

**98th Statistical Mechanics
Conference**

**RUTGERS UNIVERSITY,
HILL CENTER, ROOM 114
SUNDAY, MONDAY AND TUESDAY,
DECEMBER 16-18, 2007**

CONFERENCE PROGRAM

SATURDAY, DECEMBER 15, 2007

Dinner at 7:00pm at Hyatt. Transportation from Howard Johnson at 6:35pm

SUNDAY, DECEMBER 16, 2007

8:00 -9:00 Breakfast and registration

9:00 -9:20 A. Bertozzi, UCLA, bertozzi@math.ucla.edu
Swarming by Nature and by Design

9:20 -9:40 C. Doering, University of Michigan, doering@umich.edu
Statistical Steady State Mixing Measures and Effective Diffusivities

9:40 -10:00 D. Pine, NYU, pine@nyu.edu
A Nonequilibrium Dynamical Transition in Periodically Strained Suspensions

10:00 -10:20 A. Sokal, NYU, sokal@nyu.edu
Fermionic (Grassmann) Representation for Spanning (Hyper)forests and Other Combinatorial Objects

10:20 -10:50 Coffee

10:50 -11:15 E. Shakhovich, Harvard University, eugene@belok.harvard.edu
How Statistical Mechanics of Proteins Shapes Biological Evolution

11:15 -11:40 G. Forgacs, University of Missouri, forgacsg@missouri.edu
Computational Tissue-engineering: Relating Biophysical Properties Across Scales from the Subcellular to the Organ Level

11:40 -12:05 M. Widom, Carnegie Mellon University, widom@andrew.cmu.edu
Target Gene Identification for RNA Interference

12:05 -12:30 P. Fratzl, Max Planck Institute, Peter.Fratzl@mpikg.mpg.de
Natural Materials as Mechanical Devices

12:30 -2:00 Lunch

2:00 -2:25 A. Levelt Sengers, NIST, johanna.sengers@nist.gov
Women for Science - Retrospective and Outlook

2:25 -2:50 H. Cummins, City College of New York, cummins@sci.ccny.cuny.edu
Light-Scattering Spectroscopy of Phase Transitions: From Liquid-Vapor to Liquid-Glass and Liquid-Gel

2:50 -3:15 H. Swinney, University of Texas at Austin swinney@chaos.ph.utexas.edu
Volume Fluctuations, an Invariant Distribution, and a Phase Transition in a Static Granular Medium

3:15 -3:40 W. Webb, Cornell University, www2@cornell.edu
Critical Phenomena in 2 Dimensional Structures Including Living Cells - Like Ours!

3:40 -4:10 Coffee

4:10 -4:35 P. Hohenberg, NYU, pierre.hohenberg@nyu.edu
Critical Dynamics and Chaos

4:35 -5:00 J. Gollub, Haverford College, jgollub@haverford.edu
Curvature Fields, Topology, and the Dynamics of Spatiotemporal Chaos

5:00 -5:25 G. Ahlers, University of California, Santa Barbara, guenter@physics.ucsb.edu
The Large-scale Circulation in Rayleigh-Benard Convection: A Dynamical System Driven by the Fury of Turbulence!

5:25 -5:50 W. Goldberg, University of Pittsburgh, goldburg@pitt.edu
Fluctuating Entropy of Particles on a Turbulent Sea

-----Busch Campus Student Center -----

6:00 -8:00 COCKTAILS AND CONCERT IN HONOR OF GUENTER AHLERS, HERMAN CUMMINS, WALTER GOLDBURG, JERRY GOLLUB, A. LEVELT SENGERS, HARRY SWINNEY, AND WATT WEBB. COCKTAILS AND CONCERT ARE SPONSORED BY SPRINGER, PUBLISHER OF THE JOURNAL OF STATISTICAL PHYSICS AND COMMUNICATIONS IN MATHEMATICAL PHYSICS. ALL ARE INVITED

8:00 BANQUET DINNER (Reservations Required)

MONDAY, DECEMBER 17, 2007

7:50 -8:30 Breakfast and registration

8:30 -10:35 Short talks, Session A

10:35 -11:05 Coffee

11:05 -11:30 D. Rothman, MIT, dhr@MIT.EDU
Time-Dependent Reactivity in Earth's Carbon Cycle

11:30 -11:55 R. Weiss, Princeton University, rweiss@Princeton.EDU
Synthetic Biology: From Bacteria to Stem Cells

11:55 -12:35 Human Rights Session.
Guest speaker: Hadi Hadizadeh, Harvard University
Title: Status of Human Rights in Iran! Is The Theocratic Regime Planning For Another Cultural Revolution?

12:35 -1:55 Lunch

1:55 -2:20 B. Widom, Cornell University, widom@vdwaals.chem.cornell.edu
Effect of a Solute on the Structure and Energetics of its Solvent -- and Vice Versa

2:20 -2:45 E. Stanley, Boston University, hes@buphy.bu.edu
New Results on Water in Bulk, Nanoconfined, and Biological Environments

2:45 -3:10 J. Weeks, University of Maryland, jdweek@ipst.umd.edu
Effective Attraction Between Like-charged Objects in Systems with
Strong Coulomb Interactions

3:10 -3:40 Coffee

3:40 -4:05 S. Dietrich, Max Planck-Gesellschaft, dietrich@mf.mpg.de
Critical Casimir Forces

4:05 -4:30 S. Fraden, Brandeis University, fraden@brandeis.edu
Manipulating Phase Diagrams with Microfluidics

4:30 -4:55 B. Schmittman, Virginia Tech., schmittm@vt.edu
Lack of Consensus in Social Systems

4:55 -5:20 Z. Nussinov, Washington University, zohar@wuphys.wustl.edu
Inhomogeneous Orders, Glassy Dynamics, and Unusual Thermodynamics on Curved Surfaces and Frustrated Systems

5:20 -5:45 B. Chakraborty, Brandeis University, bulbul@brandeis.edu
Phase Space for Jamming: A Statistical ensemble for granular packings

5:45 -6:10 M. Bandi, Los Alamos National Laboratory, mbandi@lanl.gov
Dynamics of the Jamming Transition

6:10 -8:00 Cocktails and dinner

8:00 - Boltzmann video with open discussion. S. Goldstein and J.L. Lebowitz, Commentators

TUESDAY, DECEMBER 18, 2007

7:50 -8:30 Breakfast and registration

8:30 -10:15 Short talks, Session B

10:15 -10:35 Coffee

10:35 -10:55 I. Guarneri, Universita dell' Insubria, italo.guarneri@uninsubria.it
Accelerator Modes in Cold Atom Optics

10:55 -11:15 J. Mayo, Sandia National Laboratories, jmayo@sandia.gov
Front Propagation in Random Media: An Application of Burgers Turbulence
and Directed Polymers

11:15 -11:35 A. Figotin, University of California, Irvine, afigotin@math.uci.edu
Nonlinear Dynamics of a System of Particle-like Wavepackets

11:35 -11:55 R. Ziff, University of Michigan, Ann Arbor, rziff@umich.edu
Percolation and the Quasi-static state of dynamical processes

11:55 -12:15 S. Coppersmith, University of Wisconsin-Madison, snc@physics.wisc.edu
Using the Renormalization Group to Classify Boolean Functions

12:15 -12:35 M. den Nijs, University of Washington, dennijs@phys.washington.edu

ECoG Observations of a Power Law in the Brain

12:35 -1:45 Lunch

1:45 -2:05 H. van Beijeren, Universiteit Utrecht, H.vanBeijeren@phys.uu.nl
Green-Kubo for Solids

2:05 -2:25 M. Vogelius, Rutgers University, vogelius@math.rutgers.edu
Electromagnetic Cloaking and Near-cloaking of Objects

2:25 -2:45 L. Blum, Rutgers University, lesblum@yahoo.com
The Analytical Solution of the Extended Soft Binding Mean Spherical Approximation

2:45 -3:05 A. Neimark, Rutgers University, aneimark@rutgers.edu
Fluid-Solid Interactions: Accounting for the Surface Roughness

3:05 -3:25 P. Grassberger, University of Calgary, pgrassbe@ucalgary.ca
Practical Applications of Mutual Information: Phylogenetic Trees, Independent Component Analysis, and Microarray Gene Expression Data

3:25 -3:40 Coffee

3:40- Short talks, Session C