

National Academy of Sciences of Ukraine
Bogolyubov Institute for Theoretical Physics
Young Scientists Council

VII Young Scientists Conference

Problems of Theoretical Physics
dedicated to 50-th anniversary of
Bogolyubov Institute for Theoretical Physics

December 13-15, 2016
Kyiv, Ukraine

Program

Kyiv 2016

Tuesday, December 13

8-30 Registration begins

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

Morning Session *Condensed Matter Physics Part I*

10-00 **Prof. E. G. Petrov**

Lecture “Molecules as the basic elements of the future electronics”
Bogolyubov Institute for Theoretical Physics, NAS of Ukraine

10-45 **Yu. V. Pustovit, A. A. Kordyuk**

O.1 “Spontaneous symmetry breaking in FeSe superconductors”
Institute of Metal Physics, NAS of Ukraine, Kyiv

11-05 **O. Y. Pastukh, V. E. Sakhnyuk, A. M. Shutowskiy**

O.2 “Current states in symmetrical SNINS junction for arbitrary concentrations of nonmagnetic impurities”
Lesya Ukrainka Eastern European National University, Lutsk

11-25 **A. M. Shutowskiy, A. V. Svidzinsky, V. E. Sakhnyuk, O. Y. Pastukh**

O.3 “Microscopic calculation of the Josephson current in superconducting tunnel junction on the basis of two-band superconductors”
Lesya Ukrainka Eastern European National University, Lutsk

11-45 **S. E. Reschikoff**

O.4 “The new expression for description of LF noise spectrum”
Ulyanovsk State Technical University, Ulyanovsk, Russia

12-05 **COFFEE BREAK**

12-25 **K. V. Yershov, V. P. Kravchuk, D. D. Sheka, Yu. Gaididei**

O.5 “Torsion induced negative domain wall mobility in helix nanowires”
Bogolyubov Institute for Theoretical Physics, NAS of Ukraine

12-45 **M. I. Sloika, D. D. Sheka, V. P. Kravchuk, O. V. Pylypovskyi, Yu. Gaididei**

O.6 “Second order phase transitions in permalloy spherical shell”
Taras Shevchenko National University of Kyiv

13-05 **A. I. Korniyenko, O. V. Pylypovskyi, V. P. Kravchuk, D. D. Sheka, Yu. Gaididei**

O.7 “Curvature induced one-dimensional magnonic crystals”
Taras Shevchenko National University of Kyiv

13-25 **V. Kuchkin, O. Gomonay**

O.8 “Spin-current induced switching between states of the noncollinear antiferromagnet IrMn”
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

13-45 **Y. Gorobets¹, O. Gorobets, Y. Guseva**

O.9 “Estimation of the value of energy of broken spatial inversion symmetry at the interface between two ferromagnets”
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"

14-05 ***LUNCH***

Afternoon Session

Physics of Biological Macromolecules

15-15 **Prof. S.N. Volkov**

Lecture “Mechanics of informational macromolecule”
Bogolyubov Institute for Theoretical Physics, NAS of Ukraine

16-00 **T. Yu. Nikolaienko, L. A. Bulavin, D. M. Hovorun**

O.10 “Can we treat ab initio atomic charges and bond orders as conformation-independent electronic structure descriptors?”
Taras Shevchenko National University of Kyiv

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- 16-20** **O. Zdorevskyi, S. N. Volkov**
“About the possible scenario of the DNA unzipping process”
O.11 *Bogolyubov Institute for Theoretical Physics, NAS of Ukraine*
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- 16-40** **P.P.Kanevska, S.N.Volkov**
“Unusual bending of DNA double helix”
O.12 *Bogolyubov Institute for Theoretical Physics, NAS of Ukraine*
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- 17-00** **Ye. V. Zolotykh, S. M. Perepelytsya**
“Structure and dynamics of ion hydration shell in the DNA double helix
unzipping”
O.13 *Taras Shevchenko National University of Kyiv*
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- 17-20** ***WELCOME PARTY***
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Wednesday, December 14

Morning Session
Condensed Matter Physics Part II

- 10-00** **Dr. Ya. O. Zolotaruyk**
Lecture “Solitons in Josephson junctions”
 Bogolyubov Institute for Theoretical Physics, NAS of Ukraine
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- 10-45** **K. Makhnovets, A. Kolezhuk**
 “Van der Waals energy calculations for conducting finite-length
O.14 nanowire near the surface”
 Taras Shevchenko National University of Kyiv
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- 11-05** **S. I. Shevchenko, A. M. Konstantinov**
 “On the possibility of a new electric effect in ultra-thin superfluid films”
O.15 *Verkin Institute for Low Temperature Physics and Engineering, Kharkov*

11-25 **C. M. Scherbakov, A. M. Morozovska**
O.16 “Impact of the flexoelectric effect on the modulated phases: stability and soft phonon dispersion in ferroelectrics”
Taras Shevchenko National University of Kyiv

11-45 ***COFFEE BREAK***

12-05 **O. Ovsianytskyi, Y.-S. Nam, H. Mizuseki, K. Choi, K.-B. Lee**
O.17 “DFT calculation of FeO-doped graphene and H₂S dissociation evidence”
Korea Institute of Science and Technology, Seoul, South Korea

12-25 **V.A. Gigiberiya**
O.18 “Structure formation in drying droplets of organic solvents with suspended carbon nanotubes and additives of Triton X165”
Institute of Biocolloidal Chemistry, NAS of Ukraine, Kyiv

Statistical Theory of Many-Body Systems

12-45 **V. N. Gorev**
O.19 “Analog of the Landau collision integral for one-component many-body dissipative randomly driven systems”
Oles Honchar Dnipropetrovsk National University, Dnipro

13-05 **K. Haponenko, A. Sokolovsky**
O.20 “Free energy of a magnetic”
Oles Honchar Dnipropetrovsk National University, Dnipro

13-25 **D. I. Dadyka, I.O.Anisimov**
O.21 “The cache misses’ problem and performance of plasma simulation via pic method”
Taras Shevchenko National University of Kyiv

13-45 **Yu. A. Mishchenko, A. M. Gavrilik, I. I. Kachurik**
O.22 “Conditions of Bose-condensation for a gas in ‘power-law plus inverse
power-law’ potential in D dimensions”
Bogolyubov Institute for Theoretical Physics, NAS of Ukraine

14-05 *LUNCH*

Afternoon Session
Mathematical Physics

15-15 **D. Yu. Panchenko**
O.23 “Physics of singular self-adjoint extensions of one-dimensional
Schrodinger operator”
Odessa National University, Odessa

15-35 **M. M. Haponenko, V.V. Skalozub**
O.24 “Wave package passing through a resonance quantum system”
Oles Honchar Dnipropetrovsk National University, Dnipro

15-55 **Y. Shykhovtsev**
O.25 “Physical model of decoherence of quantum systems in pure or mixed
states”
Taras Shevchenko National University of Kyiv

16-30 *Excursion to the center of Kyiv*

Thursday, December 15

Morning Session

Physics of Nuclei and Elementary Particles

- 10-00** **Prof. M.I. Gorenstein**
Lecture "High Energy Density Physics and Relativistic Nucleus-Nucleus
Collisions"
Bogolyubov Institute for Theoretical Physics, NAS of Ukraine
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- 10-45** **O. Borisenko, V. Chelnokov, Francesca Cuteri, Alessandro Papa**
O.26 "BKT phase transition in non-Abelian spin models"
Bogolyubov Institute for Theoretical Physics, NAS of Ukraine
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- 11-05** **N. V. Kolomojets, V. I. Demchik, A. V. Gulov**
O.27 "Spontaneous chromomagnetic field generation in lattice SU(3)
gluodynamics"
Oles Honchar Dnipropetrovsk National University, Dnipro
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- 11-25** **V. Yu. Naboka**
O.28 "Thermalization, evolution, and observables at energies available at the
CERN Large Hadron Collider in an integrated hydrokinetic model of
A+A collisions"
Bogolyubov Institute for Theoretical Physics, NAS of Ukraine
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- 11-45** **COFFEE BREAK**
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- 12-05** **V. M. Shapoval, P. Braun-Munzinger and Yu. M. Sinyukov**
O.29 " $K^*(892)$ and $\phi(1020)$ resonances as the probes of hadronic medium in
heavy ion collisions"
Bogolyubov Institute for Theoretical Physics, NAS of Ukraine
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- 12-25** **A. Pevzner, V. Skalozub**
O.30 "Model-independent estimation of the Z' boson parameters within the
CMS data"
Oles Honchar Dnipropetrovsk National University, Dnipro

12-45 **R. V. Poberezhnyuk, V. Vovchenko, D. V. Anchishkin,
M. I. Gorenstein**
O.31 “Limiting temperature of pion gas with the van der Waals equation of
state”
Bogolyubov Institute for Theoretical Physics, NAS of Ukraine

13-05 **A. Motornenko**
O.32 “Cumulative production of pions by heavy baryonic resonances in
proton-nucleus collisions”
Taras Shevchenko National University of Kyiv

13-25 **A. G. Magner, M. I. Gorenstein, U. V. Grygoriev, V. A. Plujko**
O.33 “Shear viscosity of nuclear matter”
Taras Shevchenko National University of Kyiv

13-45 **D. V. Piatnytskyi, B. E. Grinyuk**
O.34 “Structure of ^{14}C and ^{14}O nuclei within variational approach”
Bogolyubov Institute for Theoretical Physics, NAS of Ukraine

14-05 **A. V. Demskiy, K. V. Demska, A. P. Kobushkin, D. L. Borisyuk**
O.35 “Heavy baryon spectroscopy using the Ritz variational approach”
*National Technical University of Ukraine “Igor Sikorsky Kyiv
Polytechnic Institute”*

14-25 ***LUNCH***

Afternoon Session
Astrophysics and Cosmology

15-30 **Prof. Y.V. Shtanov**
Lecture “Gravitation and cosmology”
Bogolyubov Institute for Theoretical Physics, NAS of Ukraine

16-15 **A. I. Ivanytskyi, K. A. Bugaev, V. V. Sagun, D. R. Oliinychenko**
“Universal equation of state for heavy ion collision data and compact
O.36 astrophysical objects”
Bogolyubov Institute for Theoretical Physics, NAS of Ukraine

16-35 **D. Savchenko, D. Iakubovskyi**
“Summary of 3.5 keV line searches”
O.37 *Bogolyubov Institute for Theoretical Physics, NAS of Ukraine*

16-55 **A. Rudakovskiy, D. Iakubovskyi**
“Reionization in 7 keV dark matter models”
O.38 *Bogolyubov Institute for Theoretical Physics, NAS of Ukraine*

17-15 **V. D. Gladush, D. Myronin**
“On the quantization of black holes”
O.39 *Oles Honchar Dnipropetrovsk National University, Dnipro*

17-35 *Juri consultation*

17-50 *Closing of the conference*
