Program of the 63rd Statistical Mechanics Meeting [1]

Department of Mathematics, Rutgers University,
May 10 and 11, 1990

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 64th, is tentatively scheduled for December 20 and 21, 1990. 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.

<div style="text-align:center">

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Welcoming Remarks
 F. Browder, Rutgers
Random Surfaces in String Theory
 E. Brezin, E.N.S. and Rutgers
Dynamical Theories of Earthquakes
 J. Langer, I.T.P. Santa Barbara
The Stability (or Instability) of Matter—Where We Are Now
 E. Lieb, Princeton
The Complex Ginsburg–Landau Equation
 P. Hohenberg, Bell Labs
Spectral Properties of Neumann Laplacians
 B. Simon, California Institute of Technology
Chaos in the Soft Sciences
 D. Ruelle, I.H.E.S. and Rutgers
Renormalization Group and Disordered Systems
 J. Bricmont, Louvain-la-Neuve
Renormalization Group for Critical Circle Mappings with Small Rotation
 O. Lanford, E.T.H.
The Future of Computing in Statistical Physics
 M. Kalos, Cornell
Determinism, Quantum Equilibrium, and the Origin of Absolute Uncertainty
 D. Dürr, Munich
Novel Phase Transition in an Incommensurate Frenkel–Kontorova Model
 R. Griffiths, Carnegie-Mellon
Lyapunov Exponent of Large Sparse Random Matrices and Directed Polymers
 B. Derrida, Saclay
Are Superconductors Really Superconducting?
 D. Fisher, Princeton
Likely and Unlikely Events: Scaling and Multiscaling
 L. Kadanoff, Chicago
Kinetic Roughening of Growing Surfaces
 H. Spohn, Munich
Informal Session on Randomness
 D. Ruelle, moderator; P. Diaconis, F. Dyson, M. Feigenbaum,
 D. Mermin, Y. Sinai
An Exactly Soluble System of Interacting Bosons
 O. Penrose, Heriot-Watt
Weakly Connected Lattices
 J. Percus, NYU/Courant

The Standard Map with Noise
    T. Spencer, I.A.S.
Random Walks with Topological Constraints
    Y. Sinai, Landau Institute
DIMACS Lecture: The Mathematics of Mixing Things Up
    Persi Diaconis, Harvard

Short Communications

Entropy by Stochastic Integration
    B. Rosen, Stevens Institute of Technology
New Numerical Method to Study Phase Transitions
    J. Lee and J. M. Kosterlitz, Brown University
Hierarchical Approach to Fractal Simulation
    P. B. Visscher, University of Alabama
A One-Dimensional Model for Crystallization
    H.-O. Carmesin and Y. Fan, Courant Institute
Thue–Morse Sequences and Nonperiodic Gibbs States
    A. C. D. Van Enter and J. Miekisz, ITP Groningen, The Netherlands,
    and University of Missouri at Columbia
Disordered Ground States
    C. Radin, University of Texas, Austin
Geometrically Induced Phase Transitions Between Equilibrium Crystal
Shapes
    K.-t. Leung and R. K. P. Zia, Virginia Tech
Drumhead Interface and Schrödinger Equation
    M. Q. Zhang, Courant Institute
Adiabatic Invariant of Exponential Order for the Schrödinger Equation
    A. Joye and C. Pfister, Ecole Polytechnique Féderale, Lausanne
Schrödinger's Operator with a Nonlocal Quasiperiodic Potential and
Having Absolutely Continuous and Point Spectra
    A. Figotin, Courant Institute, and L. Pastur, Kharkov, USSR
Gravity in One Dimension: Diffusion in Acceleration
    B. N. Miller, Texas Christian University
Absolute Instability of Electron Cyclotron Beam Wave in the Perfect
Waveguide
    S. Ahn and A. K. Ganguly, U.S. Naval Research Lab
Self-organized Criticality in Sand Piles—Nature of the Critical
Phenomenon
    J. M. Carlson, ITP, UCSB; J. T. Chayes, UCLA; E. R. Grannan,
    AT&T Bell Labs; and G. H. Swindle, UCLA

Self-Organized Criticality in One-Dimensional Sandpiles
    J. M. Carlson, ITP, UCSB; J. T. Chayes, UCLA; E. Grannan, AT&T
    Bell Labs; and G. H. Swindle, UCLA
Critical Properties of a Randomly Driven Diffusive System
    B. Schmittman and R. K. P. Zia, University of Düsseldorf and
    Virginia Tech
Long Range Correlations in Stationary Nonequilibrium Systems
    C. Maes Leuven
Ising Model at Two Temperatures
    H. Blöte, J. Heringa, A. Hoagland and R. K. D. Zia, Lab. Tech.
    Natuurkunde, Holland and Virginia Tech
Two Time Correlations in Phase Ordering Dynamics
    C. Yeung and D. Jasnow, University of Pittsburg
Derivation of the Nonlinear ViscoElastic Equations from a Microscopic
Model of Interacting Particles
    S. Olla, Courant Institute
Hydrodynamic Interactions of Brownian Particles of Very Short Times
    D. J. Durian, D. A. Weitz, D. J. Pine, Exxon Research & Eng.; and
    P. N. Pusey, Royal Signals & Radar Establishment
Pulsed Electrophoresis of Point Particles in Random Media: A Theoretical
Study
    J. P. Bouchaud and A. Georges, Ecole Normale Superieure, Paris and
    Princeton University
Viscosity of Concentrated Suspensions: An Approach Based on Percolation
Theory
    G. Campbell and G. Forgacs, Clarkson University
Pattern of Crack Propagation in Thermodynamically Nonequilibrium
Solids
    B. Yakobson, Columbia University
Some New Results in Kinetic Theory
    G. Stell, SUNY–Stony Brook
An H-Theorem and Approach to Equilibrium for K-Particle Hard-Sphere
Kinetic Equation
    J. Polewczak, SUNY–Stony Brook
On the Apparent Failure of Conservation Laws in a Variety of Problems
in Kinetic Theory
    N. Corngold, California Institute of Technology
The Direct Correlation Function
    N. Rosenfeld and L. Blum, University of Puerto Rico
Scale Equations in the Phase Transition Theory
    A. A. Lisyansky, Yu. Ivonchenko, and A. Filippov, New York
    University

Phase Transition in Hard Sphere System and Scaled Particle Theory
    H. Reiss, UCLA
Polymers Grafted to a Convex Surface
    R. Ball, Cavendish Labs; J. Marko, T. Witten, University of Chicago;
    and S. Milner, Exxon
Size and Shape of an Inflated Self-Avoiding Loop
    C. J. Camacho and M. E. Fisher, University of Maryland
Buckling Instability in Monolayer Network Structures
    R. C. Desai, Univ. of Toronto; K. J. Stine and C. M. Knobler, UCLA
The Bare Wall-Interface Potential for Critical Wetting
    A. J. Jin and M. E. Fisher, University of Maryland
Microscopic Theory of Surface Diffusion
    T. Ala-Nissila and S. C. Ying, Brown University
$1/f$ Noise in a Thin Wire Oscillation Experiment
    Y. W. Kim, D. C. Hong, A. Liakopoulos, P. Baushus, Lehigh
    University; and D. Brzryakovic, University of Tennessee
Local Fluctuations in a Model for Oxygen Ordering in 1-2-3 Super-
conductors
    P. A. Rikvold, M. A. Novotny, Florida State University, and
    T. Aukrust, IBM, Norway
The Topological Field Theory of Polymer Entanglements
    A. L. Kholodenko, Clemson University
Topological Glass Transition in Entangled Flux State (High Tc)
    S. Obukhov and M. Rubinstein, Landau Inst. & BNL, and Eastman
    Kodak
Magnetic Properties of Some Itinerant Electron Systems at $T > 0$
    M. Aizenman, Courant and E. Lieb, Princeton
Hubbard Model at Large Coupling: Analyticity and Uniqueness
    A. Messager, C.N.R.S., France; S. Perogov, and Y. Suhov
Treating the Sign Problem in Quantum Monte Carlo Dynamics
    C. H. Mak and D. Chandler, University of California at Berkeley
A New Kind of Quantum Magic
    D. Mermin, Cornell University
Elsasser's Incompleteness Theorem of Chemical and Physical Explanations
of Life
    S. Ji, Rutgers University Pharmacy
Coarse-Graining Irreversible Dynamics
    O. Martin, CCNY
A New Phase Space Localization Method with Application to Sums of
Negative Eigenvalues of Schrödinger Operators
    H. Siedentop and R. Weikard, Princeton University and TU
    Braunschweig, Germany

Diffusive Instabilities in Classical and Quantum Driven Oscillators
    L. Bunimovich, H. R. Jauslin, J. L. Lebowitz, A. Pellegrinotti, and
    P. Nielaba, Rutgers University
Integrable Systems in Non-Linear Electrodynamics
    I. Gabitov, Landau Institute
Soliton Solutions of Hamiltonian Systems and the Riemann Problem
Method
    Y. L. Rodin, WSU, Detroit
Kinetic Description of Nonlinear Wavepackets in Relativistic Plasma
    M. L. Ekiel-Jezewska, T. Fla, and A. N. Kaufman, Lawrence Berkeley
    Lab, University of California at Berkeley
Ergodicity Results for Discontinuous Maps
    C. Liverani, University of Arizona and University of Rome II
Liapunov Exponent for Standard Maps Connected with the Frenkel–
Kontorova Model
    M. Zakharevich, Carnegie Mellon University
Universal Dynamic Critical Behavior of Sliding Charge-Density Waves?
    A. A. Middleton and D. S. Fisher, Princeton University
Onsager Theorem and Relation Between Solvation Dynamics and Electron
Transfer Kinetics
    A. B. Helman and T. Keyes, Boston University
A Return to Type One Intermittency
    H. Kaplan, Syracuse University
Heat Conduction Properties of Reversible Cellular Automata
    S. Takesue, Rutgers University
Hydrodynamics of Nonequilibrium Steady States for Some Stochastic
Lattice Gas Models
    G. L. Eyink, J. L. Lebowitz, Rutgers University; and H. Spohn,
    University of Munich
Novel Phase-Separation Dynamics in a Binary Fluid System
    A. Cumming and P. Wiltzius, AT&T Bell Labs; and F. Bates, Univer-
    sity of Minnesota
Influence of Density Fluctuation on Kinetics of Bimolecular Recombination
    M. Foygel, Somerville, N.J.
Supersymmetric Anions
    D. Spector, Hobart & William Smith Colleges
An Explicit Nonlinear Normalizable Extensive Quantum Field Theory in
One-Plus-One Dimension
    J. McGuire, Florida Atlantic University
Semiclassical Aspects of Generalized t–J Model
    J. Gan, APS, P. Coleman and N. Andrei, Rutgers

A Renormalization Group Analysis of the Kosterlitz–Thouless Phase
    J. Dimock, SUNY at Buffalo, and T. Hurd, McMaster University
Duality Relations for Potts Correlation Functions
    A. C. N. de Magalhaes, CBPF, Brazil; J. W. Essam, Royal Holloway
    & Bedford New College; and F. Y. Wu, Northeastern University
A Necessary and Sufficient Condition for the Uniqueness of the Percola-
tion Cluster in Stationary Models
    A. Gandolfi, Courant Institute
High Temperature Series for Random Anisotropy Magnets
    R. Fisch and A. B. Harris, Washington University
  b. Simulated Annealing Study of Random Anisotropy Magnets
    R. Fisch
  c. Renormalization Group Recursion Relations for Random Anisotropy
    Magnets
    R. Fisch
Self-Avoiding Walks in Random Environments
    J. Machta, University of Massachusetts, and P. LeDoussal, Harvard
    University
Configuration-Weighted Random Walks
    R. J. Rubin, NIH
Critical Behavior of Directed Polymers
    D. S. Fisher and C. Doty, Princeton
Universal Distance Ratios for Two-Dimensional Self-Avoiding Walks:
Confirmation of the Conformal-Invariance Predictions
    S. Caracciolo, Scuola Normale Superiore, Pisa; A. Pelissetto,
    Princeton; and A. D. Sokal, NYU
Dynamic Critical Behavior of Generalized Wolff-Type Embedding
Algorithms for Nonlinear σ-Models
    S. Caracciolo, Scuola Normale Superiore, Pisa; R. G. Edwards, SCRI,
    Florida State University; A. Pelissetto, Princeton; and A. D. Sokal,
    NYU
Metastability and Exponential Approach to Equilibrium for Stochastic
Ising Models
    F. Martinelli and E. Scoppola, Università "La Sapienza," Rome
Multicriticality and Crossover Phenomena in Surface Growth
    L. H. Tang, T. Nattermann, and B. M. Forest, IFF der KFA Jülich
    and Ruhr-Universität Bochum, West Germany
Critical Dynamics: A Consequence of Random Growth and Contraction of
Clusters
    Z. Alexandrowicz, Weizmann Institute of Science, Israel
Multilacunarity of Fractals and Multifractals
    J. D. Fournier, CNRS, France and Columbia

Dobrushin–Shlosman Uniqueness Criterion Applied to Hard Squares. Computer Results
    A. B. Kirillov, D. C. Radulescu, D. F. Styer, USSR Academy of Sciences, Rutgers University, and Oberlin College
Universality of Finite Size Scaling at First Order Phase Transitions
    C. Borgs, Harvard University and R. Kotecky, Prague
Remarks on Surface Tensions and Wulff's Shape
    S. Miracle-Sole, CNRS, France
Instability of Interfaces in 3-Dimensional Random Ferromagnets
    M. Aizenman and J. Wehr, Courant Institute
Inequalities for Random Systems
    M. Schwartz, University of California at Santa Cruz
Localization in the Ground State of the Ising Model with a Random Transverse Field
    A. Klein, M. Campanino, and J. F. Perez, University of California at Irvine
Phase Transitions in a Hopfield Model with Very Low Connectivity
    K. J. Strandburg, Argonne National Laboratory
Critical Endpoints in Spherical Models
    M. C. Barbosa and M. E. Fisher, University of Maryland
Exact Results for a Dimer Model with a New Type of Multicritical Point
    J. F. Nagle and C.S.O. Yokol, Carnegie Mellon University and Universidade de Sao Paulo
First and Second Order Transitions and High Temperature Expansions
    P. D. Gujrati, University of Akron
Determination of Intermolecular Force Parameters From WCA Perturbation Theory
    E. Praestgaard
Applications of Statistical Mechanics in Robot Control
    J. Perram
Is the Notion of a 3-Phase Function a Well-Posed Problem?
    Jean Taylor, Rutgers
Free Boundary Condition in Incommensurate Phases
    D.-D. Deng, H. Park, M. Widom, and W. Li, Carnegie Mellon University
Percolation and Phase Transitions of Hard-Core Particles
    C.-K. Hu and K.-S. Mak, Institute of Physics, Academia Sinica, Taipei
Diffusion in Random Media: Some Exact Results
    Pierre Le Doussal, Harvard University