PROGRAM OF THE 38TH STATISTICAL MECHANICS MEETING
Department of Mathematics
Rutgers University
December 15 and 16, 1977

For many years Yeshiva University has held semiannual one-day meetings on statistical mechanics. These meetings have now been transferred to Rutgers University where they will be continued. These meetings are extremely informal, with participants invited to present 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, N.J. 08903

Heat Flow in the Lorentz Gas
 Joel L. Lebowitz, Rutgers University, *and Herbert Spohn*, Princeton University

Dynamical Systems with Stochastic Boundary Conditions
 Sheldon Goldstein, Rutgers University

Brownian Motion with Hard Cores
 Martin Schwartz, Rockefeller University

Stability and the Onsager–Casimir Symmetry
 Miroslav Grmela, Université de Montréal

Dynamical Pictures and Causality in Finite Temperature Green's Functions
 Luis Garrido, Universidad de Barcelona

Essential Singularities in the Density of States of Some Random Systems
J. Leo van Hemmen, Duke University

Nonstandard Analysis and Statistical Mechanics
A. E. Hurd, University of Victoria

Spherically Symmetric Anharmonic Oscillators
David Isaacson, Rutgers University

Behavior of Energy Correlations in the ϕ_1^4 Field Theory
Dan Marchison, Rockefeller University

Continuum Derivation of the Ising Model Two-Point Function
David J. Wilkinson, State University of New York at Stony Brook

Spectral Distribution of Laplacians on Riemannian Manifolds: Kato's Inequality
D. A. Uhlenbrock, University of Michigan, *and H. Hess and R. Schröder*, University of Berlin

Bethe's Ansatz, Inverse Scattering, and Polynomial Conservation Laws in Classical and Quantum Field Theory
Harry B. Thacker, Fermi National Accelerator Laboratory

Time Evolution of Classical Spin Systems
Pierre-A. Vuillermot, Princeton University

Recurrence Relations
M. Feigenbaum, Los Alamos

The Transition to Turbulence
James Yorke, Maryland University

Strange Attractors Near Quasi-periodic Motion on Tori
Sheldon Newhouse, University of North Carolina

Phase Transitions, Approach to Equilibrium, and Structural Stability
Gerard G. Emch, University of Rochester

Effective Hamiltonians
E. B. Davies, Princeton University

The Nature of the Lee–Yang Edge Singularities
Michael E. Fisher, Cornell University

Quantitative Predictions of the Renormalization Group
George A. Baker, Jr., J. Kincaid, and B. Nickel, Los Alamos Scientific Laboratory

Instantons in the O(3) Model
Erhard Seiler, Princeton University

Dipoles and Classical Heisenberg Model
Thomas C. Spencer, Rockefeller University

Phase Transitions Without Broken Symmetry
Barry Simon, Princeton University

Statistical Mechanics of Gauge Fields
Arthur Jaffee, Harvard University

Quantum Field Theory and Statistical Mechanics
James Glimm, Rockefeller University

Phase Transitions in Quantum and Classical Lattice Systems
Elliott H. Lieb, Princeton University

Renormalization Group — A Survey
Michael E. Fisher, Cornell University

Calculations Using Renormalization Group
George A. Baker, Jr., Los Alamos Scientific Laboratory

Rigorous Results for Real Space Renormalization?
R. Griffiths and Paul Pearce, Carnegie-Mellon University

Renormalization-Group Treatment of Krypton Adsorbed onto Graphite
A. N. Berker, S. Ostlund, and F. A. Putnam, Harvard University

Spin-Glass and Ferromagnetic Behavior Induced by Random Uniaxial Anisotropy
Robert A. Pelcovits, E. Pytte, and J. Rudnick, Harvard University

Low-Temperature Anomalies in Glasses: Relating Specific Heat to Ultrasonics
James L. Black and B. Halperin, Brookhaven National Laboratory

The Asymptotic Form of Percolation Cluster Distributions
Paul L. Leath, Rutgers University

Ramification of Large Clusters Near Percolation Threshold
  Gary R. Reich, Rutgers University

Percolation in Gases
  A. Coniglio and J. Essom, Boston University

Critical Behavior of Diluted Resistor Networks
  Ronald Fisch, Princeton University

Critical Slowing Down in Spin Glasses
  Scott Kirkpatrick, IBM Research Center

Oil Discovery Process — A Classical Statistical Mechanical Problem
  E. Barouch, Clarkson College of Technology, *and G. Kaufman,* Massachusetts
  Institute of Technology, Sloan School

Diffusion Phenomena in Crystal Lattices
  Thomas Tsakalakos, Rutgers University

Strain Distribution in Crystals
  Sigmund Weissmann and Z. H. Kalman, Rutgers University

Melting and Freezing Transitions
  Frank H. Stillinger, Bell Telephone Laboratories

Recent Advances in Polyelectrolyte Theory
  Gerald S. Manning, Rutgers University

Evolution of Aperiodic Time-Dependent States from the Rayleigh—Benard
      Instability
  G. Ahlers and R. Beherenger, Bell Telephone Laboratories

Rate Constants for Elementary Chemical Reactions: Motion in a Bistable Potential
  David Chandler, Columbia University

Brownian Dynamics Study of Transitions in a Chain of Bistable Oscillators
  Eugene Helfand, Bell Telephone Laboratories

Self-Consistent Dynamic Mean Field in a Nonlinear Stochastic Model
  R. C. Desai and R. Zwarig, University of Toronto

Thermodynamic Stability and Phase Transitions in Systems with a Chemical
      Reaction
  Moshe Gitterman and Victor Steinberg, University of Maryland

Mutual Diffusion in Binary Hard-Sphere Mixtures: The Effect of the Onsager
Reciprocity Relations
John M. Kincaid, Los Alamos Scientific Laboratory

Dynamics at the Roughening Transition
John D. Weeks, Bell Telephone Laboratories

Correlation Functions in XY Models and Step Free Energies in Roughening
Models
Robert H. Swendsen, Brookhaven National Laboratory

Recent Correlations of Fluid Data Using Renormalization-Group Ideas
Michael Moldover, National Bureau of Standards

Position–Space Renormalization-Group Calculation
Peter Reynolds, W. Klein, and E. Stanley, Boston University

Critical Exponents of a Lifshitz Point
Joseph V. Sak, Rutgers University

Critical Behavior Near a Landau Point
C. Vanse, Rutgers University

Quantum Critical Behavior: Crossover and Scaling
Ian D. Lawrie, Cornell University

Breakdown of Tricritical Scaling for $d \geqslant 3$
Stephane Sarback, Cornell University

Fractals and Some Applications to Physics
Benoit Mandelbrot, IBM Research Center

Discrete Hydrodynamics: Explicit Dynamic Renormalization Transformation
Giving Transport Coefficients from Small-Scale Simulation Data
Pieter B. Visscher, University of Oregon

Renormalization-Group Treatment of a One-Dimensional "Kondo Lattice"
J. N. Fields, R. Jullien, and S. Doniach, Brookhaven National Laboratory

Collective Modes in One-Dimensional Heisenberg Chains
S. D. Tuljapurkar, J. Sennura, and D. Huber, Harvard University

The Long-Time Behavior of the Velocity Autocorrelation Functions in a Plasma
via the Landau–Placzek Method
Rodney L. Varley, Hunter College, C.U.N.Y.

Electron Transport in Methane Gas
  Peter Kleban and T. Davies, University of Maine

A Nondiagrammatic Method of Vertex Renormalization of a Classical Fluid
  William J. Shugard, Bell Telephone Laboratories

Density Expansion of Correlation Functions
  S. Ranganathan, Royal Military College

Triangular Ising Model with Next-Nearest Neighbor Interaction
  Paul H. E. Meijer and B. Kamgor-Parsi, The Catholic University of America

A Model of a Liquid Crystal
  Elliott Lieb and O. Heilmann, Princeton University

Ab Initio Calculation of the Free Energy of Liquid Water
  Mihalt Mezey, S. Swaminathan, and D. L. Beveridge, Hunter College, C.U.N.Y.

The Spatial Distributions of Randomly Coiling Polynucleotides
  Wilma Olson and R. Yevich, Rutgers University

Jellium Model in Two or Three Dimensions
  David Ceperley, Rutgers University

Two-Dimensional Superfluids and the Two-Dimensional Coloumb Gas
  Robert Myerson, Institute for Advanced Study

Multicritical Phenomena: Theory and Experiment
  R. Griffiths, Carnegie-Mellon University, *and B. Widom*, Cornell University