

Program of the 80th Statistical Mechanics Meeting

Department of Mathematics, Rutgers University, December 13–15, 1998

Here are the titles presented at the last semiannual Statistical Mechanics Meeting, held in December 1998. As usual, these titles are informal and, in many cases, there is only one speaker listed, although the work may have been done by many collaborators. Also, the addresses are incomplete, but e-mail addresses are provided if you are interested in communicating with a speaker.

Information about past and future meetings, as well as positions wanted and available, can be obtained via WWW browser at the URL <ftp://math.rutgers.edu/pub/smm>.

The next Statistical Mechanics Meeting will take place May 9 and 10, 1999, at Rutgers University.

Joel L. Lebowitz

REVIEW TALKS

Statistical Mechanics with Long Range Interactions: Vortices, Gravity, and Random Matrices

M. Kiessling, Rutgers University, miki@math.rutgers.edu

Soft Spin Approach to a Driven Lattice Gas

P. Garrido, University of Granada, garrido@onsager.ugr.es

Hydrodynamical Limits and Fluctuations for Stochastic Lattice Systems

R. Marra, Universita di Roma Tor Vergata, marra@roma2.infn.it

An Exactly-Solvable Model of a Crystal Surface

D. Abraham, Oxford University, d.abraham1@physics.ox.ac.uk

An Example of an Irreversible Behavior in a Model of Nonequilibrium Statistical Mechanics

Y. Sinai, Princeton University, sinai@math.princeton.edu

Exclusion Statistics and the Universal Chiral Partition Function

B. McCoy, State University of New York at Stony Brook, mccoy@insti.physics.sunysb.edu

Electronic Phase Separation and Colossal Magnetoresistance in Mixed-Valent Manganites

S. Cheong, Rutgers University, sangc@physics.rutgers.edu

Energetics of Dislocation Intersection in fcc Metals

D. Preston, Los Alamos National Laboratory, dean@lanl.gov

Universality in Disordered Systems: The Example of the Random Field Ising Model

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Thermodynamics of Glasses: A First Principle Computation

M. Mezard, University of California, Santa Barbara/Ecole Normale Supérieure, mezard@itp.ucsb.edu

Finite-Temperature Phase Diagram of the Hubbard Model of Electronic Conduction

N. Berker, MIT, nihata@cmt5.mit.edu

Bound States in the 1-D Hubbard Model—A Physical Picture of the Gapped Excitations

N. Andrei, Rutgers University, natan@physics.rutgers.edu

1D Hubbard Model: Exact Solution and Physics

V. Korepin, SUNY at Stony Brook, korepin@insti.physics.sunysb.edu

The Hubbard Chain at Finite Temperatures: Ab Initio Calculations of Tomonaga–Luttinger Liquid Properties

A. Kluemper, University of Koeln, kluemper@thp.Uni-Koeln.de

1D Hubbard Model and Numerical Studies

T. Deguchi, SUNY at Stony Brook/Ochanomizu University, deguchi@insti.physics.sunysb.edu

Statistical Physics of Element One at High Pressures and High Temperatures

N. Ashcroft, Cornell University, nwa@msc.cornell.edu

Test of the Renormalization Group for Sandpile Models

K. Wiesenfeld, Georgia Institute of Technology, kw2@prism.gatech.edu

Can Physics Help to Understand Cell Sorting?

G. Forgacs, Clarkson University, forgacs@clarkson.edu

Proofreading Knots

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Protein Computation Networks: A Study of Bacterial Chemotaxis

S. Leibler, Princeton University, leibler@puhep1.princeton.edu

Accurate Determination of Critical Exponents and Equation of State by Quantum Field Theory Methods

J. Zinn-Justin, MIT/CE-Saclay, zinn@ctpa03.mit.edu

Strings, QCD and Gravity: The Large N Limit of Field Theories and Gravity

J. Maldacena, Harvard University, malda@bose.harvard.edu

The Evolution of Cooperation: Why Humans can Sometimes Be Nice to Each Other

M. Nowak, IAS, nowak@ias.edu

PANEL ON HUMAN RIGHTS AND SOCIAL RESPONSIBILITIES OF SCIENTISTS

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MINI-SYMPOSIUM ON NEUROBIOLOGY

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Capture of the Lambs: Diffusing Predators Seeking a Diffusing Prey

S. Redner, Boston University, redner@sid.bu.edu

Spatiotemporal Patterns in Catalytic Chemical Reactions

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Coherent Behavior in Systems of Coupled Chaotic Oscillators

C. E. Wayne, Boston University, cw@math.bu.edu

The Central Limit Theorem and 2D Statistical Mechanics

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Smoothness for Functions Constructed via Recursive Algorithms with Applications to Computer Graphics and Wavelets

I. Daubechies, Princeton University, ingrid@math.princeton.edu

Hard Particles, Hard Problems

F. H. Stillinger, Lucent Technologies, fhs@allwise.lucent.com

Model of the Hydrophobic Interaction

B. Widom, Cornell University, widom@vdwaals.chem.cornell.edu

Adjusting for Errors in Models Representing Coarse Grained Renormalized Versions of Real Systems

H. Reiss, University of California, Los Angeles, reiss@chem.ucla.edu

Critical Exponents for Random Knots

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High Dimensionality as an Organizational Device

J. K. Percus, NYU/Courant Institute, jkp1@scires.acf.nyu.edu

Plasmas and Wave-Particle Systems: Mean-Field Revisited

Y. Elskens, Univeristy of Provence, Marseille, elskens@newsup.univ-mrs.fr

Diffusion Growth of Colloids

V. Privman, Clarkson University, privman@clarkson.edu

On the Derivation of Hydrodynamical Equations from the Boltzmann Equation

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Fluctuations in Stationary Nonequilibrium Systems

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SHORT COMMUNICATIONS

On Hamilton–Jacobi Equation with a Random Potential

Weinan E, Courant Institute, *J. Wehr, wehr@math.arizona.edu, and J. Xin, University of Arizona

Spontaneous Chaotic Granular Mixing

*T. Shinbrot, shinbrot@sol.rutgers.edu, A. Alexander and F. J. Mukzzio, Rutgers University

Particle Fluctuation Velocity in Gas Fluidized Beds—Fundamental Models Compared to Recent Experimental Data

*G. D. Cody, Exxon Corporate Research, gcdody@erenj.com, S. K. Kapbasov, Karaganda State University, Kazakhstan, and Y. A. Buyevich, University of California, Santa Barbara

Energy Dissipation in a Shear Layer with Suction

*C. R. Doering, University of Michigan, doering@math.lsa.umich.edu, E. A. Spiegel, Columbia University, and R. A. Worthing, University of Michigan

A Phase Transition in Monte Carlo Simulations of Decohered Quantum Computers

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Bayesian Analysis of Series Expansions

B. Diggs, C. Genovese, J. B. Kadane and *R. H. Swendsen, Carnegie Mellon University, swendsen + @andrew.cmu.edu

Free Energy of a Flexible Self-Avoiding Polymer in a Tube

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Q-Fields Q-States Potts Model and the Polymer Problem

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Transition from the Compact to the Dense Phase of Two-Dimensional Polymers

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Debye-Huckel Theory on a Lattice

M. E. Fisher and *A. Kolomeisky, University of Maryland, abk7@glue.umd.edu

Trigonometric Models for Near-critical Scaling

*M. E. Fisher and S.-Y. Zinn, University of Maryland

Random Walk Intersections and 2D Quantum Gravity

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Analyticity in Hubbard Models

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Algebraic Solution of the Hubbard Model on the Infinite Interval

*F. Goehmann, SUNY at Stony Brook, and S. Murakami, University of Tokyo, goehmann@insti.physics.sunysb.edu,

Binary Data Corruption Due to a Brownian Agent

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The Exact Solution of Delayed Differential Equation

K. Hasebe, Aichi University, A. Nakayama, Gifu Keisai University and *Y. Sugiyama, City College of Mie, genbey@eken.phys.nagoya-u.ac.jp

Master Equation Approach to Protein Folding

*M. Cieplak, Polish Academy of Sciences, ciepla@ifpan.edu.pl, M. Henkel, University of Nancy, J. Karbowski, Boston University and J. R. Banavar, Penn State University

Multicritical Behavior in Coupled Directed Percolation

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Diffusional Growth of Wetting Droplets

R. Burghaus, Virginia Tech

Rippling Instability on a Deflating Bubble

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Self-Affine to Self-Similar Crossover of an Adsorption-Reaction Interface

*A. Kabakcioglu, M.I.T., lakan@mit.edu, H. Kaya, Gursey Institute, and A. Erzan, Gursey Institute and Istanbul Technical University

Simulation of a 3-D Elastic Medium Subject to Quenched Disorder

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Dynamics of Two-Phase Fluid Interfaces in Random Porous Media

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Boundary Conformal Field Theories and Limit Sets of Kleinian Groups

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Activated Mechanisms in Covalent Random Networks

*N. Mousseau, Ohio University, mousseau@helios.phy.ohiou.edu and G. Barkema, University of Utrecht

- Energetics of Disorder-Induced Dislocations in 2D Random Elastic Media
 *C. Zeng, Rutgers University, chenz@physics.rutgers.edu, Paul L. Leath, Rutgers and Daniel S. Fisher, Harvard University
- Long-Range Order in a Quasi One-Dimensional Non-Equilibrium System
 G. Korniss, Florida State University, *B. Schmittmann and R. K. P. Zia, Virginia Tech, schmittm@vt.edu
- Exact Solution of a Cellular Automaton for Traffic
 M. Evans, University of Edinburgh, *N. Rajewsky, E. Speer, Rutgers University, rajewsky@math.rutgers.edu
- Phase Transitions in a Driven Lattice Gas with Anisotropic Interactions
 *L. B. Shaw, B. Schmittmann, and R. K. P. Zia, Virginia Tech, lshaw@quasar.phys.vt.edu
- Consistent and Inconsistent Finite Size Scaling in a Two-Temperature Lattice Gas
 E. L. Praestgaard, Roskilde University, Denmark, B. Schmittmann and *R.K.P. Zia, Virginia Tech, rkpzia@vt.edu
- Irreversibility from the Liouville Equation. Heat Conduction
 B. Robertson, NIST, baldwin@nist.gov
- Micellization in a Lattice Model for Amphiphiles
 *A. P. Chatterjee and A. Z. Panagiotopoulos, University of Maryland, avik@rhea.umd.edu
- Statistical Theory of Burgers Turbulence
 *E. Vanden Eijnden and Weinan E, Courant Institute of Mathematical Sciences, eve2@cims.nyu.edu
- Hopf Bifurcation of 3D Navier-Stokes Flows Excited by a Unidirectional External Force
 Z.-M. Chen, Tianjin University, zhimin@tju.edu.cn
- Does Mutation Help You Live Longer?
 *W.-M. Hwang, P. L. Krapivsky, and S. Redner, Boston University hwm@buphy.bu.edu
- Molecules, Agents and Emergent Intelligence
 J. W. Perram, Odense University, Denmark, jperram@mip.ou.dk
- Genetic Correlations in Mutation Processes
 *E. Ben-Naim and A. Lapedes, Los Alamos National Laboratory, ebn@t13.lanl.gov
- Entropy Production and Phase Space Volume Contraction
 D. Daems, Rutgers, daems@math.rutgers.edu
- Spectral Properties and Phases in Hierarchical Master Equations
 B. Gaveau, Universite Paris 6, *A. Lesne, Universite Paris 6, lesne@lptl.jussieu.fr, and L. S. Schulman, Clarkson University
- Energy Flow through Anharmonic Chains Coupled to Two Heat Baths
 J.-P. Eckmann, University Geneva, C.-A. Pillet, University of Toulon,

- and *L. Rey-Bellet, Rutgers University, bellet@math.rutgers.edu
- Path Crossing Exponents and the Stochastic Geometry of the 2D Independent Percolation
B. Duplantier, CE-Saclay/Institut Henri Poincaré, Paris, *M. Aizenman, Princeton University, aizenman@princeton.edu, and A. Aharony, Tel Aviv University
- On the Ising Model with Strongly Anisotropic External Field
F. Nardi, University of Roma Tor Vergata/Rutgers, nardi@axp.mat.uniroma2.it
- The Sign Transition for Directed Paths on Hierarchical Lattices
*E. Medina and E. Aponte, Instituto Venezolano de Investigaciones Científicas, Venezuela, ernesto@polar.ivic.ve
- Elementary and Not-So-Elementary Excitations in ANNNI Model Coarsening
P. L. Krapivsky and *S. Redner, Boston University, redner@sid.bu.edu
- What Could Possibly Be Special About Lattice Solitons?
Panayotis Kevrekidis, Rutgers University, kevrekid@physics.rutgers.edu
- Surface Adsorption and Collapse Transition of a Linear Polymer Chain Interacting with a Dirty surface
*S. Kumar and Yashwant Singh, University of Rochester/Banaras Hindu University, India, kumar@pas.rochester.edu
- Sign-Time Distributions and Persistence Properties of Interface Growth
*Z. Toroczkai, Virginia Tech/UMCP, toro@aura.phys.vt.edu and T. J. Newman, Virginia Tech
- The Alder–Wainwright Transition and of the High-density, Gas-Liquid Phase Transition, as Analyzed by Scaled Particle Theory
J. F. Kenney, Joint Institute of the Physics of the Earth, Russian Academy of Sciences, JFK@alum.mit.edu
- Impurity Mediated Nucleation in Hexadecane-In-water Emulsions
A. Herhold, *D. Ertas, A. J. Levine and H. E. King, Jr., Exxon Research and Engineering Co., mdertas@erenj.com
- Diffusion Through a Bottleneck in 2D or 3D
R. J. Rubin, N.I.H.