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Program of the 62nd Statistical Mechanics Meeting

Department of Mathematics, Rutgers University,
December 14 and 15, 1989

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 63rd, is scheduled for May 10 and 11, 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.

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Reviews

Random Surfaces: Theory & Simulation
A. Migdal, Princeton University
Are Turbulence & Earthquakes Critical Phenomena?
P. Bak, Brookhaven

0022-4715/90/0300-1275$06.00/0

Chaos Plus Noise: Using Dynamics to Reduce Experimental Noise
J. Yorke, University of Maryland
Anyon Superconductivity: Does it Exist?
B. Halperin, Harvard University

Mini Reviews

Growing Perfect Quasicrystals
P. Steinhardt, University of Pennsylvania
Compressible Vortex Dynamics and "David": A Data Visualization and Diagnostic Environment
N. J. Zabusky, Rutgers University
Observations and Theory for Solitary Dipolar Vortices and Turbulence in Rotating and Gravitating Systems
A. Friedman, Astrophysics and Council of the USSR Academy of Sciences and E. Khachikian, Byurakian Observatory of the Armenian Academy of Sciences
Mode Mode Coupling and Lattice Gas Automata: A Test
G. Zanetti, ACM, Princeton University
Spinodal Decomposition in Model B Systems
R. D. Desai, University of Toronto
Fermi Surface and Renormalization Group
G. Benfatto, University of Rome and G. Gallavotti, University of Rome and Rutgers University
New Variational Techniques for Non Self-Adjoint Problems
G. Milton, Courant Institute, NYU
The Toda Shock Problem
P. Deift, New York University
Liapunov Exponents for Infinite Dimensional Systems
E. Wayne, Pennsylvania State University
Space Time Chaos: Some Exact Results
L. Bunimovich, Institute of Oceanology of the Academy of Sciences, Moscow
Pulses and Fronts in the Complex Ginzburg–Landau Equation
W. van Saarloos and P. C. Hohenberg, AT&T Bell Labs
Microemulsions: A System of Fluctuating Interfaces
S. Safran, Exxon Research and Engineering Co.
Self Assembly and Correlation in Strongly Interacting Fluid Membrane
P. Chandra, Exxon Research and Engineering Co.
The Quantum Mechanics of Single Atoms: Testing the Randomness of Quantum Mechanics
T. Erber, ITT (Chicago)

Fluctuation Controlled Kinetics
S. Burlatski and A. A. Ovchinnicov, Inst. Chem. Phys., Acad. Nauk. USSR

Self-generation of Solutions in Nonlinear Waves
L. P. Pitaevski, Inst. of Phys. Problems, Acad. of Sciences USSR (Moscow)

The Properties of Copper Oxides in the High Doping Region
D. I. Khomsky, Lebedov Institute

Magnetic Order of the Quasi-2D-Antiferromagnet with Frustrating Impurities
A. S. Ioselevich, Landau Institute

Short Communications

Exact Enumeration of Random Feynman Paths Followed by a Hopping Electron
X. R. Wang, Y. Shapir, University of Rochester, M. Kardar and E. Medina, MIT

Magnetic Field Effects on Strongly Localized Electrons
E. Medina, M. Kardar, MIT, Y. Shapir and X. R. Wang, University of Rochester

Anyon Superconductivity
Y.-H. Chen, Princeton

Disordered Quantum Spin Chains
C. A. Doty and D. S. Fisher, Princeton University

The Integrable XXZ Heisenberg Chain with Arbitrary Spin
H. Frahm, N.-C. Yu and M. Fowler, University of Virginia

The Instanton Core Energy of a Complex Scalar Field
G. Murthy and S. Sachdev, ITP, SUNY at Stony Brook

Scaling Behavior of a Simple Model of Charge Density Waves
A. Middleton and D. Fisher, Princeton University

Heat Capacity of the 2-d Coulomb Gas
K. Olausen, SUNY at Stony Brook and Trondheim

Dynamical Instabilities of an Earthquake Fault
J. M. Carlson and J. S. Langer, ITP, University of California, Santa Barbara

Solving Inverse Problems with Neural Networks
J. A. Guattieri, NASA/GSFC and B. Kamgar-Parsi, University of Maryland and NAS/GSFC

Use of Entropy to Accelerate Monte Carlo Simulations
B. Rosen, Stevens Institute of Technology

A Multigrid Parallel Algorithm for Swendsen–Wang Dynamics
R. C. Brower and P. Tamayo, Boston University
Fermi–Bose Transmutation and the Theory of Semiflexible Polymers
A. Kholodenko, Clemson University
A New Mean Field Theory for Dilute Polymer Solutions
I. Szleifer, Cornell University
Numerical Evidence of a First Order Transition in a Branched Polymer
Y. Zhu and P. D. Gujrati, University of Akron
Universal Amplitude Ratio of θ-SAW and Tricritical Trail
I. S. Chang, Y. Shapir, University of Rochester, and H. Meirovitch, Florida State University
Spinodal Decomposition in Polymer Blends
A. Cumming and Pierre Wiltzius, AT&T Bell Labs
Polymer Adsorption in Two Dimensions and Conformal Invariance
T. W. Burkhardt and I. Guim, Temple University
High-Precision Monte Carlo Test of the Conformal-Invariance Predictions for Two-Dimensional Mutually Avoiding Walks
B. Li and A. Sokal, New York University
Time Dependent Integer-Valued Random Walks
B. M. Baker, U.S. Naval Academy and D. E. Handelman, University of Ottawa
Universality at Critical End Points
P. Upton and M. E. Fisher, University of Maryland
High-Temperature Behavior of the Yang–Lee Edge: Exact Result for $d \leqslant 3$
F. Y. Wu, Northeastern University
Exact Results for Lattice Models with Pair and Triplet Interactions
X. N. Wu and F. Y. Wu, Northeastern University
Finite-Size-Scaling Amplitudes of the Incommensurate Phases
H. Park and M. Widom, Carnegie Mellon University
Anisotropic Finite-Size Scaling of a Random Tiling Model
W. Li and H. Park, Carnegie Mellon University
Bubbles in a Hele–Shaw cell: Pattern Selection & Tip Perturbation
D. C. Hong and Fereydoon Family, Lehigh University & Emory University
Experimental Evidence for Fast Sound
E. G. D. Cohen, The Rockefeller University
Short Wavelength Collective Modes in a Two Component Hard Sphere Mixture
S. Sinha and M. C. Marchetti, Syracuse University
Spontaneous Development of Optical Activity During Freezing
J. G. Harris and Frank Stillinger, AT&T Bell Labs

Models of Vicinal Surfaces: Comparison of Monte Carlo and Free-Fermion Calculations with Experimental Data
N. C. Bartelt, T. L. Einstein, J. L. Goldberg and E. D. Williams, University of Maryland

Surface Behavior in the Fully Frustrated Ising Model
I. Guim, T. W. Brukhardt, T. Xue, Temple University

The Many-Dimensional Directed Polymer in Random Media
T. Halpin-Healy, Barnard College, Columbia University

Polymers Near an Attracting Surface in the Presence of Disorder: Exact Results
G. Forgacs, Clarkson University and Th. M. Nieuwenhuizen, University of Aachen

Heterogeneous Catalysts: Random Walks to "Poisoning"
D. Considine, S. Redner, Boston University, D. ben-Avraham, Clarkson College, P. Meakin, DuPont

Models of Chemical Association
G. Stell, SUNY at Stony Brook

Rigorous Results on Mathematical Models of Catalytic Surfaces
G. H. Swindle, UCLA and E. R. Grannan, AT&T Bell Labs

Exact Relations between Kinetic Gelation and Percolation
F. Leyvraz, Instituto de Fisica, UNAM

Three Dimensional Mandelbrot Percolation
J. T. Chayes, L. Chayes, UCLA, E. R. Grannan, AT&T Bell Labs, G. Swindle, UCLA

Wulff Construction for Two-Dimensional Percolation
K. Alexander, USC, J. T. Chayes, L. Chayes, UCLA

A Toy Model for Crystallization
Frank H. Stillinger, AT&T Bell Labs

Fractal Symmetry at Low Temperature
M. Cassandro, R. Fernandez, J. Miekisz and C. Radin, University of Texas

1/d Expansion for Spin Glasses
A. Georges, Ecole Normale Supérieure (Paris) and Princeton University, Marc Mezard, ENS and J. Yedidia, Princeton University

Parisi-like Order Parameter in the Spherical Model Spin Glass
S. Eva, A. Jagannathan and J. Rudnick, UCLA

The "Edwards–Anderson" Superconducting Vortex Glass Model
D. A. Huse and H. Sebastian Seung, Bell Labs

Conductivity and Randomness Under Finite Electric Fields
H. R. Jauslin, Rutgers University

Driven Lattice Gas with Repulsive Interactions: Mean-Field Theory
R. Dickman, Lehman College, CUNY

Improved Bounds on Transport in Polydisperse Materials
J. A. Given, SUNY at Stony Brook

The Principle of Detailed Balance and Kinetics of Electron Transfer in Polar Medium
A. B. Helman, Columbia University

Global Existence of Solutions to Kinetic Equations for Square Well Fluid
J. Polewczak, SUNY at Stony Brook

Four Kinds of Diffusion Behaviors in Lattice Lorentz Models
X. P. Kong and E. G. D. Cohen, The Rockefeller University

Long Crossover Times in a Finite System
C. R. Doering and M. A. Burschka, Clarkson University

Effect of Conservation Laws on Nucleation
L. Monette, W. Klein, P. Tamayo, R. Rey, Boston University and Worcester Polytechnic

Equilibrium Size Distribution of Charged "Living" Polymers
F. C. MacKintosh and S. A. Safran, Exxon Research and Engineering Co.

Nearest Neighbor Distribution Function in Polydispersed-Particle Systems
B. Lu and S. Torquato, North Carolina State University

Influence of Fluctuations on Spin Systems with Competing Interactions
M. C. Barbosa, (IPST) University of Maryland

An Exactly Solvable Seven Vertex Model of Non-Intersecting Loops with a Curvature Term
Y. Shapir and T. Blum, University of Rochester

Solvable Model of the Quantum Spin-Glass in a Transverse Field
Y. Y. Goldschmidt, University of Pittsburgh

Close Analogies Between Bi-Axial Nematics and Quantum Helimagnets
P. Coleman, Rutgers, P. Chandra, Exxon and A. I. Larking, Landau Inst.

Two-Fluid Fermion-Boson Superconductivity
Y. Bar-Yam, Weizmann Institute

Critical Behaviour of Helium-4 in Vycor
O. Narayan and D. S. Fisher, Princeton University

Exact Simultaneous Eigenstates of Spin and Energy in Field-Theoretical Framework for 1-D Many-Fermion System
T. Kebukawa, Cornell University

Braid Group Rep. Associated with the 10-dim Rep. of SU(5) and its Yang–Baxterization
M. L. Ge, ITP, SUNY at Stony Brook, L. H. Gwa, Rutgers University, F. Piao, Nankai Inst. Math. (China)

Thermodynamics of the Infinite-U Hubbard Model
J. Yedidia, Princeton University

A Modified Chern–Simons Term: Chiral Spin Systems and Anyon Superconductivity
A. P. Balachandran, G. Landi and B. Rai, Syracuse University

On Arnold's Diffusion
L. Chierchia, University of Rome and G. Gallavotti, University of Rome and Rutgers University

A Recursive Density Functional Formalism of Non-Uniform Fluids
M. Q. Zhang and J. K. Percus, Courant Institute, NYU

Wetting in a Cylindrical Pore
A. J. Liu, D. J. Durian and E. Herbolzheimer, Exxon Research and Engineering Co.

Scaling Properties of Diffusion on the Percolation Model with Trapping
J. L. Valles, J. W. Halley and B. Johnson, University of Minnesota and Minnesota Supercomputer Institute

Lattice Gas Cellular Automata Approach to Reaction Diffusion Systems
J. P. Boon, D. Dab, R. Kapral and A. Lawniczak, University of Guelph

Joint Density Closure Schemes for a Diffusion-Limited Reaction
J. C. Lin, C. Doering and D. ben-Avraham, Clarkson University

Microscopic Properties of Clusters in Homogeneous Nucleation
J. Yang, H. Gould, Clark University, W. Klein, Boston University and R. Mountain, NIST

Stretched-Exponential Decay Law of Nonlinear Defect Diffusion Model
H. M. Ito, Meteorological Research Institute and Rutgers University, M. Tomisaki, Nara Women's University and Y. Ogura, Saga University

Random Multiplications and Phase Transitions
F. Koukiou, Harvard University

One-Dimensional Dynamics for a Discontinuous Map
M. Alexanian, University of North Carolina

Unstable Periodic Orbits and Symbolic Dynamics of the Complex Henon Map
O. Biham and W. Wenzel, Ohio State University

The Einstein–Podolsky–Rosen Paradox and the Grothendieck Inequality
J. H. B. Kemperman, Rutgers University

The Kosterlitz–Thouless Transition with Symmetry Breaking Fields and Quenched Random Interactions
M. Paczuski and M. Kardar, MIT

Low Temperature Stability of Non-Periodic Structures
J. Miekisz, University of Missouri

Modular Symmetry in Some Quasiperiodic Systems
M. Kvale, Ohio State University

Ground States of Two-Dimensional Quasicrystals
S. Burkov, Landau Institute of Theoretical Physics (Moscow) and University of Virginia
Adsorption, and Wetting Transitions on Rough Substrates
M. Kardar and J. Indekeu, MIT
Computer Simulation of Kardar–Parisi–Zhang (KPZ) Equation for Interface Growth
A. Chakrabarti and R. Toral, Lehigh University
Phase Transition in a RSOS Growth Model in $2+1$ Dimension
J. Amar and Fereydoon Family, Emory University
Self Avoiding Tethered Manifolds: Generalized ε-Expansion and One Loop Renormalizability
T. Hwa, M. Kardar and B. Duplantier, MIT
Classification of Cellular Automata
H. Gutowitz, Los Alamos National Lab.
Time Correlations in Isotropic Turbulence
M. Nelkin and M. Tabor, Cornell University