

IX Conference of Young Scientists "Problems of Theoretical Physics"

Tuesday 04 December 2018 - Wednesday 05 December 2018

Bogolyubov Institute for Theoretical Physics of the National Academy of Sciences of Ukraine

Scientific Programme

Tuesday, December 4

8-30 Registration begins

9-50 Conference opening (Opening talk of Prof. A. G. Zagorodny)

Morning Session

10-00 \$Dr. M.Z. Iorgov\$

Lecture "*Solitons of Korteweg–de Vries equation and Bogoliubov transformations*"
Bogolyubov Institute for Theoretical Physics, NAS of Ukraine, Kyiv

10-45 \$V.N. Gorev, A.I. Sokolovsky\$

"*Linear-in-gradients hydrodynamic equations for a system with small interaction*"
National Mining University, Dnipro

11-05 \$O.I. Gerasymov, A.Ya. Spivak\$

"*Towards the problem of the Nesterenko's soliton waves propagation in nonlinear inhomogeneous Hertzian chains*"
Odesa State Environmental University, Odesa, Ukraine

11-25 \$O. Kryvchikov\$

"*The influence of inhomogeneities on physical characteristics of ferromagnetic clusters inside of antiferromagnetic matrix in an external field*"
B. Verkin Institute for Low Temperature Physics and Engineering, NAS of Ukraine, Kharkiv

11-45 COFFEE BREAK

12-05 \$K.M. Haponenko, A.I. Sokolovsky\$

"*Calculation of thermodynamic potential for Bose system near condensate point*"
Oles Honchar Dnipro National University, Dnipro

12-25 \$O. Shchur, A. Vidybida\$

"*Relation between firing statistics of spiking neuron with delayed feedback and without feedback*"
Bogolyubov Institute for Theoretical Physics, NAS of Ukraine, Kyiv

12-45 \$O. Zdorevskyi, D.V. Piatnytskyi, S.N. Volkov\$

"*Blocking of DNA sites of specific recognition by hydrogen peroxide molecules in the process of ion beam therapy*"
Bogolyubov Institute for Theoretical Physics, NAS of Ukraine, Kyiv

13-05 \$T. Nikolaienko, L. Bulavin\$

"*Atomic charges for reproducing the dependence of molecular dipole moment on conformation*"
Taras Shevchenko National University of Kyiv

13-25 \$underline{O. Kulish}, A. Vasiliev\$

"Modeling of activation and deactivation processes in postsynaptic membrane"

Taras Shevchenko National University of Kyiv

13-45 LUNCH

Afternoon Session

15-00 \$O. Sergijenko\$

"Reconstructed potentials of the 2-field model of dark energy with canonical and non-canonical kinetic terms"

Taras Shevchenko National University of Kyiv

15-20 \$underline{D. Savchenko}, D. Iakubovskiy\$

"The 3.5 keV dark matter candidate line in Galactic bulge region"

Bogolyubov Institute for Theoretical Physics, NAS of Ukraine, Kyiv

15-40 \$underline{A. Rudakovskiy}, D. Iakubovskiy\$

"21-cm observations and warm dark matter models"

Bogolyubov Institute for Theoretical Physics, NAS of Ukraine, Kyiv

16-00 \$I. Babyk\$

"Constraints on the excess energy in low-mass systems"

Main Astronomical Observatory of the National Academy of Science, Kyiv

16-20 \$underline{M.V. Khelashvili}, A.M. Gavrilik, I.I. Kachurik, A.V. Nazarenko\$

" μ -Bose-Einstein condensate dark matter model"

Bogolyubov Institute for Theoretical Physics, NAS of Ukraine, Kyiv

16-40 WELCOME PARTY

Wednesday, December 5

Morning Session

10-00 \$Dr. E.V. Gorbar\$

Lecture *"Dirac and Weyl semimetals"*

Bogolyubov Institute for Theoretical Physics, NAS of Ukraine, Kyiv

10-45 \$underline{D.Y. Kononenko}, O.V. Pylypovskiy, Yu. Gaididei, D.D. Sheka\$

"Equilibrium states of aniferromagnetic ring-shaped and helix-shaped spin chains with

hard-tangential anisotropy"

Taras Shevchenko National University of Kyiv

11-05 \$O. Krupnitska\$

"An effective theory for Heisenberg antiferromagnet on one-dimensional frustrated lattices at high magnetic fields"

Institute for Condensed Matter, NAS of Ukraine, Lviv

11-25 \$V. Baliha\$

"Ground-state phases of frustrated bilayer quantum Heisenberg antiferromagnets"

Institute for Condensed Matter, NAS of Ukraine, Lviv

11-45 COFFEE BREAK

12-05 \$O.Y. Pastukh, V.E. Sakhnyuk, A.M. Shutovsky\$

"Boundary conditions for the superconducting junctions at temperatures close to critical"

Lesya Ukrainka Eastern European National University, Lutsk

12-25 \$A.M. Shutovsky, O.Y. Pastukh, V.E. Sakhnyuk, A.V. Svidzinsky\$

"A current density dependence on phase differences in layered superconducting structures of SIS type"

Lesya Ukrainka Eastern European National University, Lutsk

12-45 \$S. Shevchenko, A. Konstantinov\$

"The third sound as an electric field generator"

B. Verkin Institute for Low Temperature Physics and Engineering, NAS of Ukraine, Kharkiv

13-05 \$Y. Mankovska, M. Isaev, Ali~ Belarouci\$

"Features of light coupling in low-loss 2D periodic structures supporting phonon polariton"

Taras Shevchenko National University of Kyiv

13-25 \$D. Dobushovsky\$

"Influence of correlated hopping on the optical conductivity spectra"

Institute for Condensed Matter, NAS of Ukraine, Lviv

13-45 LUNCH

Afternoon Session

15-00 \$A. Semenov\$

"On consistency of classical homogenization models for the permittivity of statistically homogeneous mixtures"

Odessa I.I.Mechnikov National University, Odessa

15-20 \$O. Nepochaty, V. Kuryliuk, M. Isaev\$

"Features of thermal transport in strained and compressed crystalline silicon"

Taras Shevchenko National University of Kyiv

15-40 \$D. Panchenko\$

"Physics of singular self-adjoint extensions of one-dimensional Dirac operator"

Odessa I.I.Mechnikov National University, Odessa

16-00 \$V. Davydovych\$

"Tumour growth model: Lie symmetries and exact solutions"

Institute of Mathematics, NAS of Ukraine, Kyiv

16-20 \$V. Skalozub, \underline{P. Minaiev}\$

"The electroweak phase transition in a spontaneously magnetized vacuum"

Oles Honchar Dnipro National University, Dnipro

16-40 \$R. Poberezhnyuk\$

"Non-congruent phase transitions in strongly interacting matter within the Quantum van der Waals model"

Bogolyubov Institute for Theoretical Physics, NAS of Ukraine, Kyiv

17-00 *Juri consultation*

17-20 *Closing of the conference*

Astrophysics and Cosmology

Mathematical Physics

Statistical Theory of Many-body Systems

Physics of Biological Macromolecules

Condensed Matter Physics

Physics of Nuclei and Elementary Particles

