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Program of the 85th Statistical Mechanics Meeting

Department of Mathematics, Rutgers University, May 6–8, 2001

Here are the titles presented at the last semiannual Statistical Mechanics Meeting, held in May 2001. 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 may be incomplete.

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 or at http://www.math.rutgers.edu.

The next Statistical Mechanics Meeting will take place December 16–18, 2001, at Rutgers University and the following one will take place May 19–21, 2002.

Joel L. Lebowitz

REVIEW TALKS

Fragile-to-Strong Transition in Liquid Silica
P. H. Poole, University of Western Ontario, poole@cmrg.apmaths.uwo.ca

Rapidly Growing Length Scales in Glass-forming Liquids
S. C. Glotzer, University of Michigan, sglotzer@umich.edu

Fluctuation-Dissipation Relation in Slowly Sheared Dense Granular Materials
H. Makse, CUNY, makse@levdec.engr.ccny.cuny.edu

Fractals, Where's the Meat?: Using Fractal Interpolation Techniques as Predictive Tool for Coarse-Grained Nonlinear PDEs
C. Meneveau, John Hopkins University, meneveau@pegasus.me.jhu.edu

Kinetics of Phase Transitions in Systems with Long-Range Interactions
W. Klein, Boston University, klein@buphy.bu.edu

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Levy Flights with Absorbing Boundary Conditions: a Model for Biological Foraging
S. V. Buldyrev, Boston Univeristy, sergey@miranda.bu.edu
Vortex Patterning in the Driven XY Rotor Model
R. L. B. Selinger, Catholic University, selinger@wsphd.phys.cua.edu
Aging Phenomena in Glass: Two-Time Scaling of Dynamics
H. Z. Cummins, City College of New York, cummins@scisun.sci.ccny.cuny.edu
Statistical Mechanics of Complex Networks
A.-L. Barabasi, Notre Dame, alb@nd.edu
Percolation Theory for the Stability of the Internet
S. Havlin, Bar Ilan University, havlin@ophir.ph.biu.ac.il
Passive-Scalar Turbulence and the Geometry of Loops
G. Huber, UMass-Boston, huber@cs.umb.edu
New Equations in Hydrodynamic Turbulence and Their Experimental Assessment
K. R. Sreenivasan, Yale University, k.sreenivasan@yale.edu
The Hofstadter Butterfly Viewed as a Quantum Phase Diagram
Y. Avron, Technion, avron@physics.technion.ac.il
Statistics, Spins, and Spin-Orbit Coupling in Small Particles
B. I. Halperin, Harvard University, halperin@hall.harvard.edu
The Bose Gas: A Subtle Many-Body Problem
E. Lieb, Princeton University, lieb@math.princeton.edu
Max Planck and the Experiments which Gave Rise to the Quantum Hypothesis
M. Nauenberg, University of California, Santa Cruz, michael@mike.ucsc.edu
Relations between Micro-Scale Interactions and Macro-Scale Patterns in Granualr and Slurry Flows
T. Shinbrot, Rutgers University, shinbrot@sol.rutgers.edu
Do Granular Media Transmit Forces as a Solid Does?
T. A. Witten, University of Chicago, t-witten@uchicago.edu
Shock Waves in Granular Flows
H. Swinney, University of Texas at Austin, swinney@chaos.ph.utexas.edu
Session on Human Rights and Social Responsibilities of Scientists, with S. Zia-Zarifi, Director, Academic Freedom Program of Human Rights Watch
Statistical Mechanics of Steady State Entropy Production
C. Maes, K. U. Leuven, Christian.Maes@fys.kuleuven.ac.be
Fractal Scaling in Health and its Breakdown with Aging and Disease
A. L. Goldberger, Harvard University, agoldber@caregroup.harvard.edu

Cluster Analysis of DNA-Chip Data
E. Domany, Weizmann Institute, fedomany@weizmann.weizmann.ac.il
Fundamental Patterns Underlying Gene Expression Profiles
J. Banavar, Penn State University, jayanth@phys.psu.edu
The Small World of the Cortex
L. Abbott, Brandeis University, abbott@brandeis.edu
Modelling the Primary Visual Cortex of the Macaque Monkey
D. McLaughlin, Courant Institute, dmac@cims.nyu.edu
What Problem is the Brain Trying to Solve
W. Bialek, NEC, bialek@research.nj.nec.com
Informal Discussion on: The Organization of the Brain and Other Biological Problems with Abbott, Goldberger, McLaughlin, Bialek
Fermi-Liquid Renormalization of the Effective Mass and g*-Factor in High-Mobility Si Inversion Layers
M. Gershenson, Rutgers University, gersh@physics.rutgers.edu
Density Functional Theory and the Accurate Treatment of Many-Body Effects
K. Burke, Rutgers University, kieron@rutchem.rutgers.edu
Elastic Compatibility and Structural Phase Transitions: Consequences for Shape Memory Alloys
A. Saxena, Los Alamos National Laboratory, abs@viking.lanl.gov
Metastability and Hysteresis in Confined Systems
A. Neimark, TRI/Princeton, aneimark@triprinceton.org
Lattice Density Functional Theory for Confined Fluids
G. Aranovich, Johns Hopkins University, aranovich@jhu.edu
Gelation and Aggregation Driven by a Conformational Transition
R. Bansil, Boston University, rb@buphy.bu.edu
MSA and the Equilibrium in Charged Systems
L. Blum, University of Puerto Rico, lblum@rrpac.upr.clu.edu
Reversible Lattice Models of Branched Growth
R. D'Souza, Bell Labs, raissa@research.bell-labs.com
Properties of Stationary Nonequilibrium States in the Thermostatted Periodic Lorentz Gas with Many Weakly Interacting Particle
F. Bonetto, Rome, bonetto@tolomeo.roma1.infn.it
Diffusion on Dendrimer Structures
P. Argyrakis, University of Thessaloniki, panos@kelifos.physics.auth.gr
Kinetic Modeling of Chemically Reacting Dense Gases
J. Polewczak, California State University, jacek.polewczak@csun.edu
Statistical Mechanics and Evolutionary Entropy
L. Demetrius, Harvard University, ldemetr@oeb.harvard.edu

SHORT COMMUNICATIONS

The Tightness of Knots in Charged Polymers
*P. Dommersnes, MIT, Y. Kantor, Tel Aviv, and M. Kardar, MIT,
Bounded Ice on 2 and 3d Lattices
K. Eloranta, Helsinki University of Technology, kve@locus.hut.fi
Density of Anchored Critical 2-D Percolation Clusters
*P. Kleban, Univeristy of Maine, kleban@maine.edu and R. Ziff, University of Michigan
Mass Distributions of Incipient Infinite Clusters in Percolation
*M. Z. Bazant, MIT and J.-P. Bouchaud, CEA, Saclay, bazant@math.mit.edu
Distribution of Shortest Paths Between Two Lines in Percolation Systems
*G. Paul, Boston University, S. Buldyrev, Boston University, S. Havlin, Boston and Bar Ilan University, H. E. Stanley, Boston University, gerryp@bu.edu
Simulation of Very Low Probability Events (Mutiple Crossing Probabilities) in Percolation
*R. Ziff, University of Michigan, rziff@engin.umich.edu and P. Grassberger, Juelich,
Absence of a Tri-critical Point in the Dynamic Phase Diagram of a Spatially Extended Bistable System
*G. Korniss, Rensselaer, P.A. Rikvold, M.A. Novotny, Florida State University, korniss@rpi.edu
Non-exponential Relaxation in Protein-Folding Dynamics
*C.-L. Lee, C.-T. Lin, G. Stell, and J. Wang, SUNY at Stony Brook, chilee@ic.sunysb.edu
Exact Calculations of Potts Model Partition Functions for Lattice Strips of Arbitrarily Great Length
*S.-C. Chang and R. Shrock, SUNY at Stony Brook, chang@insti.physics.sunysb.edu
Simulations at the Fixed-Point without Critical Slowing Down
*D. Ron, Weizmann Institute, Israel, dron@wisdom.weizmann.ac.il, R. H. Swendsen, Carnegie Mellon University, and A. Brandt, Weizmann Institute, Israel
Flow of a One-Dimensional Superfluid Past an Obstacle
*X. Qi, E.B.Kolomeisky, and T.J.Newman, University of Virginia xq8z@virginia.edu
Computational Statistical Mechanics and the Reproduction of the Density Anomaly of Liquid Water
M. W. Mahoney, Columbia University, mm1785@columbia.edu

Static and Dynamic Properties of Stretched Water
P. A. Netz, F. W. Starr, H. E. Stanley and *M. C. Barabosa, Boston University and Universidade Federal do Rio Grande do Sul, barbosa@argento.bu.edu

Equation of State for a Partially Ionized Gas
George A. Baker, Jr., Los Alamos National Laboratory, gbj@viking.lanl.gov

Probing the Strong Boundary Shape Dependence of the Casimir Force
T. Emig, MIT, *A. Hanke, MIT, and M. Kardar, MIT, hanke@mit.edu

Dynamics of Sleep-Wake Transitions during Sleep
*C.-C. Lo, Boston University, cclo@bu.edu, L. A. N. Amaral, S. Havlin, P. Ch. Ivanov, T. Penzel, J.-H. Peter, and H. E. Stanley

A dynamical Approach to Statistical Physics,
*X. Leoncini, CIMS, NYU, and A. Verga, IRPHE, Universite de Provence, leoncini@cims.nyu.edu

Fluctuation Dominated Ordering of Hard-Core Particles Sliding on a Fluctuating Surface
D. Das, Brandeis University, dibyendu@octance.cc.brandeis.edu, M. Barma, and S. N. Majumdar

Self Avoiding Walks in Strong Disorder
*L. A. Braunstein, Universidad Nacional de Mar del Plata, Argentina, and Boston University, S. V. Buldyrev, Boston University, S. Havlin, Bar Ilan and Boston University, and H. E. Stanley, Boston University

The Exchange Hamiltonian and the Symmetric Group
*J. Katriel and G. F. Kventsel, Technion, jkatriel@techunix.technion ac.il

A New Phenomenon in Boson Condensation on a Lattice
T. C. Dorlas, Dublin Institute for Advanced Studies, dorlas@stp.dias.ie

Spinless Fermions and Hardcore Bosons on a Square Lattice with Infinite Repulsion: the Stability of Stripe-Array
*N. Zhang and C.L. Henley, Cornell University, ngzhang@ccmr.cornell.edu

Bose Condensation in Complex Networks
*G. Bianconi, and A.-L. Barabasi, Notre Dame University, gbiancon@nd.edu

An Ising Spin System with Two Heat Baths of Different Temperature
*F. Schmüser and B. Schmittmann, Virgina Tech, schmuser@kanga.phys.vt.edu

Specific Heat of Multifractal Energy Spectra
*L. R. da Silva, Boston University and UFRN Natal, Brazil, and R. O. Vallejos, C. Tsallis, R. S. Mendes and S. Roux, lsilva@argento.bu.edu

Constructive Criteria for Localization
M. Aizenman, *J. Schenker, Princeton University, D. Hundertmark Cal Tech, R. Friedrich, ETH, schenker@princeton.edu

On Diffusive Steady States for Kinetic Equations of Granular Media
I. Gamba, *V. Panferov, C. Villani, University of Texas at Austin, panferov@mail.ma.utexas.edu

On Phase Field Models with Memory
A. Novick-Cohen, Technion-ITT, Israel, amync@techunix.technion.ac.il