

MONDAY, 14 MAY

8:00-10:00

REGISTRATION

OPENING OF THE CONFERENCE
Director of the B.Verkin ILTPE NAS of Ukraine
Gnatchenko Sergey L.

Conference
hall



Plenary Lectures of invited speakers

Chair

Yuliya Savina, ILTPE NASU, Ukraine

10:15-10:55

Sidorenko Anatolie, Prof. Dr., Director of the *Institute of Electronic Engineering and Nanotechnologies "D. Ghițu" ASM, Moldova*
RE-ENTRANT SUPERCONDUCTIVITY IN SF-HYBRIDS AND QUASI-ONE-DIMENSIONAL FFLO STATE

10:55-11:35

Alexander Omelyanchouk, Dr., Corresponding member NAS of Ukraine
QUANTUM WORLD
B.Verkin Institute for Low Temperature Physics and Engineering NASU, Kharkiv, Ukraine

11:35-11:50



Coffee Break

Conference
hall

Low Temperature Magnetism, Spintronics

Chair

Oleksandr Afanasiev, ILTPE NASU, Ukraine

11:50-12:05

HEAT CAPACITY AND THERMAL EXPANSION OF BORIDES RB_{66} AT THE TEMPERATURES OF 0.5 – 300 K

Bud'ko S.L.¹, Avdashchenko D.V.², Mitroshenkov N.V.², Matovnikov A.V.², Novikov V.V.²
¹*Ames Laboratory and Department of Physics and Astronomy, Iowa State University, Ames, USA*
²*Bryansk State University, Bedjitskaya, Bryansk, Russia*

12:05-12:20

MAGNETOTRANSPORT AND MAGNETOCALORIC PROPERTIES IN FeRh BASED ALLOYS IN THE VICINITY OF THE AF-F TRANSITION

Chirkova A.M.¹, Volegov A.S.¹, Kazantsev V.A.², Gerasimov E.G.², Baranov N.V.²
¹*Institute of Natural Sciences, Ural Federal University, Ekaterinburg, Russia,*
²*Institute of Metal Physics, Ural Branch of the RAS, Ekaterinburg, Russia*

12:20-12:35

MAGNETIC RELAXATION IN THE LOW-DIMENSIONAL DIPOLAR MAGNET $\text{CsGd}(\text{MoO}_4)_2$

Tkáč V.¹, Orendáčová A.¹, Tibenská K.², Čižmár E.¹, Orendáč M.¹, Anders A.G.³, Feher A.¹
¹*Institute of Physics of P.J. Šafárik University, Košice, Slovak Republic*
²*Technical University in Košice, Košice, Slovakia*
³*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*

12:35-12:50

LOW DIMENSIONAL MAGNETISM IN THE SPIN-1/2 CHAIN SYSTEM $\beta\text{-TeVO}_4$: RAMAN SCATTERING STUDY

Afanasiev O.¹, Wulferding D.², Gnezdilov V.¹, Lemmens P.², Berger H.³
¹*B.Verkin Institute for Low Temperature Physics and Engineering NASU, Kharkiv, Ukraine*
²*Inst. For Condensed Matter Physics, Braunschweig, Germany*
³*Inst. Phys. Mat. Complexe, EPFL, CH-1015 Lausanne, Switzerland*

12:50-13:05

EPR AND NEUTRON STUDY OF THE TWO-DIMENSIONAL QUANTUM SYSTEM $\text{Cu}(\text{en})(\text{H}_2\text{O})_2\text{SO}_4$

Tarasenko R.¹, Orendáčová A.¹, Čižmár E.¹, Maťaš S.², Orendáč M.¹, Potočňák I.³, Siemensmeyer K.², Zvyagin S.⁴, Wosnitza J.⁴ and Feher A.¹

¹Institute of Physics of P.J. Šafárik University, Košice, Slovak Republic

²Helmholtz-Zentrum Berlin, Germany

³Institute of Chemistry, Faculty of Science, P.J.Šafárik University, Košice, Slovak Republic

⁴Dresden High Magnetic Field Laboratory (HLD), Helmholtz-Zentrum Dresden Rossendorf, Dresden, Germany

Hall
“Helium”

Low Temperature Materials Science

- Chair *Oleksii Podolskiy, ILTPE NASU, Ukraine*
- 11:50-12:05 **BCC STRUCTURE IN VAN DER WAALS CRYSTALS. EXISTENCE OF REQUIREMENTS AND VIBRATIONAL CHARACTERISTICS.**
Klochko M.S.¹, Kotlyar O.V.², Kravchenko K.V.²
¹V.N. Karazin Kharkiv National University, Kharkiv, Ukraine
²B.Verkin Institute for Low Temperature Physics and Engineering NASU, Kharkiv, Ukraine
- 12:05-12:20 **THE UNIFORM ELONGATION OF ULTRA-FINE GRAINED Al AND Al-Li AT 4,2 – 350 K**
Zabrodin P.A.
B.Verkin Institute for Low Temperature Physics and Engineering NASU, Kharkiv, Ukraine
- 12:20-12:35 **PREPARATION AND OPTICAL PROPERTIES OF CdS NANOCRYSTALS ABSORBED ONTO SPHERICAL TEMPLATES**
Korsun Yu.V., Yermolayeva Yu.V.
Scientific & Technologic Corporation “Institute for Single Crystals” NASU, Kharkiv, Ukraine
- 12:35-12:50 **STRUCTURE CHARACTERIZATION AND STUDY OF MICROMECHANICAL PROPERTIES OF NANOCRYSTALLINE TITANIUM PROCESSED BY CRYOROLLING**
Rusakova A.V.
B.Verkin Institute for Low Temperature Physics and Engineering NASU, Kharkiv, Ukraine
- 12:50-13:05 **DOMAIN OF APPLICABILITY OF IDEA ABOUT LOCAL EQUILIBRIUM IN PHONON HYDRODYNAMICS OF INSULATOR**
Sokolovsky S.A.
Prydniprovs'ka State Academy of Engineering and Architecture, Dnipropetrovs'k, Ukraine

13:05-14:00



Lunch

Conference
hall



Plenary Lectures of invited speakers

- Chair *Volodymyr Khrustalyov, ILTPE NASU, Ukraine*
- 14:00-14:40 **Szewczyk Andrzej, Dr., Prof.**
QUASI-2D MAGNETIC OXIDES - THEIR THERMAL AND MAGNETIC PROPERTIES
Szewczyk A.¹, Gutowska M.U.¹, Wieckowski J.¹, Lewińska S.¹, Nedelko N.¹, Kharchenko Yu.², Kharchenko M.F.², Kowalczyk M.³, Kulka A.⁴, and Molenda J.⁴
¹Institute of Physics, Polish Academy of Sciences, Warsaw, Poland,
²B.Verkin Institute for Low Temperature Physics and Engineering NASU, Kharkiv, Ukraine
³Faculty of Materials Engineering, Warsaw University of Technology, Warsaw, Poland
⁴Department of Hydrogen Energy, AGH University of Science and Technology, Cracow, Poland
- 14:40-15:20 **Zvyagin Sergei, Dr.**
SPIN DYNAMICS IN QUANTUM SPIN CHAINS
Dresden High Magnetic Field Laboratory (HLD), Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany
- 15:20-16:00 **Alexei N. Bogdanov, Prof.**
CHIRAL SKYRMIONS IN MAGNETIC MATERIALS
IFW Dresden, Dresden, Germany

16:00-16:15



Coffee Break

**Conference
hall****Low Temperature Magnetism, Spintronics (continue)**

- Chair *Sergii Poperezhai, ILTPE NASU, Ukraine*
- 16:15-16:30 **DYNAMIC OF MAGNETOELASTIC WAVES IN STRONGLY ANISOTROPIC EASY-PLANE FERROMAGNET WITH MECHANICAL BOUNDARY CONDITIONS**
Gorelikov G.A., Fridman Yu.A.
V.I. Vernadskiy Taurida National university, Simferopol, Ukraine
- 16:30-16:45 **FIELD DEPENDENCE FOR MAGNETIZATION OF A FERRO/ANTIFERROMAGNET BILAYER WITH EXCHANGE BIAS IN THE FRAMEWORK OF CONTINUAL MODEL**
Grechnev A.G., Kovalev A.S., Pankratova M.L.
B.Verkin Institute for Low Temperature Physics and Engineering NASU, Kharkiv, Ukraine
- 16:45-17:00 **RADIAL-DEPENDENT BLOCH POINT IN MAGNETIC NANOSPHERE**
Pylypovskiy O.V.¹, Sheka D.D.¹, Gaididei Yu. B.²
¹*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*
²*Bogolyubov Institute for Theoretical Physics, Kyiv, Ukraine*
- 17:00-17:15 **ORIGIN OF SPIN-CURRENT INDUCED REGULAR VORTEX-ANTIVORTEX STRUCTURES IN NANOMAGNETS**
Volkov O. M.¹, Kravchuk V. P.², Sheka D. D.¹, Gaididei Y. B.²
¹*Taras Shevchenko National University of Kyiv, Kiev, Ukraine.*
²*Bogolyubov Institute for Theoretical Physics, Kiev, Ukraine.*

17:15-17:30

*Coffee Break***Math.
sector****Plenary Lectures of invited speakers**

- 10:15-10:50 **Leonid Golinskii, Dr.**
FUNCTION THEORETIC METHODS IN SOME PROBLEMS OF THE THEORY OF NON-SELFADJOINT OPERATORS
B.Verkin Institute for Low Temperature Physics and Engineering NASU, Kharkiv, Ukraine

**Math.
sector****Modern aspects of mathematics and mathematical physics**

- Chair *Elena Moskovchenko, ILTPE NASU*
- 10:50-11:05 **PERIODIC ELLIPTIC OPERATORS WITH ASYMPTOTICALLY PREASSIGNED SPECTRUM**
Khrabustovskyi A.V.
B.Verkin Institute for Low Temperature Physics and Engineering NASU, Kharkiv, Ukraine
- 11:05-11:20 **CHARACTERISTIC POLYNOMIALS OF THE SAMPLE COVARIANCE MATRICES**
Shcherbina Tatyana
B.Verkin Institute for Low Temperature Physics and Engineering NASU, Kharkiv, Ukraine
- 11:20-11:35 **ENTANGLEMENT IN COMPOSITE BOSONS REALIZED BY DEFORMED OSCILLATORS**
Mishchenko Yu.A., Gavrilik A.M.
Bogolyubov Institute for Theoretical Physics, Kiev, Ukraine

11:35-11:50

*Coffee Break*

- Chair *Khrabustovskyi Andrii, ILTPE NASU*
- 11:50-12:05 **ASYMPTOTIC BEHAVIOUR OF THE LARGEST EIGENVALUE FOR UNITARY MATRIX MODELS**
Poplavskiy M.G.
B.Verkin Institute for Low Temperature Physics and Engineering NASU, Kharkiv, Ukraine
- 12:05-12:20 **ASYMMETRICAL SCREW FLOWS**

WHICH MINIMIZE THE INTEGRAL REMAINDER BETWEEN THE SIDES OF THE BOLTZMANN EQUATION

Sazonova E.S.

V.N. Karazin Kharkiv National University, Kharkiv, Ukraine

12:20-12:35 **RIEMANN - HILBERT PROBLEM AND THE MKDV EQUATION: ASYMPTOTIC ANALYSIS OF THE INITIAL VALUE SHOCK PROBLEM**

Minakov A.A.

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

12:35-12:50 **DIRICHLET BOUNDARY CONTROLLABILITY OF THE WAVE EQUATION ON A HALF-AXIS**

Khalina K.S.

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

12:50-13:05 **ORBIT EQUIVALENT SUBSTITUTION DYNAMICAL SYSTEMS AND COMPLEXITY**

Bezuglyi S.I., Karpel O.M.

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

13:05-14:00



Lunch

Chair

Mykhailo Poplavskiy, ILTPE NASU

14:00-14:15

GENERAL FORM OF THE MAXWELLIAN DISTRIBUTION FOR THE MODEL OF ROUGH SPHERES

Gordevskyy V.D., Gukalov A.A.

V.N. Karazin Kharkiv National University, Kharkiv, Ukraine

14:15-14:30

THE CONTROL OF THE STATE OF JOSEPHSON ELEMENTS OF LOGIC "NOT" BY PULSE MAGNETIC FLUX

Krysko R.R., Tyhanskyi M.V.

Lviv Polytechnic National University, Lviv, Ukraine

14:30-14:45

THE SKITOVICH-DARMOIS THEOREM FOR a -ADIC SOLENOIDS (THE CASE OF N LINEAR FORMS OF N RANDOM VARIABLES)

Mazur I.P.

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

14:45-15:00

HAMILTONIAN MECHANICS OF UNIAXIAL NEMATIC TAKING INTO ACCOUNT THE INTERNAL DEGREES OF FREEDOM

Kovalevsky M.Y.^{1,2}, Logvinova L.V.¹, Matskevych V.T.²

¹*Belgorod State University, Belgorod, Russia*

²*National Science Center "Kharkov Institute for Physics and Technologies", Kharkov, Ukraine*

15:00-15:15

FREQUENCY CHARACTERISTICS OF PLASMONIC MODES IN COUPLED PLASMA COLUMNS CLUSTER WITH SQUARE CONFIGURATION

Stognii N.P., Sakhnenko N.K.

Kharkiv National University of Radio Electronics, Kharkiv, Ukraine

15:20-15:35



Coffee Break

Chair

Mazur Ivan, ILTPE NASU

15:35-15:50

LONG-TIME ASYMPTOTICS FOR THE KORTEWEG-DE VRIES EQUATION WITH STEPLIKE INITIAL DATA VIA NONLINEAR STEEPEST DESCENT

Gladka Z.M.

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

15:50-16:05

ALLOCATION OF THE SET OF RECTANGLES INTO THE RING. MINIMIZATION OF THE CENTRE OF GRAVITY DISPLACEMENT OF SYSTEM OF

GEOMETRICAL OBJECTS

Limarenko I.V.

Kharkov National University of Radioelectronics, Kharkov, Ukraine

16:05-16:20 **WHEN THE SURFACE IN E^n BELONGS TO E^4**

Nasiedkina Ia.S., Aminov Yu. A.

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

16:20-16:35 **AN APPROACH FOR SOLVING AN OPTIMIZATION PACKING PROBLEM OF NON-ORIENTED 2D OBJECTS**

Zlotnik M.V., Chugay A. M.

A.M. Pidgorny Institute for Mechanical Engineering Problems NASU, Kharkiv, Ukraine

17:15-18:30

POSTER SESSION – I

TUESDAY, 15 May

Conference
hall



Plenary Lectures of invited speakers

Chair *Mariia Pashchenko, ILTPE NASU, Ukraine*

9:00-9:40 **Josep Lluís Tamarit, Dr.**

EMERGENCE OF GLASSY DYNAMICS FEATURES IN CRYSTALLINE PHASES

Grup de Caracterització de Materials, Dept. de Física i Enginyeria Nuclear, ETSEIB, Universitat Politècnica de Catalunya, Barcelona, Catalonia, Spain

9:40-10:20 **Charles Falco, Dr.**

OPTICAL STUDIES OF NANOSTRUCTURED MAGNETIC MATERIALS

Charles M. Falco¹, T. M. Reith¹, and Justin Shaw²

¹*College of Optical Sciences, University of Arizona, Tucson, USA*

²*National Institute of Science and Technology, Boulder Colorado USA*

10:20-10:35



Coffee Break

Conference
hall

Quantum Liquids and Quantum Crystals, Cryocrystals

Chair *Danylchenko Oleksandr, ILTPE NASU, Ukraine*

10:35-10:50 **IDENTIFICATION OF A DISORDERED STATE IN SOLID HELIUM BY NEUTRON SCATTERING AND PRECISION BAROMETRY.**

Lisunov A.A., Rubanskyi V.Yu., and Rubets S.P.

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

10:50-11:05 **FORMATION OF DISORDERED (GLASSY) STATE IN SOLID ^3He**

Rubanskyi V.Yu., Lisunov A.A., Rubets S.P.

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

11:05-11:20 **INFLUENCE OF EXTERNAL HIGH FREQUENCY ELECTRIC FIELD ON 2D ELECTRON SYSTEM CRYSTALLIZATION**

Nasyedkin K.A. and Syvokon V.E.

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

11:20-11:35 **TRANSPORT OF THE SURFACE ELECTRONS OVER LIQUID HELIUM IN MACROPORES**

Smorodin A.V.¹, Nikolaenko V.A.¹, Sokolov S.S.¹, Karachevceva L.A.²,

Litvenenko O.A.²

¹*B.Verkin Institute for Low Temperature Physics and Engineering NASU, Kharkiv, Ukraine*

²*Institute of Semiconductor Physics V. Lashkarev NASU, Kiev, Ukraine*

11:35-11:50 **HEAT TRANSFER IN CLATHRATE ICES**

Romantsova O.O., Krivchikov A.I.

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

11:50-12:05 **ACCOUNTING OF SECOND SOUND AND DISSIPATIVE MODES IN FORMATION OF A STATIONARY TEMPERATURE GRADIENT IN SUPERFLUID ^3He - ^4He MIXTURES**

Rogova S., Nemchenko K.

V.N. Karazin Kharkiv National University, Kharkiv, Ukraine

12:05-12:20 **TWO METHODS OF DESCRIPTION OF SUPERFLUID SYSTEMS CONSISTING OF COMPLEX PARTICLES**

Shevchenko S.I., Rukin A.S.

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

12:20-12:35 **FIRST AND SECOND SOUND IN A DEGENERATE QUANTUM GAS**

Shygorin P.P.

Lesia Ukrainka Volyn National University, Lutsk, Ukraine

13:00-14:00



Lunch

14:00-15:00



Institute Excursion

15:00-16:20

Round Table "Young Scientist Workshop" with  Coffee Break
Hall "Helium"

Chair

Mariia Pashchenko, ILTPE NASU, Ukraine

Charles Falco, Dr.

HOW OSA CAN BENEFITS STUDENTS AND SCIENTISTS

College of Optical Sciences University of Arizona, Tucson, USA

Akhmed Aliev, PhD.

MAGNETOCALORIC EFFECT: CLASSICAL AND MODERN METHODS OF RESEARCHES

Amirkhanov Institute of Physics of Daghestan Scientific Center RAS, Daghestan, Russia

Sergei Zvyagin, Dr.

**DRESDEN HIGH MAGNETIC FIELD LABORATORY:
TOWARDS 100 T AND HIGHER**

Dresden High Magnetic Field Laboratory (HLD), Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

16:20-17:20

Poster Section – II

17:30



Concert of Classical Music

WEDNESDAY, 16 MAY

Conference
hall



Plenary Lectures of invited speakers

Chair

Olga Yuzepovich, ILTPE NASU, Ukraine

9:00-9:40

Alexander Sipatov, Dr.

SEMICONDUCTOR NANOSTRUCTURES

Metal & Semicond. Phys. Dept. National Technical University "Kharkov Polytechnic Institute" Kharkiv, Ukraine

9:40-10:20

Alexander Vasiliev, Dr., Prof.

WEAK FERRIMAGNETISM AND MULTIPLE MAGNETIZATION REVERSAL IN $\alpha\text{-CR}_3(\text{PO}_4)_2$

A.N.Vasiliev¹, O.S. Volkova¹, E. Hammer², R. Glaum², J.-M. Broto³, M. Millot^{3,4},

G. Nenert⁵, Y.T. Liu⁶, J.-Y. Lin⁶, R. Klingeler⁷, M. Abdel-Hafiez⁸, Y. Krupskaya⁸,
A.U.B. Wolter⁸, and B. Buchner⁸

¹*Low Temperature Physics Department, Moscow State University, Moscow, Russia*

²*Institute for Inorganic Chemistry, Bonn University, Bonn, Germany*

³*Universite de Toulouse; UPS, INSA, Toulouse, France and Laboratoire National des Champs
Magnétiques Intenses (LNCMI)—CNRS UPR 3228, Toulouse, France*

⁴*Department of Earth and Planetary Science, University of California—Berkeley, Berkeley, California, USA*

⁵*Laue-Langevin Institute, Grenoble, France*

⁶*Institute of Physics, National Chiao-Tung University, Hsinchu, Taiwan*

⁷*Kirchhoff Institute for Physics, Heidelberg University, Heidelberg, Germany*

⁸*Leibniz Institute for Solid State and Materials Research, Dresden, Germany*

10:20-11:00

Olga Volkova, PhD.

NEW SPIN S = 1/2 VANADIUM - BASED LOW-DIMENSIONAL SYSTEMS

Volkova O.¹, E. Zvereva¹, A. Sobolev¹, I. Presniakov¹, M. Isobe², Y. Ueda²,

S. Yoshii³, H. Nojiri³, V. Mazurenko⁴, M. Valentyuk⁴, V. Anisimov^{4,5},

R. Klingeler⁶, A.U.B. Wolter⁷, M. Abdel-Hafiez⁷, B. Büchner⁷, A. Vasiliev¹

¹*Lomonosov Moscow State University, Moscow, Russia*

²*Materials Design and Characterization Laboratory, Institute for Solid State Physics, University of Tokyo,
Kashiwa, Japan*

³*Institute for Materials Research, Tohoku University, Katahira 2-1-1, Sendai 980-8577, Japan*

⁴*Theoretical Physics and Applied Mathematics Dep., Ural Federal University, Ekaterinburg, Russia*

⁵*Institute of Metal Physics, Russian Academy of Sciences, Ekaterinburg, Russia*

⁶*Kirchhoff Institute for Physics, University of Heidelberg, Heidelberg, Germany*

⁷*Leibniz Institute for Solid State and Materials Research, IFW Dresden, Dresden, Germany*

11:00-11:15



Coffee Break

**Conference
hall**

Physics of Nanostructures and Low Dimensional Systems

Chair

Kotlyar Oleksandr, ILTPE NASU, Ukraine

11:15-11:30

**NONLINEAR EXCITATIONS IN THE ONE-DIMENSIONAL METAMATERIALS
AND SOLITONIC TRANSMISSION LINES**

Laptev D.V., Bogdan M.M.

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

11:30-11:45

ELECTRON SPECTRUM OF CARBON NANOLAYERS WITH DEFECTS

Kotlyar O.V., Kravchenko K.V.

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

11:45-12:00

**SURFACE WAVES IN CUBIC CRYSTALS
HAVING AN ADSORBED LAYER**

Klochko M.S.¹, Rozhkov A.A.², Trushina K.A.²

¹*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*

²*National Technical University KhPI, Kharkiv, Ukraine*

12:00-12:15

**EFFECTS OF HYSTERESIS IN JOSEPHSON JUNCTION WITH
NANOELECTROMECHANICAL COUPLING**

Parafilo A.V.¹, Krive I.V.^{1,2}

¹*B.Verkin Institute for Low Temperature Physics and Engineering NASU, Kharkiv, Ukraine*

²*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*

12:15-12:30

OUT-OF-SURFACE VORTICES IN SPHERICAL SHELLS

Kravchuk V.P.¹, Sheka D.D.², Gaididei Y.B.¹

¹*Bogolyubov Institute for theoretical Physics Kiev, Ukraine*

²*Taras Shevchenko University of Kyiv, Kyiv, Ukraine*

12:30-12:45

**LANDAU – SILIN SPIN WAVES ON THE SURFACE OF THE NANOTUBE WITH
SUPERLATTICE**

Solyanik M.A.

V.N. Karazin Kharkiv National University, Kharkiv, Ukraine

12:45-13:00

THE INFLUENCE OF PRESSING ELECTRIC FIELD ON WIGNER CRYSTAL

STABILITY

Slavin V.V., Kryvchikov O.O.

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

13:00-14:00



Lunch

Conference
hall



Plenary Lectures of invited speakers

Chair *Maxim Barabashko, ILTPE NASU, Ukraine*

14:00-14:30 **Sergey Rassolov, PhD.**

THE BULK MATERIALS WITH AMORPHOUS AND NANOCRYSTALLINE STRUCTURES

Donetsk Institute for Physics and Engineering named after O.O.Galkin, NASU, Donetsk, Ukraine

Conference
hall

Physics of Nanostructures and Low Dimensional Systems (continue)

Chair *Maxim Barabashko, ILTPE NASU, Ukraine*

14:30-14:45 **INFLUENCE OF CHEMICAL COMPOSITION OF THE**

Al₈₆₋₈₈(Ni, Co, Fe)₆₋₈(Y, Gd, Nd)₅₋₆ METALLIC GLASSES ON THERMAL EMBRITTLEMENT UNDER LINEAR HEATING CONDITIONS

Svyrydova K.A.², Rassolov S.G.^{1,2}, Maksimov V.V.¹, Kostyrya S.A.¹, Tkatch V.I.^{1,2}, Moiseeva T.N.¹, Zhikharev I.V.^{1,2}.

¹*Donetsk Institute of Physics & Engineering NASU, Donetsk, Ukraine*

²*Lugansk Taras Shevchenko National University, Lugansk, Ukraine*

14:45-15:00 **THE INFLUENCE OF NITROGEN SATURATION ON SPECIFIC HEAT OF CARBON NANOTUBE BUNDLES**

Barabashko M.S., Bagatskii M.I., Sumarokov V.V., Dolbin A.V.

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

15:00-15:15 **PRODUCTION AND PHYSICAL PROPERTIES OF NANOSTRUCTURED FILMS Co-Cu/Cu**

Khmelenko O.V., Omelchenko S.A., Ivanova S.E., Gorban A.A.

Dnipropetrovsk National University named by Oles Gonchar, Dnepropetrovsk, Ukraine

15:15-15:30 **FRET BETWEEN ORGANIC LUMINOPHORES EMBEDDED INTO NANOPORES MATRIX**

Gnap B.A., Bepalova I.I., Yefimova S.L., Sorokin A.V., Malyukin Y.V.

Institute for Scintillation Materials, STC "Institute for Single Crystals" NASU, Kharkiv, Ukraine

15:30-15:45



Coffee Break

15:45-16:00 **STUDY OF STRUCTURE-PHASE STATE OF Co/Cu GRANULAR FILM SYSTEMS**

Kondrakhova D.M., Protsenko I.Y.

Sumy State University, Sumy, Ukraine

16:00-16:15 **ANNEALING EFFECT ON TOPOLOGY OF NANOSTRUCTURES ON THE SURFACE OF SnSe₂ AND SnS₂ LAYERED CRYSTALS**

Kudrynskyi Z.R.

Frantsevich Institute for Problems of Materials Science NASU (Chernivtsi Department) Chernivtsi, Ukraine

16:15-16:30 **STRUCTURE, COMPOSITION AND THERMAL STABILITY OF C/Si MULTILAYER MIRRORS FOR 17-35 NM WAVELENGTH REGION.**

Zhuravel I.O., Bugayev Y.A., Konotopsky L.E., Zubarev E.M., Sevryukova V.A., Kondratenko V.V.

National Technical University KhPI, Kharkiv, Ukraine

16:30-16:45 **FEATURES OF SPECTROPHOTOMETRIC AND CALORIMETRIC PROPERTIES OF VARIOUS TYPES CARBON NANOTUBES DISPERSIONS IN A NEMATIC LIQUID CRYSTAL 5CB**

Chepikov A.M.¹, Minenko S.S.²

¹*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*

²*Institute for Scintillation Materials NASU, Kharkiv, Ukraine*

16:45-17:00 **TEMPERATURE EFFECT ON FRICTION OF CU AND AU NANOPARTICLES, ADSORBED ON GRAPHENE SURFACE**

Khomenko A.V., Prodanov. N.V., Sinko D.O.

Sumy State University, Sumy, Ukraine

17:00-17:15 **STICK-SLIP MOTION IN TRIBOLOGICAL SYSTEM AT THE BOUNDARY LUBRICATION MODE**

Zaskoka A.M., Lyashenko I.A.

Sumy State University, Sumy, Ukraine

17:15-19:00



WELCOME PARTY

THURSDAY, 17 MAY

Conference hall

Plenary lectures of invited speakers

Chair *Yuriy Yerin, ILTPE NASU, Ukraine*

9:00-9:40 **Evgeni Il'ichev, Dr., Prof.**

SUPERCONDUCTING QUBITS: STATE-OF-THE-ART AND PERSPECTIVES

Institute of Photonic Technology (IPHT), Jena, Germany

9:40-10:20 **Vinh Hung Tran, Dr., Prof.**

INTERPLAY BETWEEN MAGNETISM AND SUPERCONDUCTIVITY IN SOLID SOLUTIONS DERIVED FROM AFe_2As_2 (A = Ca, Ba, Eu AND La) COMPOUNDS

Institute of Low Temperature and Structure Research, PAS Wroclaw, Poland

10:20-11:00 **Viktor Chabanenko, Dr.**

SOME ASPECTS OF CONDUCTIVE, MAGNETIC AND MECHANICAL PROPERTIES OF SOLIDS AT LOW TEMPERATURES; THE ROLE OF INTERFACES

A. Galkin Donetsk Institute for Physics and Engineering, NASU, Donetsk, Ukraine

11:00-11:15



Coffee Break

Conference hall

Electronic Properties of Conducting and Superconducting Systems

Chair *Yuriy Yerin, ILTPE NASU, Ukraine*

11:15-11:30 **THE ROLE OF CONDUCTIVITY AND HEAT PARAMETERS IN STABILITY OF THE CRITICAL STATE OF THE Nb_3Al HARD SUPERCONDUCTOR**

Shushmakova G.¹, Vasiliev S.V.¹, Nabiałek A.², Rusakov V.F.³, Chabanenko V.V.¹

¹*Donetsk Institute for Physics and Engineering named after O.O.Galkin, NASU, Donetsk, Ukraine*

²*Institute of Physics, PAS, Poland*

³*Donetsk National University, Ukraine*

11:30-11:45 **TRANSFORMATION OF MAGNETIC FIELD INDUCTION RELIEF ON THE SURFACE OF A HARD SUPERCONDUCTOR AT THERMOMAGNETIC AVALANCHES**

Kuchuk E.I.¹, Chabanenko V.V.¹, Vasiliev S.V.¹, Nabiałek A.², Rusakov V.F.³

¹*Donetsk Institute for Physics and Engineering named after O.O.Galkin, NASU, Donetsk, Ukraine*

²*Institute of Physics, PAS, Warsaw, Poland*

³*Donetsk National University, Donetsk, Ukraine*

11:45-12:00 **PHASE SLIP CENTERS IN A TWO-BAND SUPERCONDUCTING FILAMENT: APPLICATION TO MgB_2**

Fenchenko V.N., Yerin Y.S.

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

12:00-12:15 **VORTEX PINNING EFFECTS IN YBCO SINGLE CRYSTALS AT LOW MAGNETIC FIELD**

Monarkha V.Yu., Bludov O.M., Timofeev V.P.

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

12:15-12:30 **ANALYSIS OF FLUCTUATION CONDUCTIVITY AND PSEUDOGAP STATE IN Bi COMPOUNDS**

Tkachenko M.A.¹, S Sidorov.L.², Solovjov A.L.³

¹*B.Verkin Institute for Low Temperature Physics and Engineering NASU, Kharkiv, Ukraine*

²*Donetsk Institute for Physics and Engineering named after O.O.Galkin, NASU, Donetsk, Ukraine*

³*International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw, Poland*

12:30-12:45 **PECULARITIES OF THE TEMPERATURE DEPENDENCE OF RESISTANCE OF SILICON BASED GETEROSYSTEMS WITH INCORPORATED CHROMIUM DISILICIDE NANOCRYSTALLITES**

Mirzoiev I.G.¹, Berkutov I.B.^{1,3}, Andrievskii V.V.^{1,3}, Komnik Yu.F.¹, Galkin N.G.²

¹*B. Verkin Institute for Low Temperature Physics and Engineering, NASU, Kharkiv, Ukraine*

²*Institute of Automation and Control Processes of the Far Eastern Branch of RAS, Vladivostok, Russia*

³*International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw, Poland*

12:45-13:00 **MACROSCOPIC COEXISTENCE OF SPIN DENSITY WAVE AND SUPERCONDUCTING PHASES IN (TMTSF)₂ClO₄ IN PRESENCE OF ANION DISORDER.**

Gerasimenko Ya.A.¹, Prudkoglyad V.A.¹, Kornilov A.V.¹, Pudalov V.M.¹, Grigoriev P.D.²

¹*P.N. Lebedev Physical Institute, Moscow, Russia*

²*L.D. Landau Institute for Theoretical Physics, Chernogolovka, Russia*

13:00-14:00



Lunch

Conference
hall



Plenary Lectures of invited speakers

Chair

Andriy Kiyko, ILTPE NASU, Ukraine

14:00-14:40

Pavel Grigoriev, Dr.

PROPERTIES OF SUPERCONDUCTIVITY ON A SPIN- AND CHARGE-DENSITY-WAVE BACKGROUND

Grigoriev P. D.¹, Gor'kov L.P.^{1,2}

¹*L.D. Landau Institute for Theoretical Physics, Chernogolovka, Russia*

²*National High Magnetic Field laboratory, Florida State University, Tallahassee, USA*

14:40-15:20

Peter Lemmens, Dr., Prof.

TOPOLOGICAL INSULATORS AND THE ROLE OF SPIN ORBIT COUPLING IN SOLIDS

Lemmens P.¹, Gnezdilov V.²

¹*Inst. for Condensed Matter Physics, TU Braunschweig, Germany*

²*B. Verkin Institute for Low Temperature Physics and Engineering, Kharkov, Ukraine*

15:20-15:35



Coffee Break

Conference
hall

Electronic Properties of Conducting and Superconducting Systems (continue)

Chair

Andriy Kiyko, ILTPE NASU, Ukraine

15:35-15:50

TRANSMISSION AND REFLECTION OF WAVES IN VACUUM WAVEGUIDE WITH LAYERED SUPERCONDUCTOR

Rokhmanova T.M.

V.N. Karazin Kharkiv National University, Kharkiv, Ukraine

15:50-16:05

EFFECT OF SINGLE IMPURITY SCATTERING ON THE ELECTRON

TUNNELING THROUGH A POINT CONTACT INTO SURFACE STATES

Khotkevych N.V.

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

16:05-16:20 THE INFLUENCE OF SPIN FLUCTUATIONS ON PHASE TRANSITIONS IN MAGNETIC SYSTEMS

Bychkov M.E., Dergachev M.A.

Moscow State University, Faculty of Physics, Moscow, Russia

16.20-16.35 NICKEL-LITHIUM OXIDE AS A TRANSPARENT CONDUCTING FILMS

Bezkravnyi O.S., Babayevskaya N.V.,

Institute for Single Crystals, NASU, Kharkiv, Ukraine

16.35-16.50 HYDRODYNAMIC EVOLUTION OF POLARON SUBSYSTEM OF INSULATOR: FROM RELAXATION TO DIFFUSION

Sokolovsky S.A.

Prydniprov's'ka State Academy of Engineering and Architecture, Dnipropetrovs'k, Ukraine

16.50-17.05 THERMOPOWER IN MANGANITES OF THE $Ce_{1-x}Sr_xMnO_3$ SYSTEM

Martynova O.A., Gasumyants V.E.

Saint-Petersburg State Polytechnical University, St. Petersburg, Russia

17.05-17.20 FERMI LEVEL DYNAMICS IN THE $Nd_{2-x}Ce_xCuO_y$ SYSTEM

Komarova O.S., Martinova O.A., Gasumyants V.E.

Saint-Petersburg State Polytechnical University, Saint-Petersburg, Russia

17:20-17:35 FLUXON SCATTERING ON IMPURITIES IN A LONG QUASI-ONE-DIMENSIONAL JOSEPHSON JUNCTION

Zolotaryuk Ya.O., Starodub I.O.

Bogolyubov Institute for Theoretical Physics, NASU, Kiev, Ukraine

17:35-18:00



18:00



City Excursion

FRIDAY, 18 MAY

Conference
hall



Plenary Lectures of invited speakers

Chair *Mariia Pashchenko, ILTPE NASU, Ukraine*

9.00-9.40 **Yuriy Pershin**, Assistant Prof.

**MEMORY EFFECTS IN NANOSCALE DEVICES AND SYSTEMS:
A UNIFYING DESCRIPTION**

University of South Carolina, Columbia, SC, USA

9.40-10.20 **Longin Lisetski**, Dr.

LIQUID CRYSTALS AS MODEL MEDIA FOR BIOPHYSICAL STUDIES

Institute for Scintillation Materials, NASU, Kharkiv, Ukraine

10:20-10:50



Conference
hall

**Optics and Spectroscopy, Shotonics.
Optical Investigations at Low Temperatures**

Chair *Sergii Poperezhai, ILTPE NASU, Ukraine*

10:50-11:30 **SPIN-STATES, PHASE SEPARATION AND LATTICE DYNAMICS**

ANOMALIES IN SUPERCONDUCTIVE IRON CHALCOGENIDES

Yu. Pashkevich¹, V.Gnezdilov², A. Gusev¹, T. Shevtsova¹, K. Lamonova¹,

P. Lemmens³, D. Wulferding³, S. Gnatchenko², E. Pomjakushina⁴, K. Conder⁴, V. Tsurkan⁵

¹A.A. Galkin Donetsk Phystech NASU, 83114 Donetsk, Ukraine

²B.Verkin Institute for Low Temperature Physics and Engineering NASU, Kharkiv, Ukraine

³Institute for Condensed Matter Physics, TU Braunschweig, D-38106, Germany

⁴Laboratory for Developments and Methods. PSI, CH-5232 Villigen PSI, Switzerland

⁵Institute of Applied Physics, Acad. of Sciences of Moldova, Chisinau, R. Moldova

11.30-11.45

INDUCED PARAMAGNETIC CENTERS IN ZINC SULFIDE

Bezpalcenko A.V., Bulanyi M.F., Marchenko M.V.

Oles Gonchar National University of Dnepropetrovsk, Dept. of Physics, Electronics and Computer Systems, Dnepropetrovsk, Ukraine

11.45-12.00

TSL STUDY OF CHARGE CARRIER TRAPS' ENERGY SPECTRA IN SILICON ORGANIC POLYMER

Kerita Olga, Ostapenko N.I.

Institute of Physics, NASU, Kiev, Ukraine

12.00-12.15

SOLID-STATE ACTIVE MEDIA BASED ON SiO₂ MATRICES

Plaksy A.G.¹, Bezkravnaya O.N.¹, Pritula I.M.¹, Maslov V.V.²

¹Institute for Single Crystals, SSI "Institute for Single Crystals", NASU, Kharkiv, Ukraine

²A. Usikov Institute of Radiophysics and Electronics NASU, Kharkiv, Ukraine

12:15-12:30

FORMATION OF LUMINESCENCE CENTERS IN OXYGEN-DEFICIENT CERIUM OXIDE NANOCRYSTALS

Maksimchuk P.O., Masalov A.A., Malyukin Yu.V.

Institute for Scintillation Materials, NASU, Kharkiv, Ukraine.

12:30-12:45

EXCITON TRANSPORT IN PIC J-AGGREGATES FORMED IN POLYMER FILMS

Pereverzev N.V., Fylymonova I.I., Sorokin A.V., Malyukin Yu.V.

Institute for Scintillation Materials, STC "Institute for Single Crystals", NASU, Kharkiv, Ukraine

**Hall
"Helium"**

Low Temperature Physics of Macromolecules, Biophysics.

10:50-11:05

PHOTOLUMINESCENCE OF POLY(C)-WRAPPED CARBON NANOTUBES CONNECTED BY CATIONIC PORPHYRINS IN AQUEOUS SUSPENSION

Glamazda A.Yu., Leontiev V.S., Karachevtsev V.A.

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

11.05-11.20

ENHANCEMENT OF THE INFRARED ABSORPTION AND RAMAN SCATTERING BY NUCLEIC ACIDS ADSORBED ON THE SURFACE OF SINGLE WALL CARBON NANOTUBES

Dovbeshko G.I.¹, Fesenko O.M.¹, Gnatyuk O.P.¹, Darchuk L.A.², Rynder A.D.³

¹Institute of Physics, NASU, Kyiv, Ukraine

²University of Antwerp, Dept. of Chemistry, Wilrijk-Antwerpen, Belgium

³National University of 'Kyiv-Mohyla academy', Kyiv, Ukraine

11.20-11:35

HYBRIDIZATION OF HOMOLIGONUCLEOTIDES POLY(rC) AND POLY(rI) ON THE CARBON NANOTUBE SURFACE

Karachevtsev M.V., Gladchenko G.O.

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

11:35-11:50

NONCOVALENT INTERACTION BETWEEN IMIDASOPHENAZINE DERIVATIVES AND CARBON NANOTUBES OF DIFFERENT CHIRALITIES AND GRAPHENE

Zarudnev E.S., Stepanian S.G., Karachevtsev V.A.

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

11:50-12:05

SELECTIVE NONCOVALENT INTERACTION OF TRIAZOLEPHENAZINE WITH SEMICONDUCTING SINGLE-WALLED CARBON NANOTUBES: RAMAN SPECTROSCOPY STUDY

Glamazda A.Yu.¹, Kurnosov N.V.², Leontiev V.S.¹, Karachevtsev V.A.¹

¹B.Verkin Institute for Low Temperature Physics and Engineering, NASU, Kharkiv, Ukraine

²V.N. Karazin Kharkiv National University, Kharkiv, Ukraine

12.05-12.20 **PHASE DIAGRAMS OF Zn²⁺ ION-DNA COMPLEXES IN NEUTRAL AND ALKALINE SOLUTIONS**

Usenko E.L., Valeev V.A., Sorokin V.A.

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

12.20-12.35 **MOLECULAR ORGANIZATION OF COMPLEXES OF AMINO ACID VALINE WITH POLYETHER POLYMERS**

Zobnina V.G., Chagovets V.V., Kosevich M.V.

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

12.35-12.50 **INFLUENCE OF ALKALI METAL HALIDES ON THERMODYNAMIC PROPERTIES OF MODEL PHOSPHOLIPID MEMBRANES**

Iermak Iu.L.¹, Vashchenko O.V.²

¹V.N. Karazin Kharkiv National University, Kharkiv, Ukraine

²Institute for Scintillation Materials of STC "Institute for Single Crystals", NASU, Kharkiv, Ukraine

13:00-14:00



Lunch

14.00

Closing