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Report

Program of the 95th Statistical Mechanics Meeting, Rutgers University, May 7–9, 2006

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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 17–19, 2006.

95th Statistical Mechanics Conference Rutgers University, Hill Center, Room 114, Sunday, Monday and Tuesday, May 7–9, 2006

B. Nachtergaele, University of California, Davis, bxn@math.ucdavis.edu
The Exponential Clustering Theorem and Related New Results for Quantum Spin Systems

S. Starr, UCLA, sstarr@math.ucla.edu
Phase Transitions in some Quantum Spin Systems with Large Spins

M. Biskup, UCLA, biskup@math.ucla.edu
Phase Coexistence of Gradient Gibbs Measures

D. Abraham, Oxford University, d.abraham1@physics.oxford.ac.uk,
V. Mustonen and A. J. Wood
The Geodesic-zigzag Phase Transition: Statics and Dynamics

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P. Bleher, Indiana University-Purdue University Indianapolis, bleher@math.iupui.edu
Exact Solution of the Six-Vertex Model with Domain Wall Boundary Conditions

M. Loss, Georgia Institute of Technology, loss@math.gatech.edu
Mathematical Problems in Non-Relativistic QED

S. Teufel, University of Tuebingen, stefan.teufel@uni-tuebingen.de, H. Spohn and G. Napani
Effective Dynamics of Electrons in Adiabatically Perturbed Periodic Structures

D. Duerr, Muenchen University, duerr@mathematik.uni-muenchen.de
On Spontaneous Pair Creation

G. F. Dell'antonio, University of Rome, dellanto@mat.uniroma1.it
Dynamics on Metric Graphs as Limit of Constrained Systems

T. Spencer, IAS, spencer@math.ias.edu
An Overview of Super Symmetry and Random Matrices

P. Deift, NYU, deift@cims.nyu.edu
On the Gaudin and Tracy-Widom distributions in Random Matrix Theory

G. Kozma, IAS, gady@ias.edu
One-Dimensional Long-Range Diffusion-Limited Aggregation

G. Slade, University of British Columbia, slade@math.ubc.ca
The Survival Probability for Critical Oriented Percolation above $4 + 1$ Dimensions

V. Sidoravicius, IMPA, Brazil/Courant Institute, sidoravi@cims.nyu.edu
Influence Percolation: Some Critical Values for the Systems with Columnar Defects

J. Kurchan, CNRS, Paris, jorge@pmmh.espci.fr
Shear-Thickening and the Glass Transition

C. A. Angell, Arizona State University, caa@asu.edu, V. Molinero, H. Bhat, J. Yarger, E. Soignard, and S. Sastry
Design, by "Potential Tuning" MD, of a Monatomic Metallic Glassformer: Its Liquid State Properties, and Its Realization in the Laboratory

R. Varadhan, NYU, varadhan@cims.nyu.edu
Random Walks and Diffusions in a Random Environment. Large Deviations and Connections with Homogenization.

P. Sarnak, Princeton University, sarnak@math.princeton.edu
Quantum Fluctuations on Hyperbolic Surfaces

*V. Zagrebnov, University Aix-Marseille II and CPT-Luminy, zagrebnov@cpt.univ-mrs.fr, J. Pule and A. Verbeure
Non-homogeneous Bose-Einstein Condensation

M. Ciucu, Georgia Institute of Technology, ciucu@math.gatech.edu
Electrostatics Emerging from Random Tilings with Holes

P. Chaikin, NYU, chaikin@physics.nyu.edu
Wigner Emulsions and Crystals: Electrostatics of Oil/Water/Solid Mixtures

U. Smilansky, Weizmann Institute, uzy.smilansky@weizmann.ac.il, and S. Gnutzmann
Can One Count the Shape of a Drum

J. Cardy, Oxford University, cardy@thphys.ox.ac.uk
Self-Avoiding Loops in Two Dimensions

Human Rights Session and Social Responsibilities of Scientists, Joel Lebowitz and others

J. Krug, University of Koeln, krug@thp.Uni-Koeln.DE
Statistical Mechanics of Step Bunches

T. Einstein, University of Maryland, einstein@umd.edu, A. Pimpinelli, M. Degawa, T. J. Stasevich, W. G. Cullen, and E. D. Williams
Ferrari, Prähofer, and Spohn's Remarkable Scaling Results for Facet-Edge Fluctuations

W. E, Princeton University, weinan@princeton.edu
Microscopic Origin of Macroscopic Elasticity?

S. Chen, Johns Hopkins University, syc@jhu.edu
Multiscale Modeling of Micro- and Nano-Fluidics

R. Levy, Rutgers University, ronlevy@lutece.rutgers.edu
Protein Folding and Binding: Insights from Replica Exchange and Network Models

P. Ao, Washington University, aoping@u.washington.edu
Potential Function and Fitness Landscape in Biology, Physics, and Economy

S. A. Solla, Northwestern University, solla@northwestern.edu
Manifolds for Neural Control of Motion

E. Domany, Weizmann Institute, eytan.domany@weizmann.ac.il
Predicting Outcome in Breast Cancer: Hope, Hype and Physics

An Informal Session on the Topic
"The Unreasonable Effectiveness" (E. Wigner) and/or
"The Pernicious Influence" (J. Schwartz) "of Mathematics in the Natural Sciences"
Participants will include: P. W. Anderson, F. Dyson, Y. Sinai, E. Witten.
M. E. Fisher, Chair.

P. Leath, Rutgers University, leath@physics.rutgers.edu
Dynamics of Dielectric Breakdown Paths

J. Machta, University of Massachusetts, Amherst, machta@physics.umass.edu, D. Stein and C. Newman
Graphical Representations and the Phase Transition of the Ising Spin Glass

D. Stein, NYU, daniel.stein@nyu.edu
Short Range Spin Glasses in Magnetic Field

F.-L. Toninelli, ENS, Lyon, fabio-lucio.toninelli@ens-lyon.fr
Depinning Transitions for Directed Polymers with Quenched Randomness

H.-T. Yau, Harvard University, htyau@math.harvard.edu
Recent Developments on Quantum Dynamics Inspired by Herbert Spohn's Work

S. Olla, Ceremade, olla@ceremade.dauphine.fr
Microscopic Models for Thermal Conductivity

Th. Bodineau, LPMA, Universites Paris 6 & 7, bodineau@math.jussieu.fr, and B. Derrida
Current Large Deviations for Stochastic Particle Systems

A. Schenkel, University of Helsinki, alain.schenkel@helsinki.fi, and R. Lefevere
Normal Heat Conductivity in Strongly Pinned Chains of Anharmonic Oscillators

A. Messager, CNRS-Luminy, Alain.Messager@cpt.univ-mrs.fr, and B. Nachtergaele
A Model with Simultaneous First and Second Order Phase Transitions

Short Talks

S. Ji, Rutgers University, sji@rci.rutgers.edu
The Bohr-Elsasser Incompleteness Theorem: The Insufficiency of Physicochemical Theories to Explain Life

*J. Joo, Penn State University, jjoo@phys.psu.edu, E. Harvill, and R. Albert
Effects of Noise on Ecological Invasion Processes: Phage-Mediated Competition in Bacteria

*C.-K. Hu, Academia Sinica, Taipei, huck@phys.sinica.edu.tw, and D. B. Saakian
Some Analytic Results of Biological Evolution Models

*V. A. Shneidman, vitaly@oak.njit.edu, and G. M. Nita, NJIT
Transient Nucleation in a Supercooled Lattice Gas

S. Sun, Johns Hopkins, ssun@jhu.edu
Path Summation Formulation of the Master Equation

N. Khatiashvili, Tbilisi State University, ninakhat@yahoo.com
On Two-Dimensional Fluid Flow Problem with a Free Boundary

O. White, MIT, white.olivia@gmail.com
Spin Glass Stable State(s) and Growing Length Scale(s)

*F. Zamponi, LPT, Ecole Normale Superieure, francesco.zamponi@phys.uniroma1.it, and G. Parisi
Amorphous Packings of Hard Spheres

L. Lue, University of Manchester, and *M. Bishop, Manhattan College, marvin.bishop@manhattan.edu

Molecular Dynamics Study of the Thermodynamics and Transport Coefficients of Hard Hyperspheres in Dimensions 3 to 7

*Y. Yang, Brandeis University, Yasheng@gmail.com, B. Chakraborty and J. Kondev
Transition Rates in a Lennard-Jones Binary Mixture

*S. K. Das, University of Maryland, subir@umd.edu, M. E. Fisher, J. V. Sengers, J. Horbach, and K. Binder
Critical Dynamics in Fluids: Verifying Theory through Simulations

*P. Kleban, University of Maine, kleban@maine.edu, J. Simmons, and R. M. Ziff
Crossing and Connection Probabilities in Critical 2-D Percolation

M. Lewenstein, A. Niederberger, L. Sanchez-Palencia, *J. Wehr, University of Arizona, wehr@math.arizona.edu
Continuous Spin Systems in a Symmetry Breaking Random Field

*D. Tsygankov, University of Maryland, dtsygank@umd.edu, and M. E. Fisher
The Problem of Hidden Substeps in Molecular Motors

*J. Frank, MIT, jrf@mit.edu and M. Kardar
Defects in Flexible Nematic Sheets

A. Middleton, Syracuse University, aam@syr.edu, P. Le Doussal, K. Wiese
Computing the Functional Renormalization Group Fixed Point for Interfaces

*M. Kardar, MIT, kardar@mit.edu, T. Emig, R.L. Jaffe, and A. Scardicchio
Casimir Interaction between a Plate and a Cylinder

*O. Peters, UCLA and Santa Fe Institute, ole.peters@physics.org, D. Neelin, M. Girvan, G. Pruessner
Universality in Self-Organized Critical Systems

*F. Colomo, INFN, Firenze, colomo@fi.infn.it, and A. Pronko
Square Ice, Alternating Sign Matrices and Orthogonal Polynomials

*E. Kamber, Brandeis University, ekamber@brandeis.edu and J. Kondev
Lattice Dimers and the Tilting Transition

*A. Giuliani, Roma1/Princeton, Alessandro.Giuliani@roma1.infn.it, J. L. Lebowitz, Rutgers, E. H. Lieb, Princeton
Ising Models with Long-Range Dipolar and Short Range Ferromagnetic Interactions

WM. C. McHarris, Michigan State University, mcharris@chemistry.msu.edu
Bell's Theorem Meets Nonextensive Thermodynamics

S. Huntsman, Naval Postgraduate School, schuntsm@nps.edu
Gauge Theory and Descriptive Thermodynamics

R. Fisch, Princeton University, ron@princeton.edu
Finite-Size Scaling of the Domain Wall Entropy for the 2D+-J Ising Spin Glass

A. Toom, UFPE, Brazil, toom@de.ufpe.br
Every Continuous Operator Has an Invariant Measure

N. Zimbovskaya, University of Puerto Rico at Humacao, n_zimbovskaya@webmail.uprh.edu
On the Mechanism of Electron Transport in Conducting Polymer Manofibers

*S. Henkes, Brandeis University, shenkes@brandeis.edu, and B. Chakraborty
A Field Theory of Jamming

P. Dubovski, Stevens Inst. of Technology, pdubovsk@stevens.edu
New model of the Coagulation Kinetics

S. J. Rahi, MIT, sjrahi@mit.edu, and K. Sharp
Mapping Complicated (Protein) Surfaces onto a Sphere

*Y. Liu, Brandeis University, liu@brandeis.edu, and B. Chakraborty
Statistical and Mechanical Properties of Semiflexible Polymers in an External Field

*J. Kalb, Brandeis University, ringwrld@brandeis.edu, and B. Chakraborty
Polymer Dynamics and Statics in Confined Geometries

*P. Virnau, MIT, virnau@mit.edu, L. Mirny and M. Kardar
Searching for Knots in Proteins

*M. S. Li, Polish Academy of Sciences, masli@ifpan.edu.pl, D. K. Klimov and D. Thirumalai
Scaling of Cooperativity of Folding-Unfolding Transition in Globular Proteins

*D. O'Maoileidigh, Rutgers University, dmelody@physics.rutgers.edu, V. R. Tadigotla and A. E. Ruckenstein
The Kinetics of Transcription Elongation

I. Breskin, *J. Soriano-Fradera, E. Moses, T. Tlusty, Weizmann Institute, fejordi@weizmann.ac.il
Percolation in Living Neural Cultures

P. Wright, NYU, paulrite@cims.nyu.edu
A Simple Piston Problem

*K. Oliveira, Federal University of Alagoas, krerley@impa.br, and M. Viana, IMPA
Equilibrium States and Thermodynamic Formalism Beyond Hyperbolic Systems

*J. Schenker, IAS, jeffrey@math.ias.edu, G. M. Graf, A. Elgart
Equality of the Edge and Bulk Hall Conductances in a mobility gap

*For author presenting the talk.