

Program of the 68th Statistical Mechanics Meeting

Department of Mathematics
December 16–18, 1992

Dear Reader

Here are the titles of the talks presented at the last semiannual statistical Mechanics Meeting. This meeting had an extra day with a session on Membranes and Interfaces. That part was organized by myself and Michael Fisher from the University of Maryland. 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. My e-mail address is: lebowitz@math.rutgers.edu.

The program for these meetings also has a “positions wanted” and “positions available” section. If you are interested in receiving the full program of these meetings, you may write to me at the address below; please send me a self-addressed envelope.

The next program, the 69th, is scheduled for 6 and 7 May 1993.

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Mini-Reviews

Stability of the Ginzburg–Landau Equations under Perturbations

C. Eugene Wayne, Penn State/IAS

Dissipation Rate Estimates for Incompressible Turbulence

Charles R. Doering, Clarkson

Taming Griffiths' Singularities

Abel Klein, UC Irvine

Long Range Correlations in DNA

H. Eugene Stanley, Boston

Shapes of Equilibrium and Nucleating Crystals

Roman Kotecky, Charles U.

Anomalous Dimension and Beta Function in 2-Dimensional Fermi Gases

Giovanni Gallavotti, Rome/Rutgers

The 3D Ising Model as a String Theory

Jacques Distler, Princeton

Review Talks

Thermal Turbulence, An Overview

Albert Libchaber, Princeton/NEC

Phase Decomposition and Interface Dynamics Following Quenching into the Spinodal Region

Errico Presutti, Rome

Session on Number Theory and Statistical Mechanics

Quantum Mechanics and the Riemannian Zeros

Michael Berry, Bristol

Distribution of Energy Levels in Simple Quantum Systems

Pavel Bleher, Tel Aviv/IAS

Arithmetic Quantum Chaos

Peter Sarnak, Princeton

Coulomb Gases and Coulomb Fluids

Freeman Dyson, IAS

Level Spacing Distribution for Random Matrices

Harold Widom, UC, Santa Cruz

Surfaces and Random Matrices

Steve Shenker, Rutgers

Informal Session

Membranes and Interfaces

Mehran Kardar, MIT; Michael Wortis, Simon Fraser U.; David Nelson, Harvard; Martin Zuckermann, McGill; Michael Fisher, Maryland, Chair

Mini-Reviews: Michael Widom, Chair

Relaxation of Open Quantum Systems

James Skinner, Wisconsin

Nonequilibrium Fluctuations in Dissipative Liquid Systems

Jan Sengers, Maryland

Critical Behavior of Ionic Fluids

Anneke Levelt Sengers, NIST, Maryland

The Impact of Widom's Potential-Distribution Theory on Molecular Simulation-Based Calculations of Free Energies and Phase Equilibria

Thanasis Panagiotopoulos, Cornell

Surface Shape Fluctuations and Geometry of Amphiphile Aggregates

A. Robledo, Mexico/Leuven

Statistical Thermodynamic Theory of Grafted Polymer Molecules

Igal Szleifer, Purdue

Physical Problems in the Structure and Function of Chromosomes

Jonathan Widom, Cornell

Review Talks

Microcanonical Thermodynamic Functionals for Criticality in Layered Planar Ising Models

Michael Fisher, Maryland

Upsilon Points in Commensurate-Incommensurate Phase Transitions

Robert Griffiths, Carnegie-Mellon

Interface Motion and Singularity Formation

Leo Kadanoff, Chicago

Boltzmann's Program and Some of Its Implementations

George Stell, SUNY

Short Communications

Spinodal Decomposition in Binary Fluids by Lattice Boltzmann Methods

F. Alexander and D. W. Grunau, Los Alamos

Global Aspects of Phase Coarsening

S. Marsh, U. S. Navy

Local and Global Spatial Structure in a Model for Phase Separation

G. Giacomin, Rutgers

Symmetry of the Scattering Intensity of Solids

C. Radin, Texas

Steady States with Nonzero Winding Numbers in Biased Diffusion of Two Species

K. Bassler, B. Schmittmann, and R. K. P. Zia, CSPISE, Virginia Tech

Non-Universal Decay Kinetics in Ballistic Annihilation

Ely Ben-Naim and Sid Redner, Boston

Critical Behavior of Models with Infinitely Many Absorbing States

I. Jensen, CUNY

Non-Equilibrium Dynamics of a Diffusion Limited Reaction with Conserved Mass

L. L. Moseley and T. S. Ray, U. West Indies

Exact Solution of a Sandpile Model

S. Janowsky and C. LaBerge, Rutgers

Interference Effects for the Parabolic Wave Equation in Random Media

L. Saul, MIT

Scaling Forms for Irreversible Reaction Rates in Semi-Dilute Polymer Solutions

B. O'Shaughnessy, Columbia

Anomalous Surface Diffusion on Liquid Interfaces

O. Bychuk and B. O'Shaughnessy, Columbia

The Stress Tensor and the Rigidity Moduli of the Liquid-Vapor Interface

V. Romero-Rochin, C. Varea, and A. Robledo, Institute de Fisica, Mexico

The Critical Thicknesses of Epitaxial Films

M. Grinfeld, Rutgers

Numerical Transfer-Matrix Study of Surface-Tension Anisotropy in the Ising Model

H. L. Richards, M. A. Novotny, and P. A. Rikvold, Florida State

Convergence Acceleration Techniques in Finite-Size Scaling

B. M. Gorman, Florida State

Tricritical Points in ZGB Model

B. Yu and D. Browne, Louisiana State

Application of a Droplet Model to the Ferromagnetic $d=2$ Ising Model at High Magnetic Fields

C. C. A. Guenther, P. A. Rikvold, and M. A. Novotny, Florida State

Existence of Gaps in the Spectrum of Periodic Structures on a Lattice

A. Figotin, North Carolina

On the Asymptotic Behavior of Linear Recurrence Relations with Smooth Coefficients

O. Costin and R. Costin, Rutgers

The Broken Supersymmetry Phase of a Self-Avoiding Random Walk

S. Golowich, Harvard, and J. Imbrie, Virginia

Exact Fractal Dimension of the Loop Erased Self-Avoiding Walk in 2-Dimensions

S. N. Majumdar, AT&T Bell Labs

Burgers Turbulence with Random Initial Conditions

S. E. Esipov and T. J. Newman, Illinois

The Multidimensional Exit Problem for Nongradient Drift Fields: The Case of Exit near an Unstable Point

R. S. Maier and D. L. Stein, Arizona

Spectral Gap of the Kawasaki Dynamics and Mixing Conditions

S. Lu and H. T. Yau, NYU

Uniform Density Theorem for the Hubbard Model

E. Lieb, Princeton, M. Loss, Georgia Institute of Technology, R. J. McCann, Princeton

Electronic Model of Superconductivity

F. H. L. Essler, V. E. Korepin, and K. Schouteus, SUNY

Universal Jumps of Conductance for Mott Localization in One-Dimensional Periodic and Quasiperiodic Potentials: The Interplay between Luther–Emery, Kosterlitz–Thouless, and Pokrovsky–Talapov types of behavior

E. B. Kolomeisky and J. P. Straley, Kentucky

Quantum–Classical Phase Transitions in the Problem of the Decay of a Metastable State

E. M. Chudnovsky, CUNY

Multidimensional Pattern Formation Has an Infinite Number of Constants of Motion

M. B. Mineev-Weinstein, NYU

Exact Solution of the ABC Problem

S. Singh, Texas Tech

Linear Solvability Conditions in Viscous Fingering

E. Corvera, McGill

Couette Flow in Colloidal Suspensions at Low Shearing Rates

J.-Y. Yuan and D. Ronis, McGill

Structural Reliability Analysis for One-Dimensional Two-Phase Miscible Flow

D. A. Coker and B. Lindquist, SUNY

Random Chiral Model and Gauge Glass

Ronald Fisch, Washington

Finite Size Effects in the ZGB Model

D. ben-Avraham, Clarkson

Spin–Spin Correlations in the Finite-Size Spherical Model under Twisted Boundary Conditions

S. Allen and R. K. Pathria, Waterloo

Magnetic and Correlation Effects on the Peierls Instability

J. M. P. Carmelo and D. K. Campbell, UTUC

Delocalization of Flux Lines from Columnar and Planar Defects by Bulk Randomness

L. Balents, Harvard, and M. Kardar, MIT

2D Crystalline Order and Defects in a Stack of Membranes

D. Morse, Exxon, and T. Lubensky, Pennsylvania

n-Atic Order and Continuous Shape Changes of Deformable Surfaces of Genus Zero

J. Park, T. C. Lubensky, and F. C. Mackintosh, Pennsylvania

A Descriptor for Morphology and Hierarchical Correlations in Scale-Invariant Structures

R. C. Ball, Princeton, and R. Blumenfeld, Cambridge, UK

New Flat Glassy Phases and Wrinkling of Polymerized Membranes with Long Range Disorder

P. LeDoussal and L. Radzihovsky, Harvard

Depinning Transition in Random Interfaces

O. Narayan and D. S. Fisher, Harvard

Surface Enhancement Effects on Fluctuation-Induced Interactions

M. Kardar and M. L. Lyra, MIT, and N. F. Svaiter, Tufts

Polymer-Induced Forces between Colloidal Particles

R. Dickman, CUNY, and A. Yethiraj, Illinois

Polymers with Quenched Short-Range Random Self-Interactions

S. Stepanow, Cologne

Nonlinear (Rouse) Relaxation of Driven Polymers

D. Ertas and M. Kardar, MIT

Relaxation Dynamics in Model Proteins

C. J. Camacho and D. Thirumalai, Maryland

Calculation of the Chemical Potential of Polymers by Computer Simulation

J.-Y. Lee and H. Meirovitch, Florida State

A Quiescent, Stable Homogeneous Phase for Negative Temperatures Does Exist for Neutral Vortex Systems

Michael Kiessling, Rutgers

Cosmological Consequences of the critical state of Systems of Purely Attractive Particles

A. Compagner, Catholic U. of America

Molecular Dynamics of the Growth of Optical Fibers

D. P. Landau and M. J. P. Nijmeijer, Georgia

2-D Domain Wall Energies and Real-Function Inequalities

K. R. Brownstein and P. Kleban, Maine, and I. Vassileva, Massachusetts

Positron Lifetime Distributions in Fluids

B. Miller, TCU

Optical Conductivity of Icosahedral Quasicrystals

N. W. Ashcroft, S. E. Burkov, and T. Timusk, McMaster

The Equations of Macro-Dynamics and the Inverse Problems of Chemical Kinetics

E. Averbukh, Computer Science Corp/Yeshiva

Magneto-Hydrodynamic Effect of Differential Rotation in a Spherical Conductive Region

E. Averbukh and Y. Brodsky, Adelphi

Long Time Tails of the Velocity Autocorrelation Functions for the Triangular Lorentz Gas

H. Matsuoka and R. F. Martin, Jr., Illinois State

Billiards Correlation Functions

G. Gallavotti, Rutgers, and P. L. Garrido, Fisica Moderna, Spain

Slow Decay of Temporal Correlations in Quantum Systems with Cantor Spectra

T. Geisel, R. Ketzmerick (and UC Santa Barbara), and G. Petschel, Frankfurt

Phase Equilibria of Polar and Non-polar Fluids

G. S. Dubey and S. F. O'Shea, U. Lethbridge

Scaling in the Presence of Quenched Noise

A. S. Kaganovich, Rockefeller

On the Derivation of Exact Solutions of Some Convolution Equations

T. Gobron, Ecole Polytechnique

Phase Separation in Si-Ge Alloys—A Monte Carlo Study of a Compressible Ising Model at Constant Pressure

B. Dunweg and L. D. P. Landau, Georgia

Scaling of Island Growth in Pb/Cu (1001): Experimental Results

O. Biham, W. Li, and G. Vidali, Syracuse

Scaling of Island Growth in Pb/Cu: Theory

O. Biham, W. Li, and G. Vidali, Syracuse

A Theorem Connecting the Lifetime of a Metastable State and the Imaginary Part of the Analytically Continued Free Energy

O. Penrose, Heriot-Watt

A Model for Compact Cluster Growth

R. Bidaux and H. Chate, Saclay, France

Diffusional Relaxation in Models of Irreversible Surface Deposition of Submicron Particle Mono-layers

V. Privman, Clarkson

Critical Behavior of an Interacting Catalysis Model

H. Park, Inha U., and S. Redner and J. Zhuo, Boston

The High Temperature Phase in Two-Dimensional Hierarchical Coulomb Gases

D. H. U. Marchetti, McMaster, J. F. Perez, San Paulo, and C. G. Ragazzo, Courant Institute

Correlations in the Low Energy Excitations, and Relaxation, in a Coulomb Glass

M. Mochena, M. Ortuno, M. Pollak, and J. Talamantes, UC Riverside

- Exact Thermodynamics of the Inverse Square Family of Models
B. S. Shastry and W. Sutherland, AT&T
- Critical Roughening of Interfaces—A New Class of Renormalizable Field Theories
M. Lassig and R. Lipowsky, Institut für Festk, Germany
- Conformal Theory of the Ising Model with Disordered Boundary Fields
T. W. Burkhardt, Temple, and I. Gium, Villanova
- Quasi-particle Interpretation of Conformal Field Theory
R. Kedem and B. M. McCoy, SUNY
- Applications of the Markov Property to Ising Model Computations
G. A. Baker, Los Alamos
- Elementary Analysis of Localization at High Disorder and Extreme Energies
M. Aizenman, Princeton, and S. Molchanov, Southern California
- Capillary Waves in the Widom–Rowlinson Model,
F. Stillinger, AT&T
- 2-D Domain Wall Energies and Real-Function Inequalities
K. R. Browstein and P. Kleban, Maine, and I. Vassileva, Massachusetts
- New Approaches and Exact Mappings in the Treatment of Spin Glasses
Jim Given, SUNY
- Conductance Fluctuation at the Integer Quantum Hall Transition
Y. Huo and R. N. Bhatt, Princeton
- Numerical Study of Spiral Chaos in Rayleigh–Bénard Convection
H-w. Xi, J. D. Gunton, and J. Vinals, Lehigh
- Symbolic Dynamics for Some Two Dimensional Systems,
K. Hansen, Rockefeller
- Distribution of Energy Levels in 1D and 2D Spin-Fermion Models
J. Bellissard, G. Montainbaux, Orsay, D. PoilPanc, Toulouse, C. Sire, AT&T Bell, and T. Ziman, Toulouse
- A Branching Process Model for Sand Avalanches
R. Garcia-Pelayo, I. Salazar, and W. C. Schieve, Texas
- Tolman Length and the Mechanically Defined Surface of Tension
E. M. Blokhuis, Cornell
- Cascades of Roughening Transitions
Y. Levin, Maryland
- Critical Exponents of an Ising Model at Two Temperatures
H. Larsen, E. Praestgaard, Roskilde University, Denmark, B. Schmittmann, and R. K. P. Zia, VPI and State University
- Fixed-Point Hamiltonian for a Randomly Driven Diffusive System
B. Schmittmann, VPI and State University

Yangian Symmetry of Integrable Quantum Chains and Conformal Field Theory

F. D. M. Haldane, Princeton

Random Resistor Networks as Nonlinear Averaging Operators

Jan Wehr, Arizona

Step Bunching during Crystal Growth as a Chaotic Pattern Formation Process

D. Kandel and J. D. Weeks, Maryland

A Stochastic Geometric Representation of Quantum Spin Systems

M. Aizenman and B. Nachtergaele, Princeton

Symbolic Dynamics for Some Two Dimensional Systems

K. Hansen and P. Cvitanovij, Niels Bohr Institute

Exact Result for Continuum Percolation Model

L. Berlyand, Pennsylvania State, and K. Golden, Utah

Phase Transitions in Ionic Fluids

G. Stell and Q. Zhang, SUNY

Scaling of Coupled Nonequilibrium Interfaces

A.-L. Barabasi, Boston

Geometrization of Spin Systems Using Cycle Expansions

R. Mainieri, Los Alamos

Polymers with Quenched-Range Random Self-Interactions

S. Stepanow, Cologne, M. Schulz, Ulm, and J. U. Sommer, Regensburg