-1/2 Two-Dimensional Antiferromagnet
J. T. Chayes, L. Chayes, UCLA, and S. Kivelson, Stony Brook

Mini-Review

Isotropic Quantum Antiferromagnets with Massive Ground States
Tom Kennedy, Princeton University

Reviews

Computational Approach to High-Temperature Superconductivity
Jorge Hirsch, University of California, San Diego
The Theory of High-Temperature Superconductivity
Philip Anderson, Princeton University

Workshop on Quantum Monte Carlo, Courant Institute, December 19, 1987

Computing Excited State Properties with QMC
D. Ceperley, University of Illinois
$T \neq 0$ Quantum Simulations of Fermions by the Hybrid/MC Method
J. Gubernatis, Los Alamos National Laboratory
Rutgers Activities
J. Lebowitz
Optimization via QMC
P. Rujan
New York University Activities
M. Kalos
Columbia Activities
D. Coker