Program of the 84th Statistical Mechanics Meeting

Department of Mathematics, Rutgers University
December 17–19, 2000

Here are the titles presented at the last semiannual Statistical Mechanics Meeting, held in December 2000. As usual these titles are informal and, in many cases, there is only one speaker listed, although the work may have been done by many collaborators. Also, the addresses are incomplete, but e-mail addresses are provided if you are interested in communicating with a speaker.

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.

The next Statistical Mechanics Meeting will take place December 16–18, 2001, at Rutgers University.

Joel L. Lebowitz

REVIEW TALKS

Topological shocks in Burgers turbulence
    K. Khanin (Isaac Newton Institute, kk262@newton.cam.ac.uk)
Stochastic PDEs in Turbulence Theory
    E. Wienan (New York University, weinan@cims.nyu.edu)
Mean-Field Approximation and a Small Parameter in Turbulence Theory
    V. Yakhot (IAS, yakhot@ias.edu)
Chaotic Hypothesis and Intermittency in Fluid Mechanics
    G. Gallavotti, University of Rome/Rutgers, giovanni.gallavotti@roma1.infn.it
On Thermostats, Chaos and Entropy Production
    H. van Beijeren (University of Utrecht, H.vanBeijeren@phys.uu.nl)
On Entropy Production in Quantum Statistical Mechanics

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V. Jaksic (John Hopkins University/University of Ottawa, vjaksic@math.jhu.edu)

Semi-Focusing Billiards

L. Bunimovich (Georgia Institute of Technology, bunimovh@math.gatech.edu)

Does Any Compact Manifold Carry a Bernoulli Diffeomorphism Whose Lyapunov Exponents Are All Nonzero?

Y. Pesin (Penn State University, pesin@math.psu.edu)

Open Quantum Systems

J. Frohlich (ETH, Zurich, juerg@itp.phys.ethz.ch)

Dynamical Systems on Fermi Surfaces and Conductivity: Topological Phenomena

S. Novikov (University of Maryland, novikov@ipst.umd.edu)

On the Regularity Properties of Nonlinear Wave Equations

S. Klainerman (Princeton University, seri@math.princeton.edu)

A Multiplicative Ergodic Theorem and Nonpositively Curved Spaces

G. Margulis (Yale university, margulis@math.yale.edu)

Do Sinai-Ruelle-Bowen Measures Exist?

L. S. Young (New York University, lsy@math13.cims.nyu.edu)

L^4-Norms of Eigenstates

P. Sarnak (Princeton University, sarnak@math.princeton.edu)

Global Scenario for Dynamics and Recent Results

J. Palis (IMPA, Brazil, jpalis@impa.br)

Anderson Localization for Schrödinger Operators with Quasi-Periodic Potentials

M. Goldshtein (University of Toronto (Scarborough), IAS, mgold@ias.edu)

Quantum and Classical Localization in a Random Medium

J. Cardy (Oxford University, cardy@thphys.ox.ac.uk)

Classification of Quasicrystals

F. Dyson (Institute of Advanced Study, dyson@sns.ias.edu)

Session on Human Rights and Social Responsibilities of Scientists, with R. Long, Editor, VIP Reference, and J. L. Lebowitz

Is There a Statistical Mechanics of Neurobiology

N. Kopell (Boston University, nk@math.bu.edu)

Gravitational Thermodynamics, a Case Study: Star Cluster Evolution

P. Hut (Institute for Advanced Study, piet@ias.edu)

Pattern Selection

M. Feigenbaum (Rockefeller University, feigenb@rockvax.rockefeller.edu)

Chaotic Field Theory in Terms of Recurrent Spatiotemporal Patterns

P. Cvitanovich (Northwestern/Georgia Tech, predrag@nbi.dk)

Fluctuations of Interface in Stochastic PDE's with Conservation Laws
E. Presutti (University of Rome, presutti@axp.mat.uniroma2.it)

The Invariant Measure of Partially Noisy, Unstable, PDE's
J.-P. Eckmann (University of Geneva, Jean-Pierre.Eckmann@physics.unige.ch)

D. Ruelle: What Do I Want Yasha to Do in the Coming Years

Y. Sinai: What Do I Want David to Do in the Coming Years

Viruses, Vesicles and multielectron Bubbles: The Thompson Problem Revisited
D. Nelson (Harvard University, nelson@cmt.harvard.edu)

Designability of Protein Structures
C. Tang (NEC, tang@research.nj.nec.com)

Model Genetic Networks/Principles of Robust Transcription Control
B. Shraiman (Bell Labs, boris@physics.bell-labs.com)

Mathematical Models for the Evolution of Sex
A. Erzan (Istanbul Technical University and Gursey Research Institute, erzan@itu.edu.tr)

Crossing Probabilities and Modular Forms
P. Kleban (University of Maine, kleban@maine.edu)

Spectral Statistics of Diffractive Systems
E. Bogomolny (University Paris-Sud, Orsay, France, bogomol@ipno.in2p3.fr)

Quantum Fingerprints of Classical Ruelle-Pollicott Resonances
S. Sridhar (Northeastern University, srinivas@neu.edu)

The Origin of Optical Activity in Abiotic Fluids
J. Kenney (Russian Academy of Sciences & Gas Resources Corporation, jfkenney@mbay.net)

Fourier Law in One Dimension: New Numerical Results
P. Garrido (Univerisity of Granada, garrido@onsager.ugr.es)

SHORT TALKS

Microcanonical Potts Models
*I. Ispolatov and E.G.D. Cohen (Rockefeller University, slava@calif.rockefeller.edu)

Special Modes for Black-Hole Gravitational Waves
A. Maassen van den Brink (SUNY Stony Brook, alec@felix.physics.sunysb.edu)

Billiards with a Non-Compact Cusp
M. Lenci (SUNY at Stony Brook, lenci@math.sunysb.edu)

Finite Horizon Embedded Surfaces with Anosov Geodesic Flow
   *V. J. Donnay (Bryn Mawr College, vdonnay@brynmawr.edu) and
   C. Pugh (University of California, Berkeley)

Modified Correlations Close to Modulated and Rough Boundaries
   A. Hanke and M. Kardar (MIT, hanke@mit.edu)

Iso-g2 Proceses in Equilibrium Statistical Mechanics
   *J. Eroles (Princeton University, eroles@atom.princeton.edu) and
   F. Stillinger and S. Torquatto

First-Order-Scaling near a Second-Order Phase Transition: Tricritical
Polymer Collapse
   *T. Prellberg (Technical University Clausthal, Germany, thomas.
   prellberg@tu-clausthal.de) and A. L. Owczarek (University of Mel-
   bourne, Australia)

Fate of Zero-Temperature Ising Ferromagnets
   *V. Spirin (spirin@bu.edu) and P. Krapivsky and S. Redner (Boston
   University)

Renormalization Group Flow of the Two-Dimensional Hierarchical
Coulomb Gas
   L. F. Guidi and *D. H. U. Marchetti (University of Sao Paulo,
   marchett@fge.if.usp.br)

Phase Transitions in 2:1 and 3:1 Primitive Electrolytes
   *A. Z. Panagiotopoulos (Princeton University, azp@princeton.edu)
   and M. E. Fisher (University of Maryland)

Correlations and Instabilities in a Drifting Lattice
   *R. da Silveira (Harvard, rava@cmts.harvard.edu) and M. Kardar
   (MIT)

Lattice Independent Approach to Thermal Phase Mixing
   *C. Gagne (carmen@peterpan.dartmouth.edu) and M. Gleiser
   (Dartmouth College)

On the Stochastic Model of the Revised Enskog Theory: Transport Coef-
ficients and the Equation of State of the Underlying Fluid
   J. Polewczak (California State University, Northridge) and *G. Stell
   (SUNY at Stony Brook, gstell@sbchm1.chem.sunysb.edu)

On the Rate of Turbulent Energy Dissipation in Body-Forced Flows
   C. R. Doering (University of Michigan, doering@math.lsa.umich.edu)

One-layer Model of the Growth of Microtubules
   *A. B. Kolomeisky (Rice University, tolya@ruf.rice.edu) and M. E.
   Fisher (University of Maryland)

Modelling of the Web Graph
   *P. Krapivsky and S. Redner (Boston University, paulk@sid3.bu.edu)

Nonequilibrium Phase Transitions Induced by Interfacial Noise: the Voter
Model Universality Class

*J. Chave (Princton University, chave@eno.princeton.edu) and I. Dornic, H. Chat'e and H. Hinrichsen

The Algebraic Description of the Monodromy of the Generalized Knizhnik-Zamolodchikov Equation of the B Type

V. Golubeva (VINITI, golub@viniti.ru) and V. P. Leksin

Griffiths Effects and Delocalization Transitions in Two-Dimensional Bipartite Random Hopping Problems

*O. Motrunich (Princeton University, motrunch@feynman.princeton.edu), K. Damles (Princeton and Harvard University), and D. A. Huse (Princeton University)

Localization on Short-Range Potentials in Dissipative Quantum Mechanics

A. Melikidze (Princeton University, melikidze@pupgg.princeton.edu)

Kinetic Theory of Gravitational Collapse

*C. Lancellotti and M. Kiessling (Rutgers University, carlo@math.rutgers.edu)

Influence of Rotation on Gravothermal Catastrophe,

P. Klinko and *B. Miller (Texas Christian University, B.Miler@tcu.edu)

On Galilean Invariance and Nonlinearity in Electrodynamics and Quantum Mechanics

*G. A. Goldin and V. M. Shtelen (Rutgers University, gagoldin@dimacs.rutgers.edu)

Time Evolution of Quantum Fractal

*D. Wojcik (Warsaw/University of Maryland, danek@cft.edu.pl) and I. Bialynicki-Birula and K. Zyczkowski (Warsaw)

Generalized Wigner Surmise, Sutherland Model, and Terrace-Width Distributions on Stepped Surfaces: Physical Realization of Strong Repulsions ("Large Beta")

*T. L. Einstein (University of Maryland, einstein@physics.umd.edu), H. L. Richards (Texas A&M University-Commerce), S. D. Cohen (University of Maryland), and O. Pierre-Louis (CNRS-Grenoble I)

Universality at the Edge of the Spectrum in Random Wigner and Sample Covariance Matrices

A. Soshnikov (University of California, Davis, soshnikov@math.ucdavis.edu)

Generalized Phase Space Version of Langevin Equations

*W. C. Kerr and A. J. Graham (Wake Forest University, wck@wfu.edu)

Absorption of a Randomly Accelerated Particle

T. W. Burkhardt (Temple University, tburk@unix.temple.edu)

Barkhausen Noise and the Power Spectra

K. Dahmen, R. A. White and *A. Travesset (travesse@uiuc.edu, University of Illinois at Urbana-Champaign)

Long Time Tails for a Class of Diffusions in Random Media

*M. Biskup (Microsoft Research, biskup@microsoft.com) and W. Koenig (TU Berlin)

Time Evolution of Structure Factors in Vacancy Mediated Dynamics

*T. Aspelmeier, B. Schmittmann, R. K. P. Zia (Virginia Tech, timo@kanga.phys.vt.edu)

Phase Transitions in Coupled Map Lattices

F. Schmuser (Virginia Tech, schmuser@kanga.phys.vt.edu)

A Phenomenological Approach to Electoral College

K. C. Huang and *M. Yahyanejad (MIT, mehdi@mit.edu)

Localization Transition for Randomly Coloured Self-Avoiding Walk at an Interface

R. Martin and *M. S. Causo (scauso@alchemy.chem.utoronto.edu) and S. G. Whittington (University of Toronto)

Depinning with Inertia: A Transition with First-Order and Critical Features

*J. M. Schwarz and D. S. Fisher (Harvard University, schwarz@cmts.harvard.edu)

Phylogenetic Study of the Spatial Distribution of Protein-Coding and Control Segments in DNA Chains

N. N. Oiwa and *C. Goldman (University of Sao Paulo)

Free Energy Self-Averaging for Protein-Sized Random Heteropolymers

*J. Chuang (MIT, jchuang@mit.edu), M. Kardar (MIT), and A. Grosberg (University of Minnesota)

With a little help of DNA: Morphological Diversity of Nanoparticle Self-Assembly

A. Tkachenko (Bell Labs, alexei@bell-labs.com)

2-Forms and Noncommutative Hamiltonian Dynamics

E. J. Beggs (University of Wales, Swansea, E.J.Beggs@swansea.ac.uk)

Solvable Ladder Models

I. Roditi (SUNY at Stony Brook, roditi@insti.physics.sunysb.edu)

Droplet States in the XXZ Chain

B. Nachtergaele, *S. Starr, and U.C. Davis (sstarr@math.ucdavis.edu)

Spin Polaron Transport and Colossal Magnetoresistance

*L. Wegener (Bell Labs, lwegener@physics.bell-labs.com) and P. B. Littlewood (Cambridge University)

Changing Effective Spin of the $S = 3/2$ Heisenberg Chain: A Randomness Induced Spin-Reduction Transition

*G. Refael (Harvard University, refael@cmts.harvard.edu), S. Kehrein (Augsburg University), and D. S. Fisher (Harvard University)

Hamiltonian and Non-Hmailtonian Representations of the Renormalization Group

  *D. Ron (Weizmann Institute, dron@wisdo,.weizmann.ac.il) and R. H. Swendson (Carnegie Mellon University)

Liquid-Liquid Phase Transition

  *H. K. Lee and R. H. Swendsen (Carnegie Mellon University, hwee+@andrew.cmu.edu)

The Critical Locus of a Simple Fluid with Added Salt

  *Y. Kim and Michael E. Fisher (University of Maryland, yckim@wam.umd.edu)

Crystalline Membranes as Auxetic Systems

  *M. Bowick, A. Cacciuto, G. Thorleifsson, and A. Travesset (Syracuse University, bowick@physics.syr.edu)

Hydrodynamics of Liquids of Arbitrarily Curved Flux-Lines in Type-II Superconductors

  *P. Benetatos (Technische Universitaet Muenchen and Harvard University, Panayotis_Benetatos@Physik.TU-Muenchen.DE) and M. Cristina Marchetti (Syracuse University)

Stochastic Analysis of the Lorentz System

  K. Garcia-Ruiz (UNAM, Mexico)

Ergodicity and Stochastic PDEs: Exponential Convergence

  *J. Mattingly (Stanford University, jonm@math.stanford.edu) and Ya. Sinai (Princeton), and Weinan E. (New York University)

Cauchy-Convergent Measures in Non-Equilibrium Thermodynamics

  *E. Hernandez-Lemus (Universidad Nacional Autonoma de Mexico, enrique@eros.pquim.unam.mx)

Dynamic Self-Consistent Theory for a Lattice Model of Polymer Fluids

  Y. Shnidman (Polytechnic University, shnidman@poly.edu)

Granular Shear Instabilities

  T. Shinbrot (Rutgers University, shinbrot@sol.rutgers.edu)

Critical Distribution of Clusters at the Boundary of a Semi-Infinite Cylinder for the Ising Model

  Y. Saint-Aubin (University of Montreal, saint@crm.umontreal.ca)

Turbulence of Floating Particles: Neither 2 Nor 3-Dimensional

  *W. I. Goldburg (University of Pittsburgh, goldburg+@pitt.edu) and J. R. Cressman, Z. Voros, B. Eckhardt, J. Schumacher