

## **Program of the 99th Statistical Mechanics Conference Honoring Edouard Brezin & Giorgio Parisi**

**Rutgers University, Hill Center, Room 114, Sunday, Monday,  
Tuesday, May 11–13, 2008**

**Joel L. Lebowitz**

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### **Invited Talks**

R. Monasson, ENS, monasson@lpt.ens.fr  
On the Inverse Random Walk Problem

E. Bouchaud, CEA, France, elisabeth.bouchaud@cea.fr  
Some Scaling Properties of Fracture Surfaces

C. Dasgupta, Indian Institute of Science, cdgupta@physics.iisc.ernet.in  
Growing Length and Time Scales in Glass Forming Liquids

P. Young, University of California, Santa Cruz, peter@physics.ucsc.edu  
Size dependence of the minimum excitation gap in the Quantum Adiabatic Algorithm

S. Hikami, University of Tokyo, hikami@dice.c.u-tokyo.ac.jp  
Topological Invariance in Random Matrices

J.P. Bouchaud, CEA, France, jean-philippe.bouchaud@cea.fr  
On an Explicit Construction of Parisi Landscapes in Finite Dimensional Euclidean Spaces

S. Franz, ICTP, silvio.franz@gmail.com  
Interfaces in Hierarchical and Finite Dimensional Spin Glasses

E. Andrei, Rutgers University, eandrei@physics.rutgers.edu  
Graphite, Graphene and Relativistic Electrons

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Copies of the presentations of the invited talks as well as information about past meetings, positions wanted and available, can be obtained at: <http://www.math.rutgers.edu/events/smm/>.

The next Statistical Mechanics Conference, the 100th, is scheduled to take place 13–16 December 2008.

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G. Jona-Lasinio, University of Roma I, gianni.jona@roma1.infn.it  
What is an Equilibrium State? A Nonequilibrium Point of View

R. Lipowsky, Max-Planck Institute, Berlin, lipowsky@mpikg.mpg.de  
Multi-scale Motility of Molecular Motors

M. Kardar, MIT, kardar@MIT.EDU  
Specificity and Diversity of T-cell Receptors by Thymic Selection

A. Grosberg, University of Minnesota, grosberg@physics.umn.edu  
Branched Polymers and Shapes of Neurons

C. Callan, Princeton University, ccallan@Princeton.EDU  
Stochastic Dynamics of the Evolution of Gene Regulation: Simple Theory Meets Real-World Data (and Survives)

J. Zinn-Justin, CEA, France, zinn@dapnia.cea.fr  
RG Fixed Point Stability and Decay of Correlations

J.B. Zuber, Universite Paris, VI, zuber@lpthe.jussieu.fr  
Revisiting Old Matrix Integrals

E. Marinari, INFN, Italy, enzo.marinari@roma1.infn.it  
Loops in Random Graphs

B. Halperin, Harvard University, halperin@physics.harvard.edu  
Theoretical Considerations and Experimental Probes of the  $\nu = 5/2$  Fractional Quantized Hall State

N. Sourlas, ENS, France, sourlas@gmail.com  
Scale Invariance and Self-Averaging in Disordered Systems

E. Siggia, Rockefeller University, siggia@eds1.rockefeller.edu  
Predicting the Course of Evolution

M.E. Fisher, University of Maryland, claremon@umd.edu  
On Rubel's Magical Differential Equation: Its Solution Can Approximate Any Continuous  $f(x)$

E. Witten, Institute for Advanced Study, witten@ias.edu  
Electric-Magnetic Duality on a Half-Space

S. Leibler, Rockefeller University, kmclean@mail.rockefeller.edu  
Some Inverse Problems in Biology

Human Rights session: Mona Younis, AAAS, myounis@aaas.org  
The AAAS Science and Human Rights Program

P. Stamp, University of British Columbia, stamp@phas.ubc.ca  
Quantum Glasses

D. Chandler, University of California, Berkeley, chandler@cchem.berkeley.edu  
Constrained Collective Dynamics and the Glass Transition

J. Garrahan, University of Nottingham, juan.garrahan@nottingham.ac.uk  
Structural Glass Transition as a First-Order Phase Transition in Space-Time

L. Cugliandolo, Univ. Pierre et Marie Curie, Paris VI, leticia@lpthe.jussieu.fr  
On a Field Theory for Interacting Brownian Particles

J. Langer, University of California, Santa Brbara, langer@physics.ucsb.edu  
What is the Temperature of a Deforming Glass?

H. Makse, CUNY, hmakse@levdec.engr.cuny.cuny.edu  
Statistical Mechanics of Jammed Matter and the Nature of Random Loose and Random Close Packings of Spheres

D. Nelson, Harvard University, nelson@cmt.harvard.edu  
Gene Surfing in Microorganisms

M. Schick, University of Washington, schick@phys.washington.edu  
Results from a Field-Theoretic Approach to Membrane Fusion

G. West, Santa Fe Institute, gbw@santafe.edu  
Growth, Innovation and the Pace of Life from Cells to Cities

Round table: "Random Matrices and Random Materials". Participants include: M. Aizenman, E. Brezin, G. Parisi and T. Spencer

F. Guerra, University of Rome "La Sapienza", Francesco.Guerra@roma1.infn.it  
Functional Order Parameters and their Legendre Conjugates in Disordered Statistical Systems

D. Sherrington, University of Oxford, d.sherrington1@physics.ox.ac.uk  
Local Field Distributions in Spin Glasses

R. Livi, University of Florence, livi@fi.infn.it  
The Role of Initial Conditions in the FPU Problem

J. Diaz-Herrera, Universidad Autonoma Metropolitana-Iztapalapa,  
diazpiomo@googlemail.com  
Phase and Interfacial Behavior in Fluid Mixtures with Spherical Interactions

D. Mukamel, Weizmann Institute of Science, fnmukaml@wisemail.weizmann.ac.il  
Statistical Mechanics of Systems with Long Range Interactions

A. Giuliani, University of Rome 3, giuliani@mat.uniroma3.it  
Periodic Ground States in Spin Systems with Long Range Competing Interactions

E. Carlen, Rutgers University, carlen@math.rutgers.edu  
Droplet Minimizers of the Mesoscopic Free Energy of a Particle System with Kac Type Potentials

L. Koralov, University of Maryland, koralov@math.umd.edu  
Mathematical Model for Polymers

T. Dorlas, Dublin Institute for Advanced Studies, dorlas@stp.dias.ie  
Thermodynamic Limit of the Six-Vertex Model

## Short Talks

\*C. Chatelain and M. Kardar, MIT

Title: Anomalous Dynamics of the ‘Zero’ of a One Dimensional Stochastic Field

\*S.J. Rahi, M.P. Hertzberg and M. Kardar, MIT

Title: Melting of Persistent Double-Stranded Polymers

R. Shirts, Brigham Young University

Title: Microcanonical Entropy: Re-Evaluation of Boltzmann-Planck vs. Schluter Formulations

\*D.-S. Lee and H. Rieger, Northeastern University

Title: Critical Phenomena of Boolean Networks with Heterogeneous Connectivity

\*E.C. Marino and C.M.S. da Conceicao, Princeton University

Title: Stable Mean-Field Solution of a Short-Range Interacting SO(3) Quantum Spin-Glass

\*M. Avlund, O. Hallatschek and D. Nelson, Harvard University

Title: Computer Models of Gene Segregation

\*K. Korolev, Harvard University

Title: Defect-Mediated Emulsification in Two Dimensions

\*S. Rahav and C. Jarzynski, University of Maryland

Title: Fluctuation Relations and Coarse-Graining

\*Y. Shokef, Y. Han, A. Alsayed, P. Yunker, T. Lubensky and A. Yodh, University of Pennsylvania

Title: Stripes and their Zigzagging in Buckled Hard Spheres

\*V. Vitelli, N. Xu, M. Wyart, A.J. Liu and S.R. Nagel, University of Pennsylvania

Title: Energy Transport in Jammed Sphere Packings

V. Sacksteder, APCTP

Title: Sums Over Geometries and Improvements on the Mean Field Approximation

\*P. Kleban, University of Maine, J.J.H. Simmons, Oxford and R.M. Ziff, Michigan

Title: Exact Factorization of Correlation Functions in Critical Systems

S. Ji, Rutgers University

Title: ‘Stochastic Mechanics’ of Molecular Machines

\*D. David-Rus, S. Mukhopadhyay, J.L. Lebowitz and A.M. Sengupta, Rutgers University

Title: Inheritance of Epigenetic Chromatin Silencing

S. Boettcher, Emory University

Title: Ising Spin Glasses in  $d = 2$  to 7

R. Fisch, Princeton University

Title: Scaling of Bond Distributions in the Ising Spin Glass

\*M. Keskin, B. Deviren and O. Canko, Erciyes University

Title: Kinetics of a Mixed Spin-1/2 and Spin-3/2 Ising Ferrimagnetic Model

\*H. Lee and H. Park, Korea Institute for Advanced Study

Title: A Baker-Campbell-Hausdorff Solution by Differential Equation

\*H. Jo and M. Ha, Korea Institute for Advanced Study

Title: Relevance of Abelian Symmetry and Stochasticity in Directed Sandpile Models

\*A. Toom, A.V. Rocha and M. de Medeiros, SampaioUFPE, Brazil

Title: Law of Large Numbers for Cellular Automata

S. Huntsman, Equilibrium Networks; NPS

Title: Thermal Traffic Analysis

\*S. Gravel and V. Elser, Cornell University

Title: Think Locally, Act Globally: How to Search with Iterated Maps

X. Xing, Syracuse University

Title: Topology of Smectic Order on Compact Curved Substrates

\*M-C. Huang, J.-W. Wu and Y.-P. Luo, Chung-Yuan Christian University, Taiwan

Title: Fluctuations of Gene Regulatory Networks Induced by Intrinsic Gaussian Colored Noise

\*A. Hanke, M.G. Ochoa and R. Metzler, University of Texas at Brownsville

Title: Denaturation Transition of Stretched DNA

\*B. Bagchi, P. Blainey and X.S. Xie, Indian Institute of Science

Title: Protein Diffusion along a DNA

\*M. Schechter and P. Stamp, University of British Columbia

Title: Are Magnetic and Electric Dipolar Glasses Alike?

G. Gradenigo\*, C. Cammarota, A. Cavagna, T. Grigera and P. Verrocchio, University of Trento, Italy

Title: A Measure of Surface Tension Among Low Temperature Inherent Structures

\*F. Bouchet and E. Simonnet, INLN—CNRS, France

Title: Out of Equilibrium Phase Transitions of Two Dimensional Turbulent Flows