

Statistical Physics in Lviv
30.06-3.07 2005
Preliminary Program

Monday, 30.06

Statistical theory

- 14.30** Opening (E. Aurell, L. Brizhik, T. Bryk)
14.40 J. Kurchan (Paris) The 'mosaic' picture of liquids and glasses
15.20 V. Pergamenschchik (Warsaw) Partition function of a 2D hard disk system in terms of the exact free volume: gas, liquid, and in between
16.00 Coffee break
16.30 E. Aurell (Stockholm) 201 years of Thermodynamics
17.10 Yu. Holovatch (Lviv) Emergence of the three-dimensional diluted Ising model universality class in a mixture of two magnets
17.50 A. Gavrilik (Kyiv) Tetracriticality and universality classes of Stiefel sigma-models near
(20 min) two dimensions
18.30 Get together party

Tuesday, 1.07

Biophysics

- 9.30** I. Hoffeecker (Stockholm) Writing digital data to DNA oligonucleotide barcode networks
10.10 A. Baumketner (Lviv) Theoretical studies of protein aggregation
10.50 L. Brizhik (Kyiv) Manifestation of coherent many-soliton states in physical and biological systems
11.10 Coffee break
11.40 B. Ostash (Lviv) Ribosome as a regulatory device: a case for antibiotic-producing Streptomyces bacteria
12.20 E. Aurell (Stockholm) Inferring fitness from large genomic data sets
12.40 S. Perepelytsya (Kyiv) Revealing DNA condensation induced by monovalent counterions
13.00 M. Samborskyy (Lviv) Oxford nanopore sequencing: at the interface of biology and physics
13.20 – 14.30 Lunch

14.30-15.10 Statistical theory

- 14.30** K. Zyczkowski (Krakow) Statistical properties of spectra of typical quantum operations and Lindblad generators
15.10-18.00 Dynamics
15.10 J. Kurchan (Paris) Time reparametrization softness resolves the dilemma of glass dynamics
15.50 Coffee break
16.20 P. Cvitanovic (Atlanta, online talk) A field theory of turbulence
17.00 V. Zasenkov (Kyiv) Advection and diffusion of particles in a random velocity field
17.20 M. Holovko (Lviv) On the diffusion of hard sphere fluids in disordered porous media
17.40 T. Bryk (Lviv) Transverse dynamics in binary liquids
19.00 Conference dinner

Wednesday, 2.07

Quantum information & quantum matter

- 9.30** V. Tkachuk (Lviv) Quantum computing of the physical properties of spin systems
10.10 E. Aurell (Stockholm) Attempts to understand quantum black holes
10.50 V. Ignatyuk (Lviv) Dependence of the recoherence times and recoherence increments on the state of phonon bath in a single qubit dephasing model

- 11.10** Coffee break
- 11.40** A. Sotnikov (Kharkiv, on-line) Tensor network contraction in the zoo of two-dimensional statistical physics models on different Archimedean lattices
- 12.20** Kh. Gnatenko (Lviv) Quantum states of spin systems representing bipartite graphs and their study using quantum computing
- 13.00** O. Derzhko (Lviv) Spin-1/2 Heisenberg model on the hyperkagome lattice
- 13.20 – 14.30** Lunch

Computer simulations & neural networks

- 14.30** I. Hoffecker (Stockholm) Chemical neural network computation with DNA oligonucleotide amplification
- 15.10** L. Orellana (Stockholm) Elastic-network-driven Brownian Dynamics Importance Sampling to track large-scale transitions in sub-mesoscopic protein assemblies
- 15.30** T. Patsahan (Lviv) Adsorption and Desorption of Cells on Micropatterned Adhesive Surfaces: A Monte Carlo Simulation Study
- 15.50** Coffee break
- 16.20** A.P. Seitsonen (Paris) Collective dynamics in liquid water from computer simulations using molecular dynamics
- 17.00** A. Trokhymchuk (Ljubljana) Entropy driven bimodality of local density in confined 2D hard disks
- 17.20** J. Illytskyi (Lviv) Interaction of colloidal particulates with thermosensitive microstructured polymer brush: dissipative particle dynamics simulations

Thursday, 3.07

Statistical theory

- 10.00** Yu. Kalyuzhnyi (Ljubljana) Polymerizing hard spheres with double square-well binding potential
- 10.20** P. Saprianchuk (Lviv) A statistical theory of water molecules in narrow carbon nanotubes
- 10.40** D. Shapoval (Lviv) Beyond the epsilon-expansion: reliable critical exponents in structurally-disordered long-range interacting systems
- 11.00** Coffee break
- 11.30** Yu. Slyusarenko (Kharkiv) Method of canonical transformations in the theory of quantum gases interacting with radiation
- 12.20** Closing (E. Aurell, L. Brizhik, T. Bryk)