

Program of the 91st Statistical Mechanics Meeting, Rutgers University, May 16–18, 2004

Joel Lebowitz¹

Please note that in many cases there is only one speaker listed, although the work may have been done with collaborators. Also, the addresses may be incomplete.

Information about past and future meetings, as well as positions wanted and available can be obtained at <http://www.math.rutgers.edu/events/smm/index.html>

The next Statistical Mechanics Meeting will take place December 19–21, 2004.

REVIEW TALKS

- C.K. Hu, Academia Sinica, huck@phys.sinica.edu.tw
Exact Finite-Size Corrections for Critical Ising and Dimer Models
- F. Stillinger, Princeton University, fhs@princeton.edu
Pair Correlation Function Realizability Problems
- S. Torquato, Princeton University, torquato@electron.Princeton.edu
Local Density Fluctuations, Hyperuniformity, and Order Metrics
- P. Debenedetti, Princeton University, pdebene@Princeton.edu
Energy Landscape Statistics
- G. Slade, University of British Columbia, slade@math.ubc.ca
Phase Transition in High-Dimensional Networks
- S. Havlin, Bar Ilan University, havlin@ophir.ph.biu.ac.il
Structure and Stability of Complex Networks
- M. Newman, University of Michigan, mejn@umich.edu
The Statistical Mechanics of Networks

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- S. Solla, Northwestern University, solla@northwestern.edu
Self-Sustained Activity and Failure in a Small-World Network of Excitable Neurons
- R. da Silveira, Harvard University, rava@cmt.harvard.edu
Minimal Paths in a Model Cortex
- Y. Sinai, Princeton University, sinai@math.princeton.edu
New Results from Mathematical Hydrodynamics
- C. Newman, NYU/Courant Institute, newman@CIMS.nyu.edu
The Full Scaling Limit of 2D Critical Percolation
- L. Blum, University of Puerto Rico, lblum@rrpac.upr.clu.edu
Analytical Theory of Liquid Water: A Phase Transition with Potential Interest in Biology
- J. D. Weeks, University of Maryland, jdw@ipst.umd.edu
Screening, Structure, and Simulations of Ionic Fluids
- D. Chandler, University of California, Berkeley, chandler@cchem.berkeley.edu
Geometry and Dynamic Scaling of Structural Glass Formers
- M. Magnasco, Rockefeller University, marcelo@zahir.rockefeller.edu
Virtual Gating in the Nuclear Pore Complex
- A. Sengupta, Rutgers University, anirvans@physics.rutgers.edu
Specificity of Protein-DNA Interaction in Transcription Control: Physics, Evolution and Bioinformatics
- D. Fisher, Harvard University, fisher@dsf.harvard.edu
Evolution: Is ANYTHING Understood Quantitatively?
- D. Vanderbilt, Rutgers University, dhv@physics.rutgers.edu
Electronic Structure of an Insulator in a Finite Electric Field: What to Do When There Is No Ground State
- S. Sachdev, Yale University, subir.sachdev@yale.edu
Breakdown of the Landau-Ginzburg-Wilson Paradigm at Quantum Phase Transitions
- T. Senthil, MIT, senthil@mit.edu
Deconfined Quantum Criticality
- A. Libchaber, Rockefeller University, asveste@mail.rockefeller.edu
Techniques from Physics, Problems from Biology
- E. Chudnovsky, J. L. Lebowitz and others
Session: Human Rights and Social Responsibilities of Scientists
- R. W. Kenyon, Princeton University, rkenyon@math.princeton.edu
Limit Shapes and Fluctuations of Crystalline Surfaces
- V. B. Priezhev, Joint Institute for Nuclear Research, Russia,
priezzvb@thsun1.jinr.ru

Exact Nonstationary Probabilities in the Asymmetric Exclusion Process on a Ring

P. Chandra, Rutgers University, pchandra@physics.rutgers.edu
Slow Relaxation in a Simple Spin System

A. Neimark, TRI/Princeton, anemark@triprinceton.org
Phase Transitions and Nucleation in Finite Volumes

C. Marchetti, Syracuse University, mcm@physics.syr.edu
Hydrodynamic Instabilities in Motor-Microtubules Mixtures

M. Shelley, NYU/Courant, shelley@CIMS.nyu.edu
Locomotion by Destabilizing Symmetries

E. Siggia, Rockefeller University, siggia@eds1.rockefeller.edu
Evolution and Development: What can Physics Contribute

W. Bialek, Princeton University, wbialek@princeton.edu
Which Bits Does the Brain Use?

S. Leibler, Rockefeller University, kirks@mail.rockefeller.edu
On Cellular Switches, Gates and Clocks

Round Table: What Can Statistical Mechanics Do for Biology? A Discussion. M. E. Fisher, Chair. Participants include: B. Bialek, D. Fisher, J. L. Lebowitz, E. Siggia, and others

G. Lawler, Cornell University, lawler@math.cornell.edu
Brownian Loops and Central Charge

S. Redner, Boston University, redner@buphy.bu.edu
Dynamics of Consensus and Contention in Interacting Spin Systems

G. Forgacs, University of Missouri, forgacs@missouri.edu
Directing the Self-Assembly of Cells and Tissues into Organ Modules by Exploiting Their Physical Properties

E. Sontag, Rutgers University, sontag@math.rutgers.edu
Interconnections of Monotone Systems with Steady-State Characteristics, and Multi-stability of Biochemical Systems

L. Berlyand, Penn State, berlyand@math.psu.edu
Ginzburg-Landau Minimizers with Prescribed Degrees in Perforated Domains. Capacity of the Domain and Emergence of Vortices

I. V. Lebed, Central Aero Hydrodynamic Institute, Russia
lebed-i@newmail.ru

The Pair Functions Theory in Hydrodynamics

J. Wang, SUNY at Stony Brook/Citigroup, jinwang@sprynet.com
Energy Landscape and Specificity of Biomolecular Bindings

D. Saakian, Academia Sinica, Taiwan and Yerevan Physics Institute, Armenia, david_saakian@yahoo.com
Exact Solution of Eigen Model of Evolution

SHORT COMMUNICATIONS (* For author presenting talk)

Molecular Crystal Global Phase Diagrams

R. McClurg, University of Minnesota, mcclurg@cems.umn.edu

Long Time Dynamics of Nonlinear Chains: The New “Quasi-Equilibrium” Phase

S. Sen, SUNY at Buffalo, sen@dynamics.physics.buffalo.edu

How Anisotropy in the Line Tension Affects Fluctuations

F. Szalma, University of Maryland, szalmaf@physics.umd.edu

Power and Heat Fluctuations in Electric Circuits

*R. van Zon and E. G. D. Cohen, Rockefeller University,
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Heat Conduction in Classical Heisenberg Spin Chain

P. Mohanty, Weizmann Institute, pk.mohanty@weizmann.ac.il

Metastability under Nonequilibrium Conditions

P. Hurtado, Boston University, phurtado@buphy.bu.edu

Driven Transport on 2-Dimensional Stochastic Surfaces: Dream or Reality?

R. Hernandez, Georgia Tech, hernandez@chemistry.gatech.edu

Quantitative Modeling and Analysis of Data for SELEX Experiments

*M. Djordjevic, Columbia/Rutgers, A. M. Sengupta, Rutgers and
Shraiman B. I, Rutgers, dmarko@phys.columbia.edu

Geometric Interpretation of Adsorption at a Three Phase Contact Line

Y. Djikaev, Cornell University, id45@cornell.edu

The Structure of Hyperspherical Fluids in Various Dimensions

*M. Bishop, Manhattan College, marvin.bishop@manhattan.edu

P. Whitlock and D. Klein, Brooklyn College

Specific Heat of the Random Field Ising Model

*J. Machta and Y. Wu, University of Massachusetts,
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Large Deviations for the Random Field of Gradients

S. Adams, Technical University Berlin/Dublin Institute for Advanced
Studies, adams@math.tu-berlin.de

Finite Range Decomposition of Gaussian Processes

D. C. Brydges, University of British Columbia, *G. Guadagni,
University of Virginia, gg2k@virginia.edu, and P. K. Mitter, Universite
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Exact Eigenvalue Density of Complex Wishart Matrices

N. Lehmann, University of Duisburg-Essen,
nils.lehmann@medizin.uni-essen.de

The Statistical Ensemble Interpretation of Teleportation

B. Sanctuary, McGill University, bryan.sanctuary@mcgill.ca

Quantum Interference Effects in Transport Through Lattices in Two Dimensions

*E. Cuansing and H. Nakanishi, Purdue University, cuansing@physics.purdue.edu

Stripe Phases in 2D Ising Model with Frustrating Long-Range Dipolar Interactions

L.-W. Siu, Stony Brook University/Brookhaven National Lab, siu@bnl.gov

The Bare Diffusion Coefficient and Peculiar Velocity Autocorrelation

R. Varley, CUNY, Rodney.Varley@hunter.cuny.edu

Functional Complexity Measure for Networks

H. Meyer-Ortmanns, International University Bremen, h.ortmanns@iu-bremen.de

Signatures of Icosahedral Order in First Principles Simulation of Supercooled Liquid Metals and Alloys

*P. Ganesh, M. Widom, M. Mihalkovic, Carnegie Mellon University, gpanchap@andrew.cmu.edu

Many Spin Glass Ground States?

O. White, D. S. Fisher, Harvard University, white@physics.harvard.edu

Granular Gas Under Vibration and Weightlessness: The Case of Low and Very Low Density

P. Evesque, Ecole Centrale Paris, evesque@mssmat.ecp.fr

The Start of Granular Shear Flow: Insights Into Force Chain Networks

W. Losert, University of Maryland, wlosert@glue.umd.edu

Probing Molecular Free Energy Landscapes by Periodic Loading

*A. Hanke, University of Texas at Brownsville, hanke@phys.utb.edu, O. Braun, and U. Seifert, University of Stuttgart

Universality Class of Charge and Size Asymmetric Electrolytes

*Y. C. Kim, M. E. Fisher, University of Maryland, and

A. Z. Panagiotopoulos, Princeton University, yckim@wam.umd.edu

Ionic Permeation through Protein Channels and Non-Equilibrium Statistical Mechanics

B. Nadler, Yale University, boaz.nadler@yale.edu

Calcium Transients in *Xenopus* (Toad) Embryology

J. Diaz and *G. Martinez-Mekler, UNAM, mekler@fis.unam.mx

Mermin-Wagner Proof for an Orbital Model

B. Harris, University of Pennsylvania, harris@dept.physics.upenn.edu

A Simplified Crossover Droplet Model for Adsorption of Pure Fluids in Slit Pores

*S. B. Kiselev and J. F. Ely, Colorado School of Mines,
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Random Walks and Traffic of Molecular Motors

*S. Klumpp and R. Lepowsky, Max Planck Institute, Germany,
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Statistical Mechanics of Multiple Local Sequence Alignment

*A. Chakraborti and A. M. Sengupta, Brookhaven National Laboratory,
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Gain-Threshold Mechanism and Principality of Chaos in Single Neurons

L. Andrey, Academy of Sciences, Prague, andre@cs.cas.cz

A New Formula for the Survival Probability in Directed Percolation

L. Anton, University of Manchester, lucian.anton@infim.ro

Broken Ergodicity and Phase Transitions in Classical and Quantum Systems with Long-Range Interactions

*G. L. Celardo, University of Milan and Catholic University of Brescia,
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How to Make a Neurocrystal: The developmental Patterning of the Fly's Retina

D. Lubensky, Rutgers University, lubensky@biomaps.rutgers.edu

Conjectural Hypergeometric Series for Three-Body Calogero-Sutherland Model/Hypergeometric Functions Associated to Root System of Type A_2 and Products over Positive Roots

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Coulomb System at Low Temperature, a New Approach

W. Zhou, New York University, wz214@nyu.edu

Bose-Einstein Condensates in Optical Lattices and Superlattices

M. Porter, Georgia Institute of Technology, mason@math.gatech.edu

Markovian Approach to Density Functionals

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Philipp.Maass@tu-ilmenau.de

Database of Cohesive Energies of Metal Alloys: Application to Amorphous and Quasicrystalline Materials

M. Mihalkovic, Carnegie-Mellon University, marekm@andrew.cmu.edu

Time Perception, the Quantum Phase and the Cyclotomic Field

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Local Coulombic Interactions from a Constrained Configurational Integral

J. Rottler, Princeton University, jrottler@princeton.edu

Two-Component Surface Growth by Noisy Deposition—Mixing Random Deposition with Either Kardar-Parisi-Zhang or Edwards-Wilkinson Mechanisms

*A. Kolakowska and M. A. Novotny, Mississippi State University

First Passage Properties of the Erdos Renyi Random Graph

V. Sood, Boston University, vsood@bu.edu

Ultimate Fate of Constrained Voters

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Modified Hyperspherical Function Method for Critically Singular Potential

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Tutte Polynomials in 4D Lattice Gauge Q-State Potts Model

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Results for the Generalized Mittag-Leffler Function in the Complex Plane

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Relation between the Presence of a Glassy Phase and the Appearance of a Coulomb Gap in Anderson Insulators

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