

**PROGRAM OF THE 42ND STATISTICAL MECHANICS MEETING**

**Department of Mathematics  
Rutgers University  
December 13 and 14, 1979**

For many years Yeshiva University held semiannual one-day meetings on statistical mechanics. In 1977 these meetings were transferred to Rutgers University where they have continued, expanded to two days. These meetings are extremely informal, with participants presenting brief talks on their work. No proceedings of these meetings are published, so, as a service to the statistical mechanics community, the speakers and the titles of their work are listed below. 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

Thermodynamic Properties of  $\phi^4$  Lattice Fields Near Ising Model Limit  
*Gunduz Caginalp*, Rockefeller University

Statistical Fluid Mechanics and Oil Reservoirs  
*Oliver A. McBryan*, Courant Institute, New York University

Double Double Toil and Bound a Critical Point  
*David Isaacson*, Rutgers University

Asymptotics of Gaussian Integrals on  $C[0, 1]$   
*Richard S. Ellis*, University of Massachusetts

Lipatov Method for Anharmonic Oscillators  
*Steve Breen*, Rutgers University

The Random Axis Model in the Ising Limit  
*C. Jayaprakash*, Cornell University

The Gibbs Phase Rule in Infinite Dimensional Interaction Spaces  
*Aernout L. D. van Enter*, Rijksuniversiteit Groningen

Remarks on the Global Markov Property  
*Sheldon Goldstein*, Rutgers University

High Temperature Expansions for Dynamical Models  
*William Faris*, University of Arizona

Mechanical Model of the Ornstein–Uhlenbeck Process  
*Detlef Dürr*, Rutgers University

A Model of Brownian Motion in One Dimension  
*Bruce N. Miller*, Texas Christian University

Ergodic Properties of a Finite System of Particles in Contact with a Heat Reservoir  
*K. Ravishankar*, Rutgers University

Phase Transitions in the Two Dimensional Yukawa Field Theory  
*Krzysztof Gawędzky*, Harvard University

Normal Fluctuations and the FKG Inequalities  
*Charles M. Newman*, University of Arizona

Some New Correlation Inequalities (25 MINUTES)  
*Barry Simon*, Princeton University

Dobrushin's Uniqueness Theorem for N-Vector Models  
*S. Levin*, Princeton University

Several Results for Ising Spin Systems Decorated with Planar Spins  
*Harold Falk*, City College of New York

A New Speculative Foundation for the Identity of Cosmological and Thermodynamical Arrows of Time  
*Jerome Rothstein*, Ohio State University

The Ground State for Sticky Disks  
*Charles Radin*, University of Texas

Thermal Properties of Vacancy Defects in Harmonic Solids: Cell Cluster Theory  
*Dale A. Huckaby and Cesar M. Garza*, Texas Christian University

Bifurcations and Turbulence  
*Mitchell J. Feigenbaum*, Los Alamos Scientific Laboratory

Chaotic States of Anharmonic Systems  
*James Crutchfield*, University of California, Santa Cruz

The Saddle-Point in the Renormalized Coupling-Constant Surface for the Continuous Spin Ising Model  
*George A. Baker, Jr.*, Los Alamos Scientific Laboratory, *and John M. Kincaid*, National Bureau of Standards

Analytic (?) Nature of the Phase Boundary in the Ising Model  
*D. Kim*, New York University, *and George A. Baker, Jr.*, Los Alamos Scientific Laboratory

Renormalization-Group Solution of the Two-Dimensional  $q$ -State Potts Model  
*Eberhard K. Riedel*, University of Washington

A Plenitude of Commensurate Phases in the ANNNI (sing) Model  
*Michael E. Fisher and Walter Selke*, Cornell University

Renormalization of Vortex Diffusion in Superfluid Films  
*R. Petschek and A. Zippelius*, Harvard University

Gauge Wheel of Superfluid  $^4\text{He}$   
*David Mermin*, Cornell University

Statistical Mechanics of Coulomb Systems and Two-Dimensional Rotators  
*Jürg Fröhlich*, Institut des Hautes Etudes Scientifiques, *and Leo Kadanoff*, University of Chicago

On the Application of Physics and Mathematics to Problems in Biology  
*Jerome K. Percus*, Chair, Courant Institute, New York University, *Freeman J. Dyson*, Institute for Advanced Study, *Robert May*, *and Malcolm S. Steinberg*, Princeton University

Spectrum and Response Function of Transmitted Light in the Absorptive Optical Bistability  
*Peter Hanggi*, University of California, San Diego

Surface Decay in the Cluster-Size Distribution  
*Michael Aizenman*, Princeton University

An Approximate Treatment of Reversible Gels  
*A. Gonzales and S. Muto*, Boston University

Droplet Model, Renormalization Group, and Essential Singularities at First  
Order Phase Transitions  
*William Klein*, Boston University

Dynamics of Melting in Two Dimensions  
*A. Zippelius, B. I. Halperin, and D. R. Nelson*, Harvard University

A Polychromatic Correlated Site Percolation Problem with Possible Relevance  
to the Unusual Behavior of Supercooled Water  
*H. Eugene Stanley*, Boston University

A Model of Correlated Percolation Which is Nonuniversal  
*Scott Kirkpatrick*, Thomas J. Watson Research Center, I.B.M.

Gauge Field and Order in Crystals and Glasses  
*Martin Uehla*, Oak Ridge National Laboratory

A Monte Carlo Renormalization Group Method  
*Jan Tobochnik*, Cornell University

An Exact Solution of the Renormalization Group Equations for the Mean  
Field Theory of Stable and Metastable States  
*Gregory Dec*, Temple University

Renormalization Group Studies of Localization in One Dimension  
*Barbara Andereck and Joseph Sak*, Rutgers University

Iterative Perturbation Theory at the Critical Point in a Simple Liquid  
*L. Reatto*, University of Milan

Universal Ratios and Scaling of Effective Critical Exponents  
*Amnon Aharony*, Harvard University

The Uses and Misuses of Topology in Condensed Matter Physics  
*N. D. Mermin*, Cornell University

Spin Glass Problem and Broken Replica Symmetry  
*D. J. Thouless*, Yale University

- Spin-Glass Transition in the Random Hierarchical Model for  $\sigma = 1/2 + \epsilon'$   
*Alba Theumann*, Polytechnic Institute of New York
- Degeneracy and Information Theory in Spin Glasses  
*Richard G. Palmer*, Duke University
- Application of Renormalization Group Method to Spin Model  
*Chin-Kun Hu*, University of Maine at Orono
- Phase Transitions in Systems with Local Symmetry  
*Joseph Slawny*, Virginia Polytechnic Institute
- Renormalization Group Approach to Crossover in Anisotropic Spin Systems  
*Walter Theumann*, Polytechnic Institute of New York
- Equation of State of Compressible Ising Magnet Near Critical Point  
*John Bruno*, Rutgers University
- Stochastic Motion in the Sine–Gordon Chain  
*Rolf Landauer*, Thomas J. Watson Research Center, I.B.M.
- Hydrodynamics and Correlation Functions of the Forced and Overdamped  
Sine–Gordon Soliton Gas  
*Markus Büttiker*, Thomas J. Watson Research Center, I.B.M., and *H. Thomas*,  
Universität Basel
- Breather Responses in the Sine–Gordon Chain  
*Alan R. Bishop*, Los Alamos Scientific Laboratory
- Fluctuation About Hydrodynamic Nonequilibrium Steady States  
*A. M. Tremblay*, Cornell University
- Time Dependence in the Two-Dimensional Potts Model  
*Gabor Forgacs*, University of Illinois
- Transverse Transport Processes in Strong Magnetic Field  
*Yu-Ping Ho*, Institute of Plasma Physics, Academie Sinica
- Long Time Tail of the Velocity Autocorrelation Function of a Brownian Particle  
in an Unmagnetized Plasma  
*R. Dickman and R. Varley*, Hunter College, City University of New York

A New Nondiagonal Master Equation and a Nondiagonal Quantum Mechanical Boltzmann Equation

*Karel M. van Vliet*, University of Montreal

Fokker–Planck Approximation for Nonwhite Noise Langevin Equations

*Maximo San Miguel*, Temple University, and *J. M. Sancho*, University of Barcelona

Strong Coupling Expansion Far from Equilibrium

*Harvey A. Rose*, Los Alamos Scientific Laboratory

Kinetic Equations and H. Theorems

*John Karkheck and George Stell*, State University of New York at Stony Brook

Water Model: Global Phase Diagram and Undercooling Features

*Paul H. E. Meijer*, The Catholic University of America

Closed Time-Path Green's Functions and Critical Dynamics

*Guangzhao Zhou, Zhaobin Su, Lu Yu,<sup>1</sup> and Bailin Hao*, Institute of Theoretical Physics, Academia Sinica, Peking, China

A Molecular Dynamics Approach to the Excluded Volume Problem

*Dennis Rapaport*, Cornell University

Computer Simulation of Multichain Polymer Systems

*Marvin Bishop*, Fordham University at Lincoln Center

On the Absence of the Completely Ordered Phase in the Flory Model of Linear Polymers

*P. D. Gujrati*, Carnegie-Mellon University

Application of Polymer Scaling Theories to General Interaction Potentials

*Carol Hall*, Princeton University

Low-Energy Excitations in Metallic Glasses

*James L. Black*, Brookhaven National Laboratory

Lower Bounds for Thermodynamic Quantities of One-Component Plasmas and Ionic Mixtures

*Hiroo Totsuji*, Rutgers University

<sup>1</sup>Present address: Physics Department, Harvard University

Measurement of the Landau Critical Velocity in He II

*Eva Andrei*, Rutgers University

Lattice Model for Partially Flexible Molecules with Some One-Dimensional  
Positional Order (Smectic A Liquid Crystals)

*F. Dowell*, Oak Ridge National Laboratory

Hard Squares on the Square Lattice

*I. Enting*, Northeastern University

A Theoretical Method for Determining Three-Particle Distribution Functions

*Elijah Johnson*, Oak Ridge National Laboratory

The Cavity-Biased ( $T, V, \mu$ ) Monte Carlo Method

*Mihaly Mezei*, Hunter College, City University of New York

Random Quantum Magnetic Chains

*J. Hirsch*, University of Chicago, *and Jorge José*, Rutgers University

The next Statistical Mechanics Meeting will take place on May 8 and 9,  
1980.