Program of the 60th Statistical Mechanics Meeting

Department of Mathematics, Rutgers University,
December 15 and 16, 1988

Dear Reader,

Here are the titles of the 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, the 61st, is scheduled for May 11 and 12, 1989. 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 these meetings, please send me a self-addressed envelope.

Please note also the program of the Monte Carlo Workshop at Courant Institute, which has become a regular semiannual event.

Joel L. Lebowitz

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Molecular Dynamics Application to the Study of Collapsing Spheres
    Yvon P. Carignan, ARDEC; T. Vladimiroff, ARDEC; A. K. MacPherson, Lehigh University
Equilibrium and Nonequilibrium Statics and Dynamics of a Diffusion-

Limited Reaction: I. New Exact Results for $d = 1$ Coagulation Models
    Daniel ben-Avraham, Charles R. Doering, and Martin A. Burschka,
    Clarkson University
Equilibrium and Nonequilibrum Statics and Dynamics of a Diffusion-
Limited Reaction: II. Are There Macroscopic Rate Equations?—
Microscopic Structure
    C. R. Doering, M. E. Burschka, and D. ben-Avraham, Clarkson
    University
Equilibrium & Nonequilibrium Statics & Dynamics of a Diffusion-Limited
Reaction: III. Relaxation for Adiabatic vs. Quenched Perturbations
    Martin A. Burschka, Daniel ben-Avraham, and Charles R. Doering,
    Clarkson University
Scaling of the first passage time and the survival probability on exact and
quasi-exact self-similar structures
    B. Kahng and S. Redner, Boston University
Some Limit Theorems for Critical Branching Processes
    Tzong-Yow Lee, Princeton University
Self-Trapping of Light Particles in Fluids
    B. N. Miller and Y. Fan, Texas Christian University
Some Travelling Wave Solutions to Reaction-Diffusion Problems
    C. Borzi, H. L. Frisch, R. Gianotti, and J. K. Percus
Wire Perturbations in the Saffman–Taylor Problem; Pattern Selection of
Asymmetric Fingers
    D. C. Hong, Lehigh University
Two-Dimensional Lifshitz–Slyozov Theory—Growth of Breath Figures
and Ultradynamics
    Q. Zheng, J. D. Gunton, and H. Guo, Temple University and Lehigh
    University
Ballistic Aggregation in Restricted Solid on Solid Model
    J. M. Kim and J. M. Kesterlitz, Brown University
Lattice-Gas Model of the Mullins–Sekerka Instability
    Dik Harris and Martin Grant, McGill University
Universality in Selection with Local Perturbations in the Saffman–Taylor
Problem
    Bruce Shaw, University of Chicago
Lack of Self-Averaging, Multiscaling and $1/f$ Noise in First-Order Phase
Transitions
    Christopher Roland and Martin Grant, McGill University
Yang–Lee Zeros, Julia Sets and Their Singularity Spectra
    Bambi Hu, University of Houston
A Convergence Theorem for Grossberg Learning
    D. M. Clark and K. Ravishankar, SUNY, New Paltz

A New Dynamic Critical Exponent for the Decay of Nonequilibrium
Autocorrelations
    David A. Huse, Bell Labs
Computer Simulation Study of Two-Dimensional Field-Driven Models
    Jian-Sheng Wang, Rutgers University; Kurt Binder, Rutgers Univer-
    sity and Institut für Physik, Universität Mainz; Joel L. Lebowitz,
    Rutgers University
Universality and Relevance of Diffusion in Nonequilibrium Lattice Models
    Ronald Dickman, Lehman College, CUNY
Results from Mean Field Study of Driven Diffusive Ising Model
    N. Pesheva, Y. Shnidman, and R. K. P. Zia, Virginia Tech
Driven Nonequilibrium Lattice System with a Shifted Boundary
    J. L. Valles, Courant Institute; K.-t. Leung and R. K. P. Zia, Virginia
    Polytech.
Dynamics of an Interface Coupled to a Diffusive Bulk Mode (Model C)
    R. K. P. Zia, Virginia Tech; R. Bausch, H. K. Janssen, and V. Dohm,
    Düsseldorf and Aachen, West Germany
Variations on the Brazil Nuts Problem
    Frank Alexander, Joel L. Lebowitz, and Jian-Sheng Wang, Rutgers
    University
Charge Transport in Resonant Tunneling Heterostructures
    Karim Diff, Temple University; Hong Guo, Lehigh University;
    George Neofotistos, Temple University; J. D. Gunton, Lehigh Univer-
    sity
Simulation of Charge Transport in Submicron Semiconductor Devices
Using the Time-Dependent Schrödinger Equation
    G. Neofotistos, Temple University; M. C. Yalabik, Bilkent University;
    K. Diff, Temple University; H. Guo, Lehigh University; J. D. Gunton,
    Lehigh University
Dissipative Quantum Dynamics in a Boson Bath: A Path Integral
Approach
    Y.-C. Chen, C. Liverani, and Joel L. Lebowitz, Rutgers University
Conformal Transformations and Duality in the Two-Dimensional
Schrödinger Equation
    Laurence Mittag, Boston University, and Michael Stephen, Rutgers
    University
Valence Bond States in Spin Quantum Chains and Disordered Flat Phases
in Crystal Surfaces
    M. den Nijs and K. Rommelse, University of Washington
Green Function Monte Carlo Study of Quantum Antiferromagnets
    Nandini Trivedi and David Ceperley, University of Illinois at Urbana-
    Champaign

Bound States, Cooper Pairing and Bose Condensation in Two Dimensions
    Mohit Randeria, J.-M. Duan, and L.-Y. Shieh, University of Illinois at
    Urbana-Champaign
High-T_c Superconductivity
    A. Larkin, Landau Institute and Rutgers University
Thermal String Tachyons in Multiparticle Instabilities
    Mordechai Spiegelglas, Rutgers University
Spin-1 Antiferromagnetic Chains at $T = 0$
    Rajiv Singh and Martin Gelfand, University of Maryland
Commensurate–Incommensurate Transition in the Ground State of the
Superintegrable Chiral Potts Model
    Giuseppe Albertini and Barry McCoy, Institute for Theoretical
    Physics, SUNY at Stony Brook; Jacques Perk, Oklahoma State
    University
Ground States of Frustrated, $s = 1/2$, Quantum Heisenberg Antiferro-
magnets
    Rajiv R. P. Singh, Bell Labs; Martin P. Gelfand, University of
    Maryland; David A. Huse, Bell Labs
Imbedded Dynamics for ϕ^4 Theory
    Richard Brower and Pablo Tamayo, Boston University
$T = 0$ Scaling of Potts Spin Glasses
    Jayanth R. Banavor, Penn State, and Marek Cieplak, Johns Hopkins
Evidence Against an Ising–Spin Glass Transition in 3 dimensions
    Gyan Bhanot, SCRI, Florida State University
Third Law of Thermodynamics
    Charles Radin, University of Texas
From Dynamics to Statistical Mechanics in a One-Dimensional Model of
Diatomic Molecules
    A. Monge and E. G. D. Cohen, Rockefeller University
Fast Sound Mode in Binary Fluid Mixtures
    A. Campa and E. G. D. Cohen, The Rockefeller University
Regularization of the Chapman–Enskog Expansion and Extended
Hydrodynamics
    Philip Rosenau, Technion, Israel
Temperature Driven Oscillations of a Wetting Layer
    Douglas J. Durian and Carl Franck, Cornell University
Universality in Two-Point Functions at Wetting: Exact Scaling Function
for Energy-Density Correlations
    Lee-Fen Ko and D. B. Abraham, Clarkson University and Oxford
Scaling Theory of Polydispersity in a Grand-Canonical Ensemble of Linear
Polymers
    P. D. Gujrati, University of Akron

Polymer Chains in Porous Media
      J. D. Honeycutt and D. Thirumalai, Institute for Physical Science and
      Technology, University of Maryland
Computer Simulation Study of the Collapse Transition in Polymers
      Hagai Meirovitch and H. A. Lim, Florida State University
Diffusionlike Behavior in a Deterministic Lorentz Lattice Gass Model
      X.-P. Kong and E. G. D. Cohen, The Rockefeller University
Toward a Massively Parallel Lattice Gas Computer
      Anthony Terrano, Rutgers University
Superfluid Lattice Gas Dynamics
      U. Frisch, Nice

Mini-Reviews

Anisotropy Versus Generic Incoherence in Homogeneous Media
      Charles Bennett, IBM Thomas J. Watson Research Center
Random-Field Magnets and Spin-Glasses
      A. Nihat Berker, Massachusetts Institute of Technology
Spinodal Decomposition in Polymer Blends
      Pierre Wiltzius, AT & T Bell Laboratories
What Is Measured When you Measure Resistance; the Landauer Formula
Revisited
      Douglas Stone, Yale University
Persistent Currents in Mesoscopic Normal Metal Rings
      Eberhard K. Riedel, University of Washington

Review Talks

Quantum Interference Effects in Normal Metals
      Richard Webb, IBM Thomas J. Watson Research Center
Instabilities and Pattern Formation at the Crystal Melt Interface
      Herman Cummins, City University of New York

Mini-Reviews

Something on Turbulence Theory
      Robert H. Kraichnan, Los Alamos National Laboratory
Energy and Enstrophy Cascades in Fully Developed Turbulence
      K. R. Sreenivasan, Yale University

Informal session on "Application of Renormalization Group Ideas to Hydrodynamics: Status Report"
Introduction to RG for Fluid Critical Points
    Pierre C. Hohenberg, Chair, AT & T Bell Laboratories
Experimental Situation in Strong Turbulence
    Mark Nelkin, Cornell University
The FNS Theory
    Michael Stephen, Rutgers University
Computational Tests of RG
    Steven Orszag, Princeton University
Recent Theoretical Work
    Victor Yakhot, Princeton University
RG as an Example of a Decimation Procedure
    Robert H. Kraichnan, Los Alamos National Laboratory
RG, Nonlocal Interactions, and Eddy Viscosity
    Uriel Frisch, Université de Nice

The Living Cell As a Deterministically Chaotic System
    Sungchul Ji, Rutgers University
Dissipative Transport Processes: An Investigation of Self-Organized Critical Phenomena
    Terence Hwa and Mehran Kardar, MIT
Self-Organized Percolation: A Simpler Model
    Christopher Henley, Boston University
Mean Field Critical Behaviour (including $v = 1/2$) for Percolation in High Dimensions
    T. Hara, Courant Institute, and G. Slade, McMäster University
Is the Percolation Threshold in 3-d a Lifshitz Point?
    R. Ziff and G. Stell, SUNY at Stony Brook
Continuum Percolation; Rigorous Bounds and Scaled Particle Theory
    J. Given and G. Stell, SUNY at Stony Brook
Critical Exponents and the Lower Critical Dimension of Elastic Networks in the $1/d$ Expansion
    Maya Paczuski and Mehran Kardar, MIT
Op Amp Oscillators to Investigate Quasiperiodicity and Chaos
    Andrew Cumming, AT & T Bell Labs, and Paul Linsay, MIT
Theory of Transitions among Tilted Hexatic Phases in Liquid Crystals
    Jonathan V. Selinger and David R. Nelson, Harvard University
Finite-Temperature Smectic Al–Ad Bicritical Behavior from the Frustrated Spin-Gas Theory of Reentrant Polar Liquid Crystals
    John F. Marko, Kenneth Hui, and A. Nihat Berker, MIT

Diverse Manifolds in Random Media
    Tim Halpin-Healy, University of Maryland
Interfacial Properties of Polymer Solutions
    Igal Szleifer and Ben Widom, Cornell University
Aggregate Size Distribution in the Shnidman–Zia Model of Micellar
Binary Solutions
    Yitzhak Shnidman and G. L. Jones, University of Notre Dame
Universality in the Generalized Dimensions of Deterministic Multifractal
Tree Growth
    Galen Pickett and John F. Marko, MIT
Domain Growth and Scaling in Off-Critical Quenches
    Amitabha Chakrabarti, R. Toral, and J. D. Gunton, Lehigh University
Coagulation with a Steady Monomer Point Source
    Z. M. Cheng and Sid Redner, Boston University, and F. Leyvraz,
    Institut di Fisica, UNAM
Interference of Directed Paths in Disordered Systems
    Ernesto Medina and Mehran Kardar, MIT; Yonathan Shapir and
    Xiang Rong Wang, University of Rochester
Repulsion of Walks from Excluded Points and Lines
    D. Considine and S. Redner, Boston University
Interface Fluctuations in Noise-Reduced Diffusion-Limited Aggregation
    Robin Blumberg Selinger, Harvard University; H. E. Stanley, Boston
    University; J. Nittmann, OMV, Austria
Correlation Functions of the Ising Spin Glass on the Bethe Lattice
    C. A. Doty and D. S. Fisher, Princeton University
Partial Order in a Frustrated $d = 3$ Ising System by Domain Wall Creation
    Kenneth Hui, MIT
Disorder Effects in Random Systems—The "Other Half" of the Imry–Ma
Argument
    M. Aizenman, Courant Institute, and J. Wehr, Rutgers University
Improved Convexity Inequalities for Estimating Free Energy & Relative
Entropy
    Mary Beth Ruskai and Frank H. Stillinger, AT & T Bell Labs
Local H-Theorem for a Kinetic Variational Theory
    Jerzy Blawzdziewicz and George Stell, SUNY at Stony Brook
Existence Proof for BGK Equation
    W. Greenberg and J. Polewczak, Virginia Tech
Unified Approach to Existence Proof for Boltzmann and Ensrog Equation
    J. Polewczak, Virgina Tech
Phase Transitions in 1-D Lattice Models
    P. Kleban, University of Maine, and D. A. Browne, LSU

RNG Approach to Viscoelasticity
    P. B. Visscher, Tim Logan, University of Alabama
Time-Dependant, Multi-Point Correlation Functions in the Nonlinear
Schrödinger Model
    A. Berkovich and G. Murthy, SUNY at Stony Brook
Diffusion in Liouvillion Maps
    Oreste Piro, Brookhaven National Lab, and Mario Feingold,
    Lawrence Berkely Lab
The Scanning Normal Form of Dynamical Systems
    Mark A. Pinsky
Oxygen Ordering in $YBa_2Cu_3O_{7-\delta}$ Superconductors
    Trond Aukrust, IBM Bergen Scientific Centre; Mark A. Novotny and
    Per Arne Rikvold, Florida State University
Magnetic Order by Quantum Fluctuations in the Presence of Frustration
    B. Doucot and I. Kanter, Princeton University
Spin Liquids in the Large-S Limit of Frustrated 2d Heisenberg Models
    P. Chandra, Exxon Research, and P. Coleman, Rutgers University
The F_4 Lattice As an Ultraviolet Cutoff
    Herbert Neuberger, Rutgers and Washington University
Equivalence of Transfer Matrices
    M. A. Novotny, Florida State University
Universality in the Three-Dimensional Ising Model
    Andrea J. Liu and Michael E. Fisher, University of Maryland
Monte Carlo Studies of the Critical Free Energies for the 3-D Ising Model
with Surfaces, Edges and Corners
    Pik-Yin Lai and K. K. Mon, University of Georgia
Edge Critical Exponent for the 3-D Ising Model by Finite-Size Scaling
    J. L. Valles, University of Minnesota, and K. K. Mon, University of
    Georgia
Duality-Improved Swendsen–Wang Algorithm for the Two-Dimensional
Potts Model
    Robert G. Edwards and Alan D. Sokal, New York University
Mean-Field Theory of Swendsen–Wang Dynamics
    Tane S. Ray, Pablo Tamayo, and William Klein, Boston University
New Monte Carlo Technique for Studying Phase Transitions
    Alan M. Ferrenberg and Robert Swendsen, Carnegie-Mellon Univer-
    sity
Inhomogeneous Ising Model on Multi-Connected Networks
    Michael Q. Zhang, Courant Institute, NYU
Phase Transition of Mixed Ising–XY Model
    Jooyoung Lee and J. M. Kosterlitz, Brown University

Exact Critical Line for the Antiferromagnetic Ising Model in a Magnetic Field
    F. Y. Wu and X. N. Wu, Northeastern University; H. W. J. Blöte, Delft
Statistical Mechanics of Charged Manifolds
    Yacov Kantor and Mehran Kardar, MIT
Lattice Models of Quasicrystals
    M. Widom, D. P. Deng, R. B. Griffiths, W. Li, and H. Park, Carnegie-Mellon University
Entropy of a 2d Equilibrium Quasicrystal
    D.-P. Deng and M. Widom, Carnegie-Mellon University; C. L. Henley, Boston University
Phase Diagram of 2d Random Tiling Model with 8-Fold Symmetry
    Weixiong Li and Mike Widom, Carnegie-Mellon University
Tiling Model Transitions
    Frank H. Stillinger and Jonathan Harrison, AT & T Bell Labs
Simulation of Noise-Reduced Eden Clusters in 3 and 4 Dimensions
    Pierre Devillard, Boston University
Fluctuations in Potts Glasses
    Gabriel Cwilich, University of Maryland
A Singular Block Spin Transformation for a Critical Model
    A.C.D. van Enter, University of Texas, and T. C. Dorlas, DIAS, Dublin, Ireland
Equilibrium Polymerization on the Equivalent-Neighbor Lattice
    Miron Kaufman, Cleveland State University

Mini-Review

Experimental Determination of the Structure of a Quasi-Crystal
    John Cahn, NBS

Review Talks

Self-Similar Structures Arising from Simple Dynamics: Iterated Polynomial Maps
    John W. Milnor, Institute for Advanced Study
Integrable Systems, Exactly Solvable Models, Yang–Baxter Algebras and Everything Else
    Ludwig D. Faddeev, Steklov Institute, Leningrad
Exact Derivation of Euler Equations from Hamiltonian Dynamics: One Dimensional Case
    Yasha Sinai, Landau Institute

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Peter Reynolds, U.C.: Quantum Monte Carlo Approaches for Treating
    Large-Z Atoms and Molecules: The Problem of Time Scales
Cyrus Umrigar, Cornell: Optimized Wave Functions for Quantum Monte
    Carlo
Karl Runge, NYU: The Liquid–Vapor Critical Point in He4
H. Ding, Caltech: Study of Spin Systems on Hypercubes and the CM2
Shorter technical talks and activity reports