

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. Nepochatyi, 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

