Program of the 44th Statistical Mechanics Meeting and the 19th Eastern Theoretical Physics Conference

Department of Mathematics and Physics
Rutgers University
November 20–22, 1980

The last semiannual Statistical Mechanics Meeting was held on November 20 followed by the 19th Eastern Theoretical Physics Conference sponsored by the National Science Foundation of the United States. Titles of lectures given at both meetings are included here.

As usual these titles are informal and, in many cases, there is only one speaker listed although the work may have been done by several 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

A Mass-Zero Cluster Expansion
   Paul Federbush, University of Michigan
Decay of Ising Model Correlations
   George A. Baker, Jr. and J. Daniel Bessis, Los Alamos Scientific Laboratory
New Approach to the Lee–Yang Theorem
   Alan Sokal and Elliott H. Lieb, Princeton University
Two-Dimensional Ising Model to $T > T_C$ in a Small Magnetic Shift of the Pole in the Two-Point Function
   S. Salihoglu, State University of New York at Stony Brook
The GHS Inequality for Large External Field
   Richard S. Ellis, University of Massachusetts
Two-Dimensional Ising Correlations and Convergence of the Scalar Limit
   Craig A. Tracy and John Palmer, Dartmouth College

Phase Diagrams of $P(\emptyset)_2$ Quantum Field Models
  John Z. Imbrie, Harvard University
A Derivation of the Extended Scaling Relations between Critical Exponents in
        2-D Systems form the 1-D Massless Thirring Models
  Marcel den Nijs, The James Franck Institute, University of Chicago
Quantum $0(n)$ Heisenberg Model
  Herbert Hamber, Brookhaven, Upton, New York
Noise Exponent and Scaling Function for Chaotic Map
  Michael Nauenberg, University of California
On the Exact Two Point Function for the 1-dimensional δ-Function
  David J. Wilkinson, Fermilab
Potts, Ashkin Teller, and Staggered F-Model Critical Properties via One-Dimen-
        sional Lattice Fermions
  Jame L. Black and V. J. Emery, Brandeis University
The Antiferromagnet Spin-1/2 Heisenberg Chain
  Charles G. Montogmery, University of Toledo
Inverse Scattering and Heisenberg-Ising Spin Chain
  Michael Fowler, University of Virginia
A Variational Principle for Many-Fermion Systems
  Elliott Lieb, Princeton University
Introduction of the Shell Structuure into the Thomas-Fermi Model for Atoms
        via the Energy Density Functional Formalism
  Peter Csavinszky, University of Maine
Recent Results for Ising Model N-Point Functions
  Barry McCoy, State University of New York at Stony Brook
A Connection Between Classical and Quantum Mechanical Entropy
  E. Stormer, University of Oslo
Geometry and Plasma Kinetic Theory
  Meinhard E. Mayer, University of California
Statistical Mechanics of Approximately Relativistic Interacting Charges and
        Radition
  John E. Krizan, University of Vermont
Multiple Scattering in Random Media
  Eugene P. Gross, Brandeis University
The Anderson Model for Electron Localization: Asymptotic Gauge Invariance
  A. M. M. Prinsken, Brown University
Universality in Fully Frustrated Systems
  G. Forgacs, University of Illinois
Universality of Continum Percolation: Monte Carlo and Finite Size Scaling
        Approach
  Edward T. Gawlinski, Boston University
Scaling and Corrections to Scaling in Percolation
  Hisao Nakanishi, Cornell University

Percolation and Conduction in Random Resistor-Diode Networks
Sidney Redner and Peter Reynolds, Boston University
Diffusion of Percolation Clusters
Harvey Gould, Boston University
Percolation Exponents and Fractional Dimensions: Monte Carlo Method
Raoul Kopelman, Paul Klymko, Joseph Hoshen, and James Newhouse, University of Michigan
Unified View of Regularity Universality in All Disordered Systems *or* Is Disorder Disordered?
Edward Siegel, Baruch College
Can the BBGKY Equation Exhibit Nontrivial Critical Behavior?
S. Fishman and M. E. Fisher, Cornell University
Relation Between Lattice and Continuum Theories of 2-D Solids
Stellan Ostlund, Cornell University
Model for Liquid Crystals with Semiflexible Tails
F. Dowell, Oak Ridge National Laboratory, Tenn.
The $n = 0$ Limit of the Magnetic System and Polymers
P. D. Gujrati and R. B. Griffiths, Carnegie-Mellon University
The Static Scattering Function for Polymer Chains in a Solvent
Yoshitsugu Oono, T. Ohta, and K. F. Freed, University of Chicago
Hydrogen Bond Networks in Water and Aqueous Solutions
H. E. Stanley, J. Teixeira, L. Bosio, A. Geiger, and R. Blumberg, Boston University
Quantum Many Body Theory and the Classical Chemical Law of Mass Action
David Chandler, University of Illinois
Chemisorption on Stepped Surfaces
Peter Kleban, University of Maine
Experiments and Predictions on the Transition to Turbulence in Couette Flow
Michael A. Gorman, University of Texas
Area Preserving Maps
H. Koch, Harvard University
Scaling Behavior of Chaotic Flows
Bernardo Huberman, Xerox Palo Alto Research Center
Numerical Methods for Moving-Boundary Equations in Solification Theory
Douglas Kurtze, Carnegie-Mellon University

Multiphase Flow Simulation and Percolation Theory
Jorge Willemsen, Schlumberger-Doll Research
Kinetic Perturbation Theory for Dilute Gases
John M. Kincaid, National Bureau of Standards

The Ultimate Long Time Behavior of the Velocity Autocorrelation for Two-Dimensional Brownian Particles: $\phi(t) \sim t^{-1}[1+2t/\tau]^{-3/2}$ where $\tau = 16 \, m\nu/kT$
  Rodney Varley, Hunter College
On the Connection Between Deterministic and Stochastic Description of Non-linear Equilibrium Systems
  Peter Hanggi, Polytechnic Institute of New York
Renormalization Group Calculations for Lattice Hard-Core Models
  P. Rujan, Sate University of New York at Albany
Dislocation Mediated Melting and New Liquid Crystal Phases in Three Dimensions
  John Toner, Harvard University
Derivatives of Free Energy for Spin Model by Renormalization Group Transformation
  Chin-Kun Hu, University of Maine
Formation of a "Critical Fan" in the Ashkin–Teller Model
  Mahito Kohomoto, Marcel den Niss, and Leo Kadanoff, James Franck Institute, University of Chicago

Critical Exponents of the BCC Ising Model via Differential Approximants
  John J. Rehr and Bernie Nickel, University of Washington
A Renormalization Group Study of Crossover in Structural Phase Transitions
  Paul D. Beale, Cornell University
Statistical Mechanics of ^{3}He films
  Robijn Bruinsma, Brookhaven National Laboratory

Critical Dynamics in ^{4}He Revisited
  P. C. Hohenberg, Bell Laboratories
Identity of the Nonlocal Specifiç Heat in Two and Four Dimensions
  Richard A. Ferrell, University of Maryland
The Universality of Eight Vertex and Ashkin–Teller Models
  Alan Brown, Boston University
Rigorous Proof of Kosterlitz Thoulus Transition for Two Component Rotators and Other Models
  T. Spencer and J. Frohlich, Courant Institute
Making Entropy-Energy Arguments Rigorous
  B. Simon and Alan Sokol, Princeton University
On the Zero Temperature Limit of Equilibrium States
  Joseph Slawny, Virginia Polytechnic Institute
Proof of Gaussian Limit for Ising Models Near Tc for $d > 4$
  Michael Aizenman, Princeton University

Informal Round Table Discussion on *Statistical Mechanics in the 80's: What are the Promising Directions?* with E. Lieb, P. Anderson, P. De Gennes, M. Creutz, G.'t Hooft, and M. Feigenbaum.

E. Lieb, Princeton University
    "Thomas–Fermi Theroy of Atoms and Molecules"
P. W. Anderson, Bell Labs and Princeton University
    "New Techniques in Localization Theory"

R. Baxter, Australian National University
    "Some Recent Developments in The Statistical
    Mechanics of Lattice Systems"
P. de Gennes, College de France
    "New Features in Colloidal Systems"

P. Ramond, University of Florida
    "Consequences of Grand Unification"
G. 't Hooft, University of Utrecht
    "Are Quarks Fundamental or Composite?"

K. Johnson, Massachusetts Institute of Technology
    "Some Ideas about Hadron Structure Based on QCD"
M. Creutz, Brookhaven National Laboratory
    "Lattice Cutoffs in Particle Physics"

A. Pais, Rockefeller University
    "Gauge Invariance, A Chapter From The
    History of General Relativity"
G. F. Bertsch, Michigan State University
    "Energy and Momentum Transport in Heavy
    Ion Collisions"
S. Levit, Massachusetts Institute of Technology
    "Semi-Classical Mean Field Description of
    Large Amplitude Nuclear Dynamics"

A. D. Jackson, State University of New York at Stony Brook
    "Microscopic Models of Fermi Liquid
    Parameters"

G. Baym, University of Illinois
  "Pion Condensation in Nuclei and
  Neutron Stars"

E. E. Salpeter, Cornell University
  "Dynamical Models For The Virgo Cluster"
J. P. Ostriker, Princeton University
  Radiative Processes and Galaxy Formation"

M. J. Rees, Cambridge University
  "Gravitational Collapse, Relativistic
  Beams and Quasars

The next Statistical Mechanics Meeting will take place May 7 and 8, 1981 at Rutgers University.