Program of the 93rd Statistical Mechanics Meeting – Rutgers University, May 15–17, 2005

Joel L. Lebowitz

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 18–20, 2005.

REVIEW TALKS (*For author presenting talks)

Hybrid Numerical Methods for Multiscale Modeling
    F. Alexander, Los Alamos National Loboratory, fja@lanl.gov
Optimization for Physics and the Physics of Optimization
    A. Middleton, Syracuse University, aam@syr.edu
Minimum Free Energy Paths, Blue Moon Sampling, and String Method
    E. vanden Eijnden, New York University, eve2@cims.nyu.edu
Monte Carlo Comparisons of the 2d Self-Avoiding Walk and SLE
    T. Kennedy, University of Arizona, tgk@math.arizona.edu
Fermion Monte Carlo
    M. Kalos, Lawrence Livermore National Laboratory, kalos@llnl.gov
Circumventing the Fermion Sign Problem by Learning about Wave Function Nodes
    P. Reynolds, Army Research Office, peter.reynolds@us.army.mil
Can Metallic Hydrogen be a Ground State Liquid?
    D. Ceperley, University of Illinois Urbana–Champaign, ceperley@ uiuc.edu
Rigorous Results on the Ground State Energy of Bose Gases, Including Bose Einstein Condensation
    E. Lieb, Princeton University, lieb@math.princeton.edu

From One to Zero: Minimal Models in Molecular Dynamics
> D. Frenkel, AMOLF, the Institute for Atomic and Molecular Physics, The Netherlands, frenkel@amolf.amolf.nl

Pivot Cluster Algorithm for Hard Spheres and Related Systems: Application to Mixtures, Glasses, Dimers...
> W. Krauth, ENS, France, werner.krauth@lps.ens.fr

Searching for the Perfect Packing
> H. J. Herrmann, University of Stuttgart, hans@ica1.uni-stuttgart.de

On Three-Dimensional Modeling of Myxobacteria Aggregation and Morphogenesis
> M. Alber, University of Notre Dame, malber@nd.edu

Modeling the Chemosensing System of *E. coli*
> N. S. Wingreen, Princeton University, Wingreen@molbio.Princeton.edu

Intercellular Communication in the Immune System
> A. Chakraborty, Berkeley, Arup@uclink.berkeley.edu

Spontaneous and Evoked Activity in Neural Networks
> L. Abbott, Brandeis University, abbott@brandeis.edu

Quantum Kinetic Approach to Transport in Molecular Devices
> R. Car, Princeton University, rcar@princeton.edu

From Bose and Einstein to Bogoliubov and Beyond: A Rich Tradition of Optical and Statistical Physics
> M. Scully, Princeton/Texas A&M University, scully@tamu.edu

Human Rights and Social Responsibilities of Scientists
> J. L. Lebowitz and others

What Gibbs Never Told You
> B. Widom, Cornell University, widom@vdwaals.chem.cornell.edu

What's New in Liquid-State TPT
> G. Stell, SUNY at Stony Brook, gstell@sbchem.sunysb.edu

Effect of Confinement on Chemical Reactivity
> E. E. Santiso, *K. E. Gubbins, A. M. George, M. Buongiorno Nardelli, North Carolina State University, keg@ncsu.edu

The Transition from Linear to Nonlinear Solitonic Electric Conduction in a Dissipative Toda Lattice
> M. G. Velarde, Universidad Complutense, Madrid, Spain, mvelarde@pluri.ucm.es

Simulation of Lamellar Phases
> M. Mareschal, Universite Libre de Bruxelles, mmaresch@ulb.ac.be

Long Time Tails in Classical and Quantum Lorentz Gases
> J. R. Dorfman, University of Maryland, jrd@ipst.umd.edu

Exact Solution for a class of Mass Transport Models, Condensation Transitions, and the Nature of the Condensate
> *R. K. P. Zia, M. R. Evans, S. N. Majumdar, Virginia Tech, rkpzia@vt.edu

Axial Segregation of a Settling Suspension in a Rotating Cylinder
    J. Lee, * A. J. C. Ladd, University of Florida, ladd@che.ufl.edu
Nanohydrodynamics Simulations: An Atomistic View of the Rayleigh-Taylor Instability
    K. Kadau, Los Alamos National Laboratory, kkadau@lanl.gov
Power Series for Solutions of the 3D-Navier-Stokes System
    Y. Sinai, Princeton University, sinai@Math.Princeton.edu
Round Table—Current Status of the Derivation and Solution of the Euler and Navier-Stokes Equations
    Participants Include: B. Alder, S. Chen, Y. Sinai, V. Yakhot, N. J. Zabusky. Joel L. Lebowitz, chair.
Two Topics: (a) 1/d Expansion for k-core Percolation, (b) Ferroelectric Incommensurate Magents
    A. B. Harris, University of Pennsylvania, harris@physics.upenn.edu
Quantum Criticality: Signs of a New Universality
    P. Coleman, Rutgers University, coleman@physics.rutgers.edu
On Delocalized Eigenstates in the Presence of Disorder
    M. Aizenman, Princeton University, aizenman@princeton.edu
Ordering Due to SpinWaves (AKA Order by Disorder)
    L. Chayes, University of California, lchayes@math.ucla.edu
Recent Progress in Geometric Mechanisms for Arnold Diffusion
    R. de la Llave, University of Texas, llave@math.utexas.edu
On a Class of Exactly Integrable Radial Solutions of the Continuity and Euler's Equations for nD Systems with Long Range Interactions
    Ph. Choquard, EPFL, Switzerland, philippe.choquard@epfl.ch
The Casimir Effect in Some Classical (i.e. Non-Quantum) Situations
    B. Jancovici, Universite de Paris XI, bernard.jancovici@th.u-psud.fr
Einstein, Hidden Variables, and Nonlocality
    S. Goldstein, Rutgers University, oldstein@math.rutgers.edu
A Stronger Subadditivity of Entropy
    R. Seiringer, Princeton University, rseiring@Princeton.Edu
The Farey Fraction Spin Chain
    P. Kleban, University of Maine, kleban@maine.edu
Recent Developments in Lattice Boltzmann Models of Fluid Dynamics
    B. Boghosian, Tufts University, bruce.boghosian@tufts.edu
Quantum computation of nonlinear classical dynamics
    J. Yepez, Air Force Research Laboratory, jeffrey.yepez@gmail.com

SHORT COMMUNICATIONS (*For author presenting talks)

The Excited Random Walk in One Dimension
    T. Antal, Boston University, antal@bu.edu

Calculating Probability Distributions for Knot Sizes and Locations
  P. Virnau, MIT, virnau@mit.edu
Relations Connecting Heat Conductivity and Bulk Viscosity in 1-D Oscillator Chains
  G. Lee-Dadswell, University of Guelph, dadswell@physics.uoguelph.ca
New Mechanisms for Lack of Equipartition of Energy
  A. Haro, University of Barcelona, haro@mat.ub.es
Variance Reduction in Monte Carlo Solutions of the Boltzmann Equation
  N. Hadjiconstantinou, MIT, ngh@mit.edu
Quantum Mechanics of Anyons with Magnetic Impurities
  *S. Mashkevich, Schrodinger, Inc., mash@mashke.org, J. Myrheim, NTNU, Trondheim, S. Ouvry, LPTMS, Orsay
New Results for the 2D, $\pm J$, Ising Spin Glass
  R. Fisch, Princeton University, ron@princeton.edu
Boundary Correlation Functions of the Rectangular Ising Lattice
  M. Suzuki, H. Suzuki, *S.-C. Chang, National Cheng Kung University, R.O.C., scchang@mail.ncku.edu.tw
Possible Connection between a Strong-to-Fragile Transition and a Liquid–Liquid Phase Transition
  S. Buldyrev, Yeshiva University, buldyrev@yu.edu
Boyle Corresponding States Analysis of Non-Ideal Gas Thermodynamics
  D. Ben-Amotz, Purdue University, bendor@purdue.edu
Statistical Mechanics of Money Savings
  A. Chakraborti, Brookhaven National Laboratory, anirban@bnl.gov
Statistical Mechanics of Muscle Contraction
  S. Sun, Johns Hopkins, ssun@jhu.edu
Polar Explorers: Min Protein Oscillations in Round Bacteria
  K. Huang, Princeton University, kchuang@princeton.edu
Calculation of Local Pressure Tensors in Systems with Many-Body Interactions
  H. Heinz, Air Force Research Laboratory, hendrik.heinz@wright.edu
Why are effective potentials soft?
  S. Klapp, Technical University Berlin, sabine.klapp@fluids.tu-berlin.de
Pistonics and the Dynamics of Thermodynamic Processes
  *J. W. Perram, E. Praestgaard, University of Southern Denmark, jperram@mip.sdu.dk
Singularities in Coexistence Curve Diameters: Experiments and Simulations
  *Y. C. Kim, M. E. Fisher, University of Maryland, yckim@wam.umd.edu
Perturbation Theory Calculations for an Electron–Ion System
  *G. Baker, Jr., J. D. Johnson, Los Alamos National Laboratory, gbj@atlas.lanl.gov

MBE Surface Growth under Oblique Particle Incidence
　　*B. Schmittmann, Virginia Tech, schmittm@vt.edu, G. Pruessner, Virginia Tech, H.K. Janssen, Heinrich-Heine Universitaet Duesseldorf

Study of Temperature Dependence of λ-Transition of Quantum Liquid He^4 Absorbed in a Narrow Single Walled Carbon Nanotube
　　S. Vilchynskyi, Kiev national Taras Shevchenko University, sivil@univ.kiev.ua

AKLT Model and Perturbations of Ground States in Quantum Lattice Systems
　　D. Yarotsky, University College Dublin, yarotsky@mail.ru

Thermodynamic Approach to Complete Graph Percolation
　　M. Biskup, L. Chayes, *A. Smith, UCLA, sasmith@math.ucla.edu

Mean-Field Driven First Order Transitions
　　M. Biskup, L. Chayes, *N. Crawford, UCLA, crawford@math.ucla.edu

Percolation and Random Cluster Models on the Triangular Lattice
　　L. Chayes, *H. Lei, UCLA, glei@ucla.edu

Product Measures in Generalized Zero Range Processes
　　R. Greenblatt, Rutgers University, rafaelgr@physics.rutgers.edu

Ionization of a Delta Function Atom in a Dipole Field
　　C. Stucchio, Rutgers University, stucchio@math.rutgers.edu

Exact Dynamics of a Reaction-Diffusion Model with Alternating Rates
　　M. Mobilia, Virginia Tech, mmobilia@vt.edu

Nonequilibrium Behavior of a Simple One-Dimensional Fluid
　　P. Hurtado, Boston University, phurtado@buphy.bu.edu

Remarkable Solvent Effect on Crowding Problem in Living Cells
　　*R. Akiyama, Y. Karino, Y. Hagiwara, M. Kinoshita, Kyushu University, rakiyama@chem.rc.kyushu-u.ac.jp

Data Collapse in the Critical Region Using Finite-Size Scaling with Subleading Corrections
　　K. Beach, Boston University, ksdb@bu.edu Data

Colloidal Particles in Critical Solvents
　　E. Eisenriegler, Research Center Juelich, Germany, e.eisenriegler@fz-juelich.de

Bethe Ansatz Solution of the Discrete Time Stochastic Processes with Fully Parallel Update
　　A. Povolotsky, University of Aveiro, Portugal, povam@fis.ua.pt

The Computational Compexity of Quantum Spin Interactions on the Planar Square Lattice
　　*R. Oliveira, B. B. Terhal, IBM T.J. Watson Research Center, riolivei@us.ibm.com

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

One Dimensional Transport on Small World Networks
    S. Caliskan, Mississippi State University, caliskan@erc.msstate.edu
Fisher–Shannon Information Plane as a Cell-State Space
    S. Ji, Rutgers University, sji@rci.rutgers.edu
The Anderson Thremostat in Molecular Dynamics and Lorentz Gas
    D. Li, Princeton University, dongli@princeton.edu