Program of the 61st Semiannual Statistical Mechanics Meeting

Department of Mathematics, Rutgers University,

May 11 and 12, 1989

Dear Reader,

Here are the titles of the talks presented at the 61st semiannual Statistical Mechanics Meeting. As usual these titles are informal and, in many cases, there is also 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 62nd, is scheduled for December 14 and 15, 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.

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Reviews

Equilibrium Crystal Shapes: Microscopic Theory
    Roland Dobrushin, Academy of Sciences of USSR
Limitations on Estimating Dimensions and Liapunov Exponents in Dynamical Systems
    David Ruelle, IHES and Rutgers University

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Gauge Theories and Integrable Lattice Models
    Ed Witten, IAS
Statistical Mechanics of Nonequilibrium Driven Diffusive Systems
    Royce Zia, VPI and State University of Virginia

Mini-Reviews

Rounding of First-Order Phase Transitions in Systems with Quenched
Disorder
    Michael Aizenman, Courant Institute and NYU
Polymers, Random Walks and Conformal Invariance
    B. Duplantier, Saclay
Recent Results for Frenkel–Kontorova Models
    Robert Griffiths, Carnegie-Mellon University
Two-Dimensional Quantum Antiferromagnets
    D. A. Hse, Bell Labs
Random Walk in a Random Environment
    Anti Kupiainen, Rutgers University
Reflections on the Hubbard Model
    E. Lieb, Princeton University
Spectral Variables on Higher Genus Riemann Surfaces for the Star–
Triangle Equation
    Barry McCoy, SUNY at Stony Brook
Disordered and Fractal Ground States of Lattice Models
    Charles Radin, University of Texas
Immiscible Lattice Gases
    Daniel Rothman, MIT
New Approach to Localization in One Dimension
    Tom Spencer, IAS
New Methods for Monte Carlo Studies of Antiferromagnetic Potts Models
    Robert H. Swendsen, Carnegie-Mellon University
Fluids with Chemical Binding Forces
    Michael Wertheim, Rutgers University

Informal Session

Complexity in the Mathematical and Natural Sciences: When Is It a Useful
Concept?
    C. Bennett, M. David, R. Dobrushin, F. Dyson, P. Hohenberg, and
    D. Ruelle

Short Communciations

Study of Collapsing Bubble by Molecular Dynamics
    Y. P. Carignan, A. K. Macpherson, T. Vladimiroff, U. S. Army
    Research, Development & Engineering Center
A Remark on Different Norms and Analyticity for Many-Particle Inter-
actions
    A. C. D. van Enter and R. Fernandez, University of Texas at Austin
A Rigorous Bound for the Critical Exponent of Self-Avoiding Polygons
    Neal Madras, York University
Chain Conformation of "Inomers" in a Nonpolar Solvent
    Daniel C. Hong, Lehigh University
Self-Avoiding D-Dimensional Manifolds—Mean-Field Results
    P. D. Gujrati, University of Akron
Large Fluctuation in Polymer Solutions under Shear
    Eugene Helfand and Glenn H. Fredrickson, AT&T Bell Laboratories
Kinetic Model of a Nematic Liquid near the Glass Transition
    Evi Vogel and Juergen Vogel, Brown University and Alexander von
    Humboldt Stiftung
Hydrodynamic Aspects of a Nematic Liquid near the Glass Transition
    P. De, University of Rhode Island; R. A. Pelcovits, Brown University;
    E. Vogel and J. Vogel, Brown University and Alexander von
    Humboldt Stiftung
TAP Approach to Random Copolymer Glasses
    A. Kholodenko, Clemson University
New Symmetry-Breaking Fixed Points
    Ganpathy Murthy, SUNY at Stony Brook
Quenching of Einstein Coefficients in a Plasma
    Yong-Cong Chen and Joel L. Lebowitz, Rutgers University
Density Functional Theory of Atoms in Strong Magnetic Fields
    Shiwei Li and J. K. Percus, New York University
Density-Functional Theory on the Two-Point Level
    Y. Zhou and G. Stell, SUNY at Stony Brook
Application of Two-Point Density-Functional Theory
    Y. Zhou and G. Stell, SUNY at Stony Brook
Models and Approximations for Simple Association
    G. Stell and Y. Zhou, SUNY at Stony Brook
Three-Particle Distribution Functions from Generalized Ornstein–Zernike
Equation
    J. Given and J. Blawzdziewicz, SUNY at Stony Brook
Analytical Solution of Smoluchowski Gelation Equation with Time-
Dependent Kernel
    J. Blawzdziewicz and G. Stell, SUNY at Stony Brook

Representation of Coexistence Curves by Series Expansion for "Classical" Fluids
    J. Kincaid, G. Fescos, B. Tucker, and G. Stell, SUNY at Stony Brook
Geometric Properties of Random Disk Packings
    B. Lubachevsky and F. Stillinger, AT&T Bell Laboratories
Exact Solution of a Hard-Square Fluids in a Narrow Strip
    J. K. Percus and M. Q. Zhang, Courant In stitute and NYU
The Role of Frustrated Interactions in the Thermal Properties of Tiling Models for Glasses
    Jonathan G. Harris and Frank H. Stillinger, Bell Labs
Finite Size Corrections in the Tiling Model
    W. Li, M. Widom, and H. Park, Carnegie-Mellon University
Novel Behavior in Simple 2D Lattice-Gas Models at Nonstoichiometric Densities
    N. C. Bartelt and T. L. Einstein, University of Maryland, and L. D. Roelofs, Haverford College
Universality of Statistical Models of Fracture of Disordered Solids
    Sepehr Arbabi and Muhammad Sahimi, University of Southern California
Yang–Lee Zeros, Julia Sets, and Their Singularity Spectra
    Bambi Hu, University of Houston
One-Dimensional Maps
    Peter Veerman, Rockefeller University
New Ordered Phases with Abnormal Magnetic Stiffness in Highly-Degenerate Models in the Monte Carlo Interface Method
    U. Ueno, Northeastern University
Roughness of Randomly Pinned Fluid Interfaces
    M. A. Rubbio, A. Dougherty, and J. P. Gollub, Haverford College and University of Pennsylvania
Finite-Size Scaling for Systems with Nonperiodic Boundary Conditions
    V. Privman, Clarkson University
Rigorous Results for Finite-Size Scaling in First-Order Phase Transition
    C. Borgs, ETH, Zurich, and R. Kotecky, Rutgers University
Monte Carlo Study of Arbitrary q-State Potts Models
    Alan Ferrenberg, Carnegie-Mellon University, and Marco DeMeo, University of Mainz
Rigorous Lower Bound on the Dynamic Critical Exponent of the Swendsen–Wang Algorithm
    Xiao-Jian Li and Alan Sokal, New York University
Cluster acceleration with the Wolff algorithm
    P. Tamayo, R. Brower, and W. Klein, Boston Un iversity

Dynamic Critical Exponent of Wolff's Collective-Mode Monte Carlo
algorithm for the Two-Dimensional $O(n)$ Nonlinear Sigma Model
    Robert G. Edwards and Alan D. Sokal, NYU
Kawasaki Dynamics with a Global Creutz Demon
    P. Tamayo and W. Klein, Boston University
Percolation Dynamics for Z_2 Lattice Gauge Theory
    R. Brower and S. Huang, Boston University
"Gnergy" and Molecular Signal Transductions in Biology
    Sungchul Ji, Rutgers University
Who Wants to Add Spins
    Mordechai Spiegelglas, Rutgers University
Chain Conformations and Overlap in Dilute Polymer Solutions
    Witold Brostow, University of North Texas, and Bernhard A. Wolf,
    Johannes Gutenberg Universität
Statistical Mechanics of Self-Assembling, Self-Reinforcing Polymers
    F. Dowell, Los Alamos National Laboratory, University of California
The Peculiar Velocity Autocorrelation Function and the Bare Diffusion
Coefficient
    Rodney L. Varley, Hunter College
Exact Calculations in the Chaotic Regime
    O. Biham, C. Jayaprakash, and W. Wenzel, Ohio State University
A Microscopic Model with Quasicrystalline Properties
    Jacek Miekisz, University of Missouri
Five- and Seven-Loop Corrections to Field Theory Critical Point Behavior
at $d = 2$ and $d = 3$
    Dan Murray, University of Guelph
Continuous Renormalization Groups for Perturbative $\lambda\phi^4$ Theory
    T. R. Hurd, University of British Columbia
The Modified Functional Integral Formalism and Its Application to
Propagator Construction
    Anatoly Tolpin, City College of New York
A Cluster Expansion for Stochastic Lattice Fields
    J. Dimock, SUNY at Buffalo
Corrugation Instability of Relativistic Shocks
    Ilya Staroselsky, Rutgers University
Phase Diagram of the Three-States Chiral Potts Model in 2D
    Angles d'Auriac and Hansel Maillard, Rutgers University
Exact Results on the Antiferromagnetic Three-State Potts Model
    Hyunggyu Park and Mike Widom, Carnegie-Mellon University
Gaussian Fluctuations ini Potts Glasses
    Gabriel Cwilich, University of Maryland

Numerical Studies of Water Diffusing in Glassy Polymers
    J. L. Valles, J. W. Halley, and B. Johnson, University of Minnesota
A Smart Kinetic Walk on Square Lattice
    X. P. Kong and E. G. D. Cohen, Rockefeller University
Some New Results on Lattice Hydrodynamics
    U. Frisch, Observatoire de Nice and Rutgers University
Analogy between Light Scattering in Colloidal Suspensions and Neutron
Scattering in Simple Liquids
    P. N. Pusey, H. Lekkerkerker, J. M. de Schepper, and E. G. D. Cohen,
    Rockefeller University
A Finite Polynomial Solution in the Two-Dimensional Interface Dynamics
    Mark Mineev, Northwestern University
Universality in Nonequilibrium Critical Phenomena
    Ronald Dickman, Lehman College, CUNY
Long-Range Correlations is Stationary Nonequilibrium States
    P. Garrido, J. L. Lebowitz, and C. Maes, Rutgers University, and
    H. Spohn, Universität München
Dynamics of a Simple Avalenche Model
    Z. Cheng and S. Redner, Boston University, P. Meakin, E. I. DuPont
    de Nemours & Co., and F. Family, Emory University
Clustering with Neural Networks
    J. A. Gualtieri, NASA/GSFC, Behzad Kamgar-Parsi, University of
    Maryland, Judith E. Devaney, National Bureau of Standards, and
    Behrooz Kamgar-Parsi, George Mason University
Learning from Examples and Statistical Mechanics
    Naftali Tishby and Esther Levin, AT&T Bell Labs
The Kinetic Renormalization Group Approach to Diffusion Limited
Aggregation
    Xiang Rong Wang, University of Rochester
A Statistical Mechanical Description of Learning in Layered Neural
Networks
    Sara A. Solla, Bell Labs
Microscopic Simulations of Complex Flows
    M. Mareschal, University of Brussels
Hexatic Vortex Glass in Disordered Superconductors
    Eugene M. Chudnovsky, Lehman College, CUNY
Dislocations in the Abrikosov Flux Line Lattice: A Hexatic of Lines
    M. C. Marchetti, Syracuse University, and D. R. Nelson, Harvard
    University
Spin-Pair Fluctuations in Heisenberg Antiferromagnets via Ising Expan-
sions
    Rajiv R. P. Singh, AT&T Bell Labs

Grassmannian Approach to the Resonating Valence Bond State of the 2D Heisenberg Antiferromagnet
    Y. Shapir and T. Blum, University of Rochester
Comment on Small Spin-1/2 Systems
    H. Neuberger, Rutgers University and Washington University
Hidden Symmetries in Frustrated Heisenberg Models
    P. Chandra, Exxon Research & Engineering, P. Coleman, Rutgers University, and A. Larkin, Landau Institute
A Pairing Phase Transition in an Interacting Fermi Gas
    James McGuire, Florida Atlantic University

The International Conference on Parallel Processing in Neural Systems and Computers (ICNC)—10th Cybernetics Congress of the DGK—will be held March 19–21, 1990 at Heinrich-Heine-Universität, Düsseldorf (FGR). Topics are: new concepts in neuroscience and computational neuroscience; massively parallel computers (e.g., SUPRENUM, transputer systems); structure and function of biological neural systems; self-organization versus programming in parallel computers; optical computers and molecular computers; and parallel processing in artificial intelligence.

Invited speakers include: A. Cremers, Dortmund (FRG), K. Fukushima, Osaka (Japan), H. Haarer, Bayreuth (FRG), H. Haken, Stuttgart (FRG), T. Kohonen, Espoo (Finland), A. W. Lohmann, Erlangen (FRG), W. Reichardt, Tübingen (FRG), and U. Trottenberg, Bonn (FRG).

For further information contact the Conference Secretariat: R. Eckmiller, Universitätsstrasse 1, D-4000 Düsseldorf (FRG), Tel.: (211) 311–4540; electronic mail: ECKMILLE@DDORUD81.BITNET.