

Program of the 54th Statistical Mechanics Meeting

Department of Mathematics, Rutgers University,
December 19 and 20, 1985

Dear Reader,

Here are the titles of talks 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 15th and 16th, 1986. In addition to the talks, the program for these meetings also has a "positions wanted" and "positions available" section. If you are interested in receiving the full program of the May meeting please send me a self-addressed envelope.

Best wishes

Joel L. Lebowitz

Department of Mathematics, Hill Center
Rutgers University
New Brunswick, New Jersey 08903

The Algebraic Connection Between Lattice and Particle Problems

James B. McGuire, Florida Atlantic University

Dimensional Reduction in Lattice Gauge Theory

Daniel Rohrlich, S.U.N.Y. at Stony Brook, and Brookhaven National Laboratory

Passage-Time Statistics for Unstable Systems

Joseph W. Haus, Rensselaer Polytechnic Institute

- The Hopping of the Localizing Center in Random Potentials
Y. C. Zhang, Brookhaven National Laboratory
- Fluctuating Hydrodynamics of Smectic-A Liquid Crystals
Scott T. Milner, Harvard University
- Universal Features of Polymer Shapes
Joseph A. Aronovitz and David R. Nelson, Harvard University
- Fluctuation Theory for Hard Rods
Carlo Boldrighini, University of Camerino and *W. David Wick*,
University of Texas at Austin
- Localization of Acoustic Waves in a Uniform Flow
S. M. Cohen and J. Machta, University of Massachusetts
- The DeGennes Minimum in Neutron Spectra of Dense Fluids
E. G. D. Cohen, B. Kamgar-Parsi, Rockefeller University and T. M. de
Schepper, Interuniversitair Reactor Instituut, The Netherlands
- Fluctuations in Diffusion Reaction Systems: Adiabatic Elimination of Fast
Variables from a Microscopic Model
Martin A. Burschka, Rockefeller University
- A Model for Supercooling and Glass Formation
F. H. Stillinger, A. T. & T. Bell Laboratories
- Spinodals in Hard Sphere Systems in $d = \infty$
W. Klein, Boston University and H. L. Frisch, S.U.N.Y. at Albany
- Dimensionality Effects in the Steric Packing of Liquid Crystals
F. Dowell, Los Alamos National Laboratory
- The Effect of Size on the Motion of a Brownian Particle Using Molecular
Dynamics
T. Vladimiroff, A. K. MacPherson, and Y. P. Carignan, U. S. Army
A.R.D.C.
- The Short Time Behavior of the Velocity Autocorrelation Function of
Hard Hyperspheres in 3, 4, and 5 Dimensions
Marvin Bishop, Manhattan College, J. T. J. Michels, University of
Amsterdam, and I. M. De Schepper, Reactor Institute, Delft Univer-
sity
- Eigenmodes of a Dilute Gas in Equilibrium
B. Kamgar-Parsi and E. G. D. Cohen, Rockefeller University
- Experimental Studies of Crystalline Anisotropy in Directional
Solidification
John Bechhoefer, Francois Heslot, and Albert Libchaber, James
Franck Institute, The Enrico Fermi Institute of the University of
Chicago
- Connection Between Tip-Splitting Phenomena and Dendritic Growth
J. Nittmann, Dowell Schlumberger, and *H. Eugene Stanley*, Boston
University

- A Phase Field Approach to Solidification: Curvature, Surface Tension, Velocity, and Anisotropy from a Unified Perspective
Gunduz Caginalp, University of Pittsburgh
- A Diffuse Interface Model of Diffusion Limited Crystal Growth
Joseph B. Collins and Herbert Levine, Schlumberger-Doll Research/Brown University
- Scaling Structure of the Surface Layer of Diffusion-Limited Aggregates
T. C. Halsey, University of Chicago, P. Meakin, DuPont, and I. Procaccia, University of Chicago
- Random Walk Simulations of Flow in Hele Shaw Cells
Shoudan Liang, University of Chicago
- Entropy Decay as a Measure of Stochasticity
P. Szépfalussy and *G. Györgyi*, Eötvös University
- D. C. Conductivity in Stirred Percolation System
Y. Gefen and *A. Bug*, Exxon Research and Engineering
- Statistical Mechanics of Cellular Automata
G. Grinstein, I.B.M., T. J. Watson Research Center, C. Jayaprakash and *Yu He*, Ohio State University
- Cellular Automata, Langevin Equations, and Unstable States
Martin Grant and J. D. Gunton, Temple University
- Percolation with a Broad Distribution of Bond Strengths
J. Machta and R. A. Guyer, University of Massachusetts, and S. M. Moore, Rensselaer Polytechnic Institute
- Nonuniversal Behavior in Aggregating Systems
F. Leyvraz and S. Redner, Boston University
- Possible Violation of Universality in Phase Transitions on Hierarchical Lattices
Bambi Hu, University of Houston
- Random Walks on the Sierpinski Gasket
R. Friedberg, Columbia University and *O. Martin*, University of Illinois at Urbana-Champaign
- Density-Wave Theory of Shear Induced Melting
Scot R. Renn and Sriram Ramaswamy, University of Pennsylvania
- Spin Glass State of a Granular Superconductor
Sajeev John and T. C. Lubensky, University of Pennsylvania
- Tunneling in the Field of a Magnetic Monopole
Peter Hanggi, Polytechnic Institute of New York and Dirk Trautmann, University of Basel, Switzerland
- Dissipative Tunneling: A Variational Approach
E. Freidkin, P. Hanggi, and P. Riseborough, Polytechnic Institute of New York
- Chaotic Ionization of Hydrogen Atoms by Microwave Electric Fields

K. A. H. Van Leeuwen, G. V. Oppen, S. Renwick, J. B. Bowlin, P. M. Koch, S.U.N.Y. at Stony Brook, R. V. Jensen, Yale University, O. Rath, D. Richards, The Open University, U. K. and J. G. Leopold, The Hebrew University

Surface Tension in Confined Geometries

R. F. Kayser, National Bureau of Standards

Wetting in Random Systems

Reinhard Lipowsky and Michael E. Fisher, Cornell University
Wetting in the Two-Dimensional ANNNI Model

T. Ala-Nissila, Temple University, J. Amar, National Bureau of Standards, and J. D. Gunton, Temple University

Phase Transitions on Vicinal Stepped Surfaces

A. Saxena, T. Ala-Nissila, and J. D. Gunton, Temple University

Stability of the $1 + \varepsilon$ Fixed Point

R. K. P. Zia, Virginia Polytechnic Institute and State University

Local Height Probabilities in the Body Centered SOS Model

Peter Forrester, S.U.N.Y. at Stony Brook

Intrinsic Structure of Interfaces

D. Abraham, Oxford University

Duality of Ordinary and Extraordinary Surface Critical Behavior in the Potts Model

T. W. Burkhardt, Temple University

Scattering Functions at 2-D Critical Points

P. Kleban and R. Hentschke, University of Maine

The Federbush-Battle Cluster Expansion for ϕ_3^4

Calvin Williamson, University of Missouri

Classical Exponents and Non-Trivial Boson Field Theory in Four Dimensions

George A. Baker, Jr. and J. D. Johnson, Los Alamos National Laboratory

Gaussian Behavior of Loop-Erased Self-Avoiding Walk in Four Dimensions

Gregory F. Lawler, Duke University

Kosterlitz-Thouless Transition in the Two-Dimensional Hierarchical Coulomb Gas

G. Benfatto, G. Gallavotti, and F. Nicolo, University of Rome II and Rutgers University

Truncation Errors in Monte Carlo *RG* Calculations

R. Shankar, Yale University

Multi-Grid Monte Carlo Methods for Computing Random Fields

Jonathan Goodman and *Alan D. Sokal*, Courant Institute, N.Y.U.

Adiabatic Invariance in the Standard Map

I. Dana and *W. P. Reinhardt*, University of Pennsylvania

Finite Length Calculation of η and Phase Diagrams of Quantum Spin Chains

Timothy Ziman, Rutgers University and *Heinz J. Schultz*, Orsay

Mini-Review Talks

Late Stages of Diffusion-Limited Phase Separation

David A. Huse, *A. T. & T. Bell Laboratories*

Mesoscopic Models of Diffusive Growth

Thomas A. Witten, Exxon Research & Engineering

Invasion Percolation

L. Chayes, Cornell University

Universality, Non-Universality, and the Structure of Diffusion Limited Aggregates

Paul Meakin, E. I. Du Pont de Nemours & Company

Spectra of Scaling Indices for Fractals: Theory and Experiment

Mogens Høgh Jensen, University of Chicago

Real Spin Glasses

Daniel S. Fisher, *A. T. & T. Bell Laboratories*

Critical Exponents for the Multi-Channel Kondo Model

Natan Andrei, Rutgers University

Universal Amplitudes in Low-Dimensional Systems: Conformal Invariance and the Central Charge

Peter Nightingale, University of Rhode Island

Review Talks

Rigorous Studies of Critical Behavior

M. Aizenman, Rutgers University

Statistical Neurodynamics

John J. Hopfield, California Institute of Technology

Decay of Correlations in Differentiable Dynamical Systems

David Ruelle, Institut des Hautes Études Scientifiques and Rutgers University

Round Table on “Quasicrystals”

Per Bak, *Leonid Bendersky*, *Veit Elser*, *David Mermin*, *David Nelson*, *Paul Steinhardt*; *Charles Radin*, Chair.

Symmetry in Classical Ground States

Charles Radin, University of Texas

Many Phases in Lattice Systems Without Periodic Ground States

Jacek Miekisz, University of Texas at Austin

Sphere Packings and Local Environments in Penrose Tilings

Christopher L. Henley, Cornell University

Vibrations of an Icosahedral Polytope

Michael Widom, Carnegie-Mellon University

Landau Theory for a Quasicrystalline Texture in Cholesteric Liquid Crystals: The Blue Fog?

Daniel Rokhsar and J. P. Sethna, Cornell University

Observation of Stripped Phases in Adsorbed Helium Monolayers

Tim Halpin-Healy, Harvard University

A Novel Structure of Phase Diagram of 1D Systems with Two Competing Forces

Weiren Chou and Robert Griffiths, Carnegie-Mellon University

Phase Diagram of Cubic Systems Under Uniaxial Quadratic Symmetry Breaking Fields

Robert G. Caflisch, Schlumberger-Doll Research and Daniel Blankshtein, Massachusetts Institute of Technology

Reentrant Spin-Glass Behavior

P. H. DeSmedt, Rutgers University and K. U. of Leuven, J. O. Indekeu, and L. Zhang, K.U. of Leuven, Belgium

Dimer Pair Correlations on the Brick Lattice

Carlos S. O. Yokoi and John F. Nagle, Carnegie-Mellon University

Spin-Spin Correlation Functions in Two Dimensional Ising Model with a Linear Defect

Lee-Fen Ko, S.U.N.Y. at Stony Brook

Spin-Spin Correlations in Finite Systems: Scaling Hypothesis and Corrections to Bulk Behavior

Surjit Singh and *R. K. Pathria*, University of Waterloo

Influence of Boundary Conditions on Finite-Size Effects in Spherical Model

Surjit Singh and R. K. Pathria, University of Waterloo

Equivalence of Boundary Conditions in the Simulation of Ionic Systems

S. W. de Leeuw and M. F. Thorpe, Ohio University

Monolayer Transitions with Polar Molecules

David Andelman, F. Brochard, P. G. deGennes, and J. F. Joanny, Exxon Research Company

Elastic and Fracture Properties of Two Dimensional Disordered Lennard-Jones Solids

B. K. Chakrabarti, Saha Institute, *D. Chowdhury*, Temple University, and D. Stauffer, Köhln University

- Some Recent Results on the Numerical Solution of Integral Equations
Peter T. Cummings, University of Virginia and *Peter A. Monson*,
University of Massachusetts
- A Discrete Vector Spin Model
Dennis C. Rapaport, IBM
- The Potts Model on Sierpinski Carpets
Yadin Y. Goldschmidt and *P. Y. Lai*, University of Pittsburgh
- Susceptibility Sum Rule at a Multicritical Point
Miron Kaufman, Cleveland State University and *Michael Ma*, Univer-
sity of Cincinnati
- Determinations of Multicritical Points for Lattice-Gas Models by Finite-
Size Scaling of the Susceptibility
Per Arne Rikvold, ChemLink IPC/ARCO Chemical Company
- Spinodals and Transfer Matrices in $d=1$ Models
M. A. Novotny, Northeastern University, *W. Klein*, Boston University,
and *P. A. Rikvold*, ChemLink IPC
- Localization in Nonlinear Classical Symmetrical Systems
J. Fröhlich, ETH-Hönggerberg, and *T. Spencer*, Courant
Institute—N.Y.U. and *C. E. Wayne*, Pennsylvania State University
- Localization and the Schwinger Model
John Bartholomew, Columbia University and *John Sloan*, Princeton
University
- Parallel Analogue Networks and Tree Searches
Janet Saylor and *David G. Stork*, Clark University
- Supersymmetric Hamiltonian for the Travelling Salesman Problem
Yonathan Shapir, University of Rochester
- Many-Dimensional Approach to the Eden Model
R. Friedberg, Barnard College—Columbia University
- Nature of the Skin-Depth in the Eden Model
P. D. Gujrati, *D. R. Bowman* and *A. Thakur*, University of Akron
- Diffusion Limited Annihilation of N -Species
Daniel Ben-Hurham and *Sid Redner*, Boston University
- Growth Probability Distribution in Kinetic Irreversible Process
C. Amitrano and *A. Coniglio*, Boston University and *F. Diliberto*,
University of Naples
- Computer Simulations of Quenching With a Realistic Definition of Time
Jan Tobochnik, Kalamazoo College
- A "MCRG" Study of the Dynamics of the Kinetic Ising Model
S. Kumar, *J. Vinals*, and *J. D. Gunton*, Temple University
- Dynamics of the One-Dimensional Potts Model
P. O. Weir and *J. M. Kosterlitz*, Brown University
- Should Polymer Chains Overlap Extensively in the Melt?
P. D. Gujrati, University of Akron

Conformation of Associating Polymers

M. E. Cates and *T. A. Witten*, Exxon Research and Engineering Company

Polymerization and Polymer Conformations

Marko Jaric and *G. F. Tuthill*, Harvard University

Critical Points in the Nematic Behavior of Reversibly Polymerizing Systems

Judith Herzfeld, Brandeis University

Mode-Coupling Approach to Dynamics in Semi-Dilute Polymer Solutions

Y. Shiwa and *Y. Oono*, University of Illinois at Urbana-Champaign

Linear Transport Equation with Nonsymmetric Collision Operator

Alexander H. Ganchev, INRNE, Sofia, Bulgaria and *William Greenberg*, Virginia Polytechnic Institute and State University

Nonlinear Parabolic Stochastic Differential Equations

Charles Doering, University of Texas at Austin

New Real-Space Renormalization Group Method for Interacting Fermions at Finite Temperatures. Application to the Disordered Anderson-Hubbard Model.

A. Kholodenko, Clemson University

Early-Time Instabilities in a Dynamic Percolation Model

Jan Tobochnik, Kalamazoo College, *Harvey Gould*, Clark University, and *W. Klein*, Boston University

Continuum Percolation in an Interacting System: An Exact Solution of the Percus-Yevick Equation for Connectivity

Tony DeSimone and *Richard Stratt*, Brown University

Depinning by Quenched Randomness

Mehran Kardar, Harvard University

Constrained Randomness and Helium in Vycor

P. B. Weichman and *M. E. Fisher*, Cornell University

Multicriticality and Scaling in Partial Differential Approximants for Power Series

Mohit Randeria and *Michael E. Fisher*, Cornell University

Tests of Hyperuniversality for SAW

V. Privman, Clarkson University and *S. Redner*, Boston University

Self-Avoiding Random Walk and Hyperscaling

Philip de Forcrand, Cray Research Inc., *F. Koukiou* and *D. Petritis*, University Lausanne, Switzerland

A Direct Measurement of Vortex Diffusivity in 2-D Helium Films

Philip Adams and *W. Glaberson*, Rutgers University

Randomly Diluted Nonlinear Resistor Networks

Brooks Harris, University of Pennsylvania

Noise Exponent of the Random Resistor Network

- Youngah Park*, A. B. Harris, and T. C. Lubensky, University of Pennsylvania
- Mean Filed Theory of Randomly Diluted Elastic Networks
 J. Wang, University of Pennsylvania
- Transition Activity of Hard Squares: Rigorous Results via Computer
Daniel Styer, Oberlin College, Joel L. Lebowitz, Rutgers University,
 and Daniel Radulescu, Rutgers University
- Are Simulations Still Necessary?
Julian Talbot and Joel L. Lebowitz, Rutgers University, E. M.
 Waisman, S-CUBED, D. Levesque and J.-J. Weiss, Orsay
- Non-Exponential Relaxation in Viscous Supercooled Liquids
 M. Cristina Marchetti, City College, C.U.N.Y.
- Classical Transport in Modulated Structures
K. Golden, S. Goldstein, and Joel L. Lebowitz, Rutgers University
- The Fast Rate Limit of Driven Diffusive System
 J. Krug, Joel L. Lebowitz, H. Spohn and *M. Q. Zhang*, Rutgers
 University
- The Living Cell as the Self-Moving, Self-Thinking, and Self-Reproducing
 Molecular Machine (the Bhopalator)
 Dr. Sungchul Ji, Rutgers University
- Fractal Dimension of Ion Cascades in Amorphous Materials
 Tomas Diza De La Rubia and *G. O. Williams*, S.U.N.Y. at Albany