Journal of Statistical Physics, Vol. 118, Nos. 5/6, March 2005 (© 2005)
DOI: 10.1007/s10955-005-3024-2

Program of the 92nd Statistical Mechanics Meeting Rutgers University, December 19–21, 2004

Joel L. Lebowitz[1]

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 May 15–17, 2005.

REVIEW TALKS (* For authors presenting talk)

M. Falk, University of Michigan, mfalk@umich.edu
Localization of Plastic Deformation in Amorphous Solids

T. Lubensky, University of Pennsylvania, tom@physics.upenn.edu
Nonlinearity and Non-Affinity in Elastic Networks

N. Goldenfeld, University of Illinois at Urbana-Champaign, nigel@uiuc.edu
Renormalization Group Approach to Multiscale Modelling in Materials Science

G. Casati, Giulio.Casati@uninsubria.it
Controlling The Heat Flow: A Thermal Transistor

D. Mermin, Cornell University, mermin@ccmr.cornell.edu
Stapp's Last Blast

*J. Cahn and L. A. Bendersky, NIST, john.cahn@nist.gov
Glass Formation by a Nucleation and Growth Process as in a First-Order Transition

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M. Chan, Penn State University, chan@phys.psu.edu
Observation of Superflow in Solid Helium
J. Cardy, University of Oxford/IAS, cardy@thphys.ox.ac.uk
Entanglement Entropy in Extended Systems
D. Huse, Princeton University/Harvard University, huse@Princeton.EDU
Hydrodynamic Long-Time Tails at High Temperatures in Hubbard-Like Models
B. Halperin, Harvard University, halperin@hall.harvard.edu
Patterns of Domains in the Microwave-Induced "Zero-Resistance State" of Two-Dimensional Electron Systems
I. Procaccia, Weizmann Institute, itamar.procaccia@weizmann.ac.il
Branching Instabilities in Rapid Fracture: Dynamics and Geometry
A. Karma, Northeastern University, a.karma@neu.edu
How Does a Crack Choose Its Path
J. Swift, University of Texas, swift@chaos.ph.utexas.edu
Fluctuations in a Driven Granular Medium
J. Gollub, Haverford/Penn, jgollub@haverford.edu
Structures and Chaotic Fluctuations of Granular Clusters in an Excited Fluid Layer
G. Ahlers, University of California, Santa Barbara, guenter@physics.ucsb.edu
Fluctuations Near Phase Transitions in Two-Dimensional Equilibrium and Non-Equilibrium Systems
H. Swinney, University of Texas at Austin, swinney@chaos.ph.utexas.edu
Fractal Growth in Thin Sheets, Leaves, and Viscous Fingers
R. Goldstein, University of Arizona, gold@physics.arizona.edu
The Platonic Ideal of Speleothem Growth
D. Stone, Yale University, douglas.stone@yale.edu
Quantum Limited Detection, Dephasing and Information in Mesoscopic Systems
R. Shankar, Yale University, r.shankar@yale.edu
Dots for Dummies
M. Kardar, MIT, kardar@MIT.EDU
Casimir Forces, Surface Fluctuations, and Thinning of Superfluid Films
S. Chakravarty, UCLA, sudip@physics.ucla.edu
Competing Order, Vertex Models, and High T_c Superconductors
K. R. Sreenivasan, J. L. Lebowitz and others
Human Rights and Social Responsibilities of Scientists
K. R. Sreenivasan, ICTP, Trieste, krs@ictp.trieste.it
Superfluid Turbulence
S. Nagel, University of Chicago, srnagel@uchicago.edu
Low Temperature Anomalies Near Jamming

A. Liu, University of Pennsylvania, ajliu@physics.upenn.edu
Jamming and k-Core Percolation
L. Kadanoff, The University of Chicago, leop@uchicago.edu
Two Cheers for Computer Simulations
M. E. Fisher, University of Maryland
Valency in Ionic Criticality: Field Theory, Simulation, and Understanding
A. Ruckenstein, Rutgers University, andreir@physics.rutgers.edu
A Composite-Ratchet Model of Transcription Elongation and its Control
R. Albert, Penn State, ralbert@phys.psu.edu
Connecting the Structure and Dynamics of Gene Regulatory– and Signal Transduction Networks
D. McLaughlin, New York University, david.mclaughlin@nyu.edu
Kinetic Theory for Neuronal Networks: An Effective Representation for Scale-up
P. Mitra, Cold Spring Harbor, mitra@cshl.edu
Design Principles in Biological Systems: Or, Will Theory Ever be Interesting in Biology?

Round Table: Patterns in Equilibrium and Nonequilibrium Systems
Participants: G. Ahlers, E. Bodenschatz, J. Gollub, P. Hohenberg, L. Kadanoff, J. Langer and H. Swinney. J. L. Lebowitz, Chair

J. Yorke, University of Maryland, yorke@ipst.umd.edu
Estimating the Infectiousness of HIV/AIDS
W. F. Wreszinski, University of Sao Paulo, wreszins@fma.if.usp.br,
Order Parameters in Disordered Systems
M. den Nijs, University of Washington, dennijs@phys.washington.edu
Queuing Transitions in Stochastic One Dimensional Flow, Faceting in Paper Combustion, and Polymer Localization
P. Moussa, CEA/Saclay, moussa@spht.saclay.cea.fr
Perturbative Calculations for Generalised Dimensions
B. Meerson, Hebrew University/The University of Michigan,
meerson@cc.huji.ac.il
Hydrodynamic Singularities in a Freely Cooling Inelastic Gas
T. Prellberg, Queen Mary, University of London, t.prellberg@qmul.ac.uk
Polymer Simulations with a Flat Histogram Stochastic Growth Algorithm
*J. Sethna, K. S. Brown and R. A. Cerione, Cornell University,
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Sophisticated Statistical Mechanics of Sloppy Models: Making Predictions about Protein Dynamics in Cells

Y. Kevrekidis, Princeton University, yannis@Princeton.EDU
Equation-Free Dynamic Renormalization for Complex/Multiscale Problems

K. Burke, Rutgers University, kieron@dft.rutgers.edu
Density Functional Theory of Dissipative Systems

SHORT COMMUNICATIONS (* For authors presenting talk)

S. B. Karmakar, Universal Enterprise, math235@yahoo.com
A Conditional Proof of Fermat's Last Theorem

H. Carley, Rutgers University, carley@math.rutgers.edu
On a Large Coupling Problem

*A. Donev, F. H. Stillinger and S. Torquato, Princeton University, adonev@princeton.edu
Characteristics of Nearly Jammed Disordered and Ordered Hard–Particle Packings

S. Mashkevich, Schrodinger, Inc., mash@mashke.org
Fractional Statistics of Distinguishable Particles

*R. Fisch, University of Pennsylvania, rfisch@seas.upenn.edu,
S. N. Coppersmith and J. W. Landry
Finite-Size Scaling in the Energy–Entropy Plane for the 2D +-J Ising Spin Glass

*S. Kotsev and T. Burkhardt, Temple University, skotsev@temple.edu
Mean Absorption Time of a Randomly Accelerated Particle

Y. Djikaev, Cornell University, id45@cornell.edu
Determining the Line Tension of a Three-Phase Contact Region by Monte-Carlo Simulations

*M. Gildner and B. Vollmayr-Lee, Bucknell University, mgildner@bucknell.edu
Lifshitz–Slyozov Theory with Anisotropy

A. Baljon, San Diego State University, abaljon@san.rr.com
Percolation of Immobile Domains in Supercooled Thin Polymeric Films

K. Lee, Korea University, Korea, kyoung@nld.korea.ac.kr
Complex Dynamics of Cardiac Waves Mediated by Defects

*E. Ben-Naim, Los Alamos National Laboratory, ebn@lanl.gov, and
J. Machta, University of Massachusetts
Stationary States and Energy Cascades in Granular Gases

*P. Cvitanovic and Y. Lan, Georgia Tech, predrag.cvitanovic@physics.gatech.edu
Turbulence—What to Do about It?

A. B. Harris, University of Pennsylvania, harris@physics.upenn.edu
Landau Theory for Magneto-Ferroelectricity
E. Bodenschatz, Cornell University, eb22@cornell.edu
Dislocation Dynamics in Pattern Forming Systems
*D. Nelson, A. Polkovnikov and Y. Kafri, Harvard University, nelson@cmt.harvard.edu
Unzipping Luttinger Liquids
*A. Giuliani, F. Zamponi and G. Gallavotti, Universita' di Roma "La Sapienza", Alessandro.Giuliani@roma1.infn.it
Fluctuation Theorem beyond Linear Response Theory
A. Garg, Northwestern University, agarg@northwestern.edu
Spin Orientation Tunneling in Magnetic Molecules: A Playground for Spin-Coherent-State Path Integrals
*A. Kuklov, College of Staten Island, CUNY, kuklov@mail.csi.cuny.edu, E. Burovski, E. Kozik, N. Prokof'ev and B. Svistunov, UMASS, Amherst
Superfluid Interfaces in Quantum Solids
R. Petti, MathWorks, Inc., RJPetti@alum.MIT.edu,
The Geometrization of Molecular Statistical Mechanics
J. F. Kenney, Russian Academy of Sciences, JFK@alum.MIT.edu
The Gas–Liquid Phase Transition in the Hard-Sphere Gas: (collecting crumbs under Michael Fisher's table)
E. Ching, The Chinese University of Hong Kong, ching@phy.cuhk.edu.hk
Plumes Extraction in Turbulent Thermal Convection
*C. Maloney, UCSB Physics/LLNL, cmaloney@physics.ucsb.edu and A. Lemaître
Cracklike Cascades in Amorphous Plasticity
A. Lee, MIT, allentc@MIT.EDU
Symmetry-Breaking Motility
P. Virnau, MIT, virnau@mit.edu
Characterizing Knots in Polymer Coil and Globule Phases
N. A. Zimbovskaya, University of Puerto Rico at Humacao, mzimbov@mail.ru
On the Electronic Transport in Conducting Polymeric Wires
*B. Vollmayr-Lee and R. Rhoades, Bucknell University, bvollmay@bucknell.edu
The Trapping Reaction with Mobile and Reacting Traps
C. Chang, Cornell University, cc236@ccmr.cornell.edu
Size Dependence of Phonon Sidebands in Polyacetylene
B. Chakrabarti, UMASS, buddho@physics.umass.edu
The Nonlinear Elasticity of an Alpha-Helical Polypeptide
V. Coffman, Cornell University, vrc3@cornell.edu
A Generalization of the Andreev–Lifshitz Theory of Supersolid Helium

J. Fiala and *P. Kleban, University of Maine, kleban@maine.edu
Strange and Unusual Correlations in the Farey Spin Chain

*J. Machta and Y. Wu, UMASS Amherst, machta@physics.umass.edu
Phase Transition of the Random Field Ising Model at Zero Temperature and Positive Temperature

G. Lee-Dadswell, University of Guelph, dadswell@physics.uoguelph.ca
Heat Conductivity and Bulk Viscosity in 1-D: New Approach from an Old Idea

B. Eckhardt, Philipps Universitaet Marburg and University of Maryland, bruno.eckhardt@physik.uni-marburg.de
Particle Clustering in Turbulent Flows

A. Silva, Rutgers University, fnsandro@physics.rutgers.edu
On Subgap States in Dirty Superconductors and Dimensional Reduction

S. Villain-Guillot, Universite Bordeaux 1, s.villain@cpmoh.u-bordeaux1.fr
Non-linear Growth and Coalescence in the 1D Cahn-Hilliard Model

*M. Ranganathan, T. Zhao, J. D. Weeks, D. B. Dougherty and E. D. Williams, University of Maryland, madhav@glue.umd.edu
Evolution of Spiral Steps on Supported Lead Nanocrystallites

*F. Szalma and T. L. Einstein, University of Maryland, szalmaf@physics.umd.edu
Correlations in Nano-island Fluctuations (Comparison of Theory, MC and Experiments)

J. Scales, Colorado School of Mines, jscales@mines.edu
Mesoscale Ultrasonics in Open and Closed Disordered Systems

L. Shaw, Naval Research Laboratory, lshaw@nls6.nrl.navy.mil
Modeling Multistrain Diseases with Antibody Dependent Enhancement

*R. Metzler and Y. Bar-Yam, NECSI, MIT, richard@necsi.org
Multiscale Complexity: A New Tool for Characterizing Complex Systems

H. Rozenfeld, Clarkson University, rozenfhd@clarkson.edu
Designer Nets from Local Strategies

J. Bagrow, Clarkson University, bagrowjp@clarkson.edu
A Local Method for Detecting Communities in Networks

I. Nemenman, Columbia University, ilya.nemenman@columbia.edu
Disordered Systems and Statistical Inference of Transcriptional Networks

C. Myers, Cornell University, myers@tc.cornell.edu
Functional Patterns in Computational and Biomolecular Systems

V. Los, National Academy of Sciences of Ukraine, v.los@ulrmc.org.ua
Homogeneous Generalized Master Equations
A. Stan, Louisiana State University in Shreveport, astan@pilot.lsus.edu
On Heisenberg Inequality
*T. Kuna, J. Lebowitz and E. Speer, Rutgers University, tkuna@math.rutgers.edu
Realizibility of Point Processes for Low Densities: An Easy Explicit Construction
*T. W. Burkhardt and S. Kotsev, Temple University, tburk@temple.edu
Equilibrium of a Confined, Randomly Accelerated, Inelastic Particle