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Program of the 50th Statistical Mechanics Meeting

Department of Mathematics
Rutgers University
December 14, 15, and 16, 1983

The last semiannual Statistical Mechanics Meeting was held on December 14th, 15th, and 16th. The next meeting is tentatively scheduled for May 10th and 11th, 1984.

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 who requires a more complete address may obtain it by writing to:

Dr. Joel L. Lebowitz
Department of Mathematics, Hill Center
Rutgers University
New Brunswick, New Jersey 08903

Numerical Analysis of Correlation Inequalities
G. Sylvester, Oklahoma State University

Scaling Theory of Anomalous Relaxation
D. L. Stein, R. G. Palmer, P. W. Anderson, Princeton University, and Elihu Abrahams, Rutgers University

Roughening in Percolation Models
Massimo Campanino, Princeton University, and Jennifer Chayes and Lincoln Chayes, Harvard University

A Novel Phase Diagram for Polymers
P. D. Gujrati, University of Akron

Polymer Gelation and Vulcanization in the Melt
F. Family, Emory University, *Chris Unger*, Boston University, and Harvey Gould, Clark University

Scaling in Multi-Chain Polymer Systems in Two and Three Dimensions
Marvin Bishop, Manhattan College, Malvin Kalos, Courant Institute, Alan Sokal, Courant Institute, and Harry Frisch, SUNY at Albany

Polymer Induced Flocculation in Colloidal Suspensions
A. P. Gast, *C. K. Hall*, and W. B. Russel, Princeton University

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Density Correlations and Corrections to Scaling for Fluids with Long-Range Forces

R. F. Kayser and H. J. Raveché, National Bureau of Standards

Solvation of the Methyl Radical

R. M. Stratt and *S. G. Desjardins*, Brown University

Quantum Tunneling in Dissipative Systems at Finite Temperatures

Peter Hänggi, H. Grabert, and U. Weiss, Polytechnic Institute of New York, Brooklyn

A Generalized Faxen's Theorem for Two Dimensional Brownian Motion

Rodney L. Varley and Ru-Ling Zhou, Hunter College

A Renormalization Group Approach to Crack Propagation and Onset of Failure

Sara A. Solla, R. F. Smalley, Jr., and D. L. Turcotte, Cornell University

A Derivation of the Williams–Watts Function via a Defect Diffusion Model

Michael F. Shlesinger, Office of Naval Research, and Elliott W. Montroll, University of Maryland

A Systematic Closure to BBGKY Hierarchy—The Generalized Langevin Equation Approach

Wokyung Sung, SUNY at Stony Brook

Universal Behavior of Sinai Billiard Systems in the Small Scatterer Limit

B. Friedman, *Y. Oono*, and I. Kubo, University of Illinois at Urbana-Champaign

Homotopy Parameter Expansion Method for Critical Phenomena

Y. Oono, University of Illinois at Urbana-Champaign

Kinetic Description of a Chaotic Motion in a Conservative Nonlinear System with Two Degrees of Freedom—An Elastic Pendulum

Tomio Petrosky, University of Texas at Austin

Finite-Size Scaling Study of a Lattice-Gas Model for Oxygen Chemisorbed on Tungsten

P. A. Rikvold, SUNY at Stony Brook, K. Kaski, SUNY at Stony Brook, J. D. Gunton, Temple University, and M. C. Yalabik, SUNY at Stony Brook

Incomplete Wetting by Adsorbed Solid Films

David A. Huse, Bell Laboratories

Chiral and Cubic Crossover Exponents of the Potts Model

Marcel den Nijs, University of Washington

Diffusion on Percolation Clusters

R. B. Pandey, University of Cambridge, D. Stauffer, Boston University, *A. Margolina* and J. G. Tabolitsky, Princeton University

Corrections to Cluster–Radius Scaling for Branched Polymers and Percolation
A. Margolina, Princeton University, F. Family, Emory University, and V. Privman, Cornell University

Percolation on Elastic Networks: New Exponents and Thresholds
Shechao Feng and Pabitra N. Sen, Schlumberger–Doll Research

Localization with Long-Range Correlated Disorder Near Two Dimensions
Sajeev John, Harvard University, and Michael Stephen, Rutgers University

Resistive Transition of Josephson Junction Arrays
Thomas C. Halsey, Harvard University

Topological Invariant and Quantization of Hall Conductance
Mahito Kohmoto, University of Illinois at Urbana-Champaign

Circle Map Family With Exact "Renormalization Group"
Christopher L. Henley, Bell Laboratories

Transition Behavior in a Closed Cayley Tree as a Model Neural Network
Peter F. Barth and *John E. Krizan*, University of Vermont

A Cellular Automation Model for Solidification
Norman H. Packard, Institute for Advanced Study

Adsorption and Bulk Viscosity of Suspensions
Carlos H. Borzi, Cornell University

Surface Tension and Parabolic Differential Equations
G. Caginalp, Carnegie-Mellon University

The Massive Thirring Model as Continuum Limit of the Heisenberg Model
D. Wolf, Carnegie-Mellon University

Deconfinement Transition and $Z(N)$ Clock Model
Hiroshi Matsuoka, University of Illinois at Urbana-Champaign

Interpretation of Quantum Mechanics
R. Griffiths, Carnegie-Mellon University

Yang–Lee Theory of the Potts Model
Laurence Mittag, Boston University, and *Michael J. Stephen*, Rutgers University

Surface Critical Behavior of the Smoothly-Inhomogeneous Ising Model
Theodore W. Burkhardt and *Ihnsouk Guim*, Temple University

Conformal Invariance and Two-Dimensional Statistical Mechanics
Daniel Friedan, Zongan Qui, and *Stephen H. Shenker*, University of Chicago

Scaling Approach for the Kinetics of Recombination Processes
K. Kang and S. Redner, Boston University

The Finite Clusters of Invasion Percolation
J. F. Willemsen, Schlumberger–Doll Research

On the Diffusion Constant for a Random Chain with Correlated Hopping Rates.

J. O. Vigfusson, City College of the CUNY, New York

Diffusion on Percolation Clusters: The Alexander–Orbach Conjecture

F. Leyvraz, University of Michigan, and H. E. Stanley, Boston University

Equilibrium Thermodynamics and Dissipationless Transport in the Quantized Hall Effect

O. Heinonen and P. L. Taylor, Case Western Reserve University

Long Time Tail Via RNG: Exact Eigenvalues

Pieter Visscher, University of Alabama

Limit Theorem for $\mathbb{Z}(p)$ Model's Pressure

N. Caticha, California Institute of Technology

Diffeomorphism Groups, Semidirect Products, and Quantum Theory

Gerald A. Goldin, Northern Illinois University

Response Theory for Open Quantum Systems

Ch. Obcemea, University of Florida

An Invariance Principle for a Class of Strong Mixing Sequences

Magda Peligrad, Worcester Polytechnic Institute, and Errico Presutti, University of Rome

Moment Bounds for Sums of Random Variables in Terms of Maximal Coefficient of Correlation

Magda Peligrad, Worcester Polytechnic Institute

An Integrable One-Dimensional Fermi System with Magnetic Impurities: Magnetization Curve at $T = 0$

T. B. Bahder, Rutgers University, E. H. Rezayi, California State University, and J. Sak, Rutgers University

Perturbation Theory

Philip B. Burt, Clemson University

Chaos and Singularities in the Complex Time Plane

Tassos C. Bountis, Clarkson College

Proof of the Existence of the Cluster Free Energy

Ronald Dickman and William C. Schieve, University of Texas at Austin

On the Validity of Classical Density Functional Theory

J. T. Chayes and L. Chayes, Harvard University

Stochastic Behavior of a System of Lattice Tubes

D. B. Abraham, Oxford University, J. T. Chayes and *L. Chayes*, Harvard University

Bond Angular Order in Lennard–Jones and Hard Disc Systems

Katherine J. Strandburg, J. A. Zollweg, and G. V. Chester, Cornell University

Average Properties of Weighted Random Walks and Reflecting Boundary Conditions

R. J. Rubin, National Bureau of Standards

Exact Solution of 1D Quantum XY Model in a Random Field

H. Nishimori, Rutgers University

Equilibrium Fluctuations in Space–Time for Some Lattice Models with Stochastic Dynamics

A. De Masi, University of L'Aquila, E. Presutti, University of Rome, H. Spohn, University of Munich, and *W. Wick*, Princeton University

Generating Function and Direct Renormalization Group for Growth Processes

Fereydoon Family and Hisao Nakanishi, Emory University

Phase Transitions in a Lattice Gas Model for Coadsorption

Dale A. Huckaby and Jacek M. Kowalski, Texas Christian University

A Vertex Model for Hydrogen Bounded Solvents

Dale A. Huckaby and Jacek M. Kowalski, Texas Christian University

Stability of a Falling Body Confined by Olique Walls: Isomorphism with an N Particle Self Gravitating System in One Dimension

Bruce N. Miller, A. Matullich, and C. Reidl, Texas Christian University

Electrostatic Aggregation: Analytic Results

Boris Shraiman, University of Chicago

1/Degeneracy Expansions for the Hubbard Model

J. H. Samson, Cornell University

Some Exact Results for the Fractional Quantum Hall Effect

S. A. Trugman and S. Kivelson, Cornell University

Spin Glass with Long-Range Random Exchange Interaction

Mau-Chung Chang and Joseph Sak, Rutgers University

Fractal Dimension and Correction to Scaling Exponent for Linear Polymers

Z. Djordjevic and I. Majid, Boston University

Rounding Ellipsoids or the Sphericalization of Non-Spherical Potentials

Jerome K. Percus, Courant Institute

Statistical Mechanics of Cheerios and Related Systems

David Chandler, University of Pennsylvania

Some Models of Not-So-Simple Fluids and their Properties—A Progress Report

George Stell, SUNY at Stony Brook

Exactly Solved Models

F. Y. Wu, Northeastern University

The Ionization of Atoms and Molecules: A Review

Elliott H. Lieb, Princeton University

Statistical Mechanics in Gauge Theory
Arthur M. Jaffe, Harvard University
Physics and Chaos in Dynamical Systems
Leo Kadanoff, University of Chicago
The Future of Computing in Statistical Physics: A Clouded Crystal Ball
Malvin H. Kalos, Courant Institute
Fundamental Physical Limitations of the Computational Process
Rolf Landauer, IBM T. J. Watson Research Center
Dynamics of Computing Structures
B. A. Huberman, Xerox Corporation, P.A.R.C.
Cellular Automata
Stephen Wolfram, Princeton University
On Cellular Automata
Gérard Vichniac, Massachusetts Institute of Technology
In Memoriam: Elliott W. Montroll—May 4, 1916–December 3, 1983 by Michael F. Shlesinger
In Memoriam: Shang-keng Ma—September 24, 1940–November 24, 1983 by Fred Y. Wu
Boolean Delay Equations, A Metaphor for Evolution
M. Ghil and A. Mullhaupt, Courant Institute
Physical and Computational Complexity
Charles Bennett, International Business Machines
Models for Phase Transitions in Biomembranes and Polyethylene
John F. Nagle, Carnegie-Mellon University
Thermodynamics of Cell Adhesion
George I. Bell and Micah Dembo, Los Alamos National Laboratory and *Colin J. Thompson*, University of Melbourne; Chair
Populations and Ensembles in the Nervous System
Leif H. Finkel and Gerald M. Edelman, Rockefeller University
Photon Noise in Vision and Nuclear Medicine
Charles S. Peskin, Daniel Tranchina, and Diana M. Hull, Courant Institute
Brain Theory and Experiment: Case Studies from the Visual–Motor System
Klaus Hepp, E.T.H., Zurich
Model for Evolution de Novo
Philip W. Anderson, D. Rokshar, and D. Stein, Princeton University
Rigorous Results on Localization
Thomas C. Spencer, Courant Institute
Commensurate–Incommensurate Phase Transitions
Per Bak, Brookhaven National Laboratories

Continuous Spin Ising Model
George A. Baker, Jr., Los Alamos National Laboratory
Molecular Packings and the Dynamics of Their Interconversions
Frank H. Stillinger, Bell Laboratories
Some Recent Results on Percolation
C. M. Newman, University of Arizona
Fractal Concepts in Polymers and Colloids
H. Eugene Stanley, Boston University
A New Fractal Model of Percolation Clusters
Benoit Mandelbrot, IBM T. J. Watson Research Center
$1/f$ Noise
Mark Nelkin, Courant Institute
Scaling Functions and Chaos
Mitchell Feigenbaum, Cornell University
Series Methods in Turbulence
Bernhard G. Nickel, University of Guelph
Reflections on the Ising-Model Interface
Benjamin Widom, Cornell University
Surface Phase Transitions
Robert B. Griffiths, Carnegie-Mellon University
The Validity of Hyperscaling in Critical Phenomena
Michael E. Fisher, Cornell University
Screening and the Electric Double Layer
L. Blum, M. L. Rosinberg, University of Puerto Rico, and J. L. Lebowitz, Rutgers University
The Coherent Potential Approximation is Realizable as a Rigorous Limit
G. W. Milton, Cornell University
Metal Insulator Transition for Schrödinger Quasi Periodic Operators
J. Bellissard, R. Lima, and E. Scoppola, Princeton University
Dynamical Models of Pattern Formation
R. Brower, D. Kessler, J. Koplik, and *H. Levine*, Schlumberger–Doll Research
Boundary Layer Model for Dendritic Solidification
E. Ben-Jacob, *Nigel Goldenfeld*, J. S. Langer, and G. Schön, University of California
Fluctuations About Smooth Equilibrium Crystal Shapes
Royce K. P. Zia, Virginia Polytechnic Institute of Technology and State University
Statistical Mechanics Methods in Strong Interactions
Edward Witten, Princeton University