



**VII International Conference for Young
Scientists**
"LOW TEMPERATURE PHYSICS - 2016"
6 - 10 June 2016



Conference Program
&
Book of Abstracts

Kharkiv 2016

Program Committee

Chairman: Prof. Sergiy Gnatchenko, Full Member of NASU, ILTPE NASU (Kharkiv, Ukraine)
Vice-chairman: Dr. Gennadiy Grechnev, ILTPE NASU (Kharkiv, Ukraine)
 Dr. Viktor Chabanenko, DonFTI NASU (Kyiv, Ukraine)
 Dr. Oleksandr Dolbin, ILTPE NASU (Kharkiv, Ukraine)
 Prof. Viktor Eremenko, Full Member of NASU, ILTPE NASU (Kharkiv, Ukraine)
 Dr. Mykola Glushchuk, ILTPE NASU (Kharkiv, Ukraine)
 Dr. Andrzej Jezowski, Institute of Low Temperature and Structure Research PAS (Wroclaw, Poland)
 Dr. Oleksandr Kalinenko, ILTPE NASU (Kharkiv, Ukraine)
 Dr. Viktor Karachevtsev, ILTPE NASU (Kharkiv, Ukraine)
 Prof. Mykola Kharchenko, Full Member of NASU, ILTPE NASU (Kharkiv, Ukraine)
 Prof. Yuriy Kolesnichenko, ILTPE NASU (Kharkiv, Ukraine)
 Dr. Oleksandr Kordyuk, Corresponding member of NASU, IMP NASU (Kyiv, Ukraine)
 Dr. Volodymyr Maidanov, ILTPE NASU (Kharkiv, Ukraine)
 Prof. Yuriy Naidyuk, ILTPE NASU (Kharkiv, Ukraine)
 Prof. Vasylii Natsik, ILTPE NASU (Kharkiv, Ukraine)
 Dr. Anatoliy Negriyko, Corresponding Member of NASU, Institute of Physics NASU (Kyiv, Ukraine)
 Dr. Oleksandr Omelyanchouk, Corresponding Member of NASU, ILTPE NASU (Kharkiv, Ukraine)
 Dr. Pavlo Pal-Val, ILTPE NASU (Kharkiv, Ukraine)
 Dr. Leonid Pastur, Full Member of NASU, ILTPE NASU (Kharkiv, Ukraine)
 Prof. Eduard Rudavskii, Corresponding Member of NASU, ILTPE NASU (Kharkiv, Ukraine)
 Prof. Elena Savchenko, ILTPE NASU (Kharkiv, Ukraine)
 Dr. Sergiy Shevchenko, ILTPE NASU (Kharkiv, Ukraine)
 Prof. Mykhailo Strzhemechny, Corresponding Member of NASU, ILTPE NASU (Kharkiv, Ukraine)
 Prof. Andrzej Szewczyk, Institute of Physics PAS (Warsaw, Poland)
 Prof. Yevgen Syrkin, ILTPE NASU (Kharkiv, Ukraine)
 Prof. Alexander Vasiliev, Moscow State University (Moscow, Russia)

Organizing Committee

Chairman: Mariia Pashchenko
Vice-chairman: Olena Vatazhuk
Secretary: Nina Gamayunova

Organizing Committee members:

Maxym Barabashko
 Tatyana Gaydamak
 Vusal Geidarov
 Ivan Gritsenko
 Yuliya Horbatenko
 Vitalii Horielyi
 Olga Ilinskaya
 Maria Khlistyuk
 Ivan Khyzhniy
 Anton Klimkin

Marina Kolodyazhnaya
 Valentin Koverya
 Denis Laptev
 Anastasiya Lyogenkaya
 Natalia Mysko
 Lyudmila Omelchenko
 Sergii Poperezhai
 Yuliya Savina
 Valentyna Zobnina

<http://www.ilt.kharkov.ua/kmu2016/>

CONFERENCE PROGRAM

MONDAY, 6 JUNE

8:00-10:00 Registration

10:00-10:15 **OPENING OF THE CONFERENCE**
Opening remarks from the Administration of the B.Verkin ILTPE NAS of Ukraine

CONFERENCE HALL

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Mariia Pashchenko*

10:15-10:55 **MAGNETIC EXITATIONS IN SPIN-1/2 TRIANGULAR-LATTICE
ANTIFERROMAGNETS: HIGH-FIELD ESR STUDIES** 42
S. A. Zvyagin
*Dresden High Magnetic Field Laboratory (HLD) Helmholtz-Zentrum Dresden-Rossendorf,
Dresden, Germany*

10:55-11:30  *General Photo and*  *Coffee Break*

CONFERENCE HALL

MAGNETISM AND MAGNETIC MATERIALS

Chair *Tatyana Gaydamak*

11:30-11:45 **MULTIFERROIC $\text{PrFe}_3(\text{BO}_3)_4$: STRONG ELECTRON-PHONON
COUPLING IN AN EXTERNAL MAGNETIC FIELD PROBED BY
TERAHERTZ SPECTROSCOPY** 71
K. N. Boldyrev¹, M. N. Popova¹, T. N. Stanislavchuk², D. Kamenskyi³,
L. N. Bezmaternykh⁴
¹ *Institute of Spectroscopy, Russian Academy of Sciences, Moscow, Russia*
² *Department of Physics, New Jersey Institute of Technology, Newark, USA*
³ *High Field Magnet Laboratory, Radboud University, Nijmegen, The Netherlands*
⁴ *Kirensky Institute of Physics, Krasnoyarsk, Russia*

11:45-12:00 **CLASSIFICATION OF DEGENERATE EQUILIBRIUM STATES OF
MAGNETS WITH THE SPIN $S=1$** 72
A. V. Glushchenko, M. Yu. Kovalevsky
Kharkov Institute of Physics and Technology, Kharkiv, Ukraine

12:00-12:15 **SPECTRA OF COLLECTIVE EXCITATIONS AND LOW
FREQUENCY ASYMPTOTICS OF GREEN'S FUNCTION FOR SPIN
 $S=1$ MAGNETICS** 73
A. V. Glushchenko¹, M. Y. Kovalevsky¹, L. V. Logvinova², V. T. Matskevych¹
¹ *National Science Center "Kharkov Institute for Physics and Technologies", Kharkiv, Ukraine*
² *Belgorod State University, Belgorod, Russia*

- 12:15-12:30 MAGNETIC PROPERTIES OF SUPERCONDUCTING NANOSTRUCTURES BASED ON INDIUM IN VARIOUS POROUS DIELECTRICS** **74**
N. Yu. Mikhailin^{1,2}, V. I. Kozub¹, Yu. A. Kumzerov¹, R. V. Parfeniev¹,
 A. A. Sysoeva¹, A. V. Fokin¹, D. V. Shamshur¹
¹*Ioffe Physical-Technical Institute, Saint-Petersburg, Russia*
²*International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw, Poland*
- 12:30-12:45 DOMAIN WALL MOTION IN MAGNETIC HELICES UNDER ACTION OF RASBHA TORQUE** **75**
O. V. Pylypovskiy¹, D. D. Sheka¹, V. P. Kravchuk², K. V. Yershov^{2,3},
 D. Makarov⁴, Y. Gaididei²
¹*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*
²*Bogolyubov Institute for Theoretical Physics of the National Academy of Sciences of Ukraine, Kyiv, Ukraine*
³*National University of "Kyiv-Mohyla Academy", Kyiv, Ukraine*
⁴*Helmholtz-Zentrum Dresden-Rossendorf e.V., Institute of Ion Beam Physics and Materials Research, Dresden, Germany*
- 12:45-13:00 REORIENTATION PHASE TRANSITION IN PERMALLOY SPHERICAL SHELL** **76**
M. I. Sloika¹, D. D. Sheka¹, V. P. Kravchuk², Y. B. Gaididei²
¹*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*
²*Bogolyubov Institute for Theoretical Physics, Kyiv, Ukraine*
- 13:00-13:15 CURRENT DRIVEN DOMAIN WALL MOTION IN MAGNETIC HELIX** **77**
K. V. Yershov^{1,2}, V. P. Kravchuk¹, D. D. Sheka³, Y. Gaididei¹
¹*Bogolyubov Institute for Theoretical Physics of NAS of Ukraine, Kyiv, Ukraine*
²*National University of «Kyiv-Mohyla Academy», Kyiv, Ukraine*
³*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*

13:15-14:00

*Time for Lunch***CONFERENCE HALL****PLENARY LECTURES OF INVITED SPEAKERS***Chair**Denis Laptev*

- 14:00-14:40 EXOTIC MAGNETIC PHASES IN FRUSTRATED J_1 - J_2 CHAIN MAGNET LiCuVO_4** **40**
 L. E. Svistov
P.L. Kapitza Institute for Physical Problems RAS, Moscow, Russia
- 14:40-15:20 FERROMAGNETIC RESONANCE: APPLICATION FOR STUDY OF MAGNETIC SHAPE MEMORY ALLOYS** **32**
 V. O. Golub
Institute of Magnetism NAS of Ukraine and MES of Ukraine, Kiev, Ukraine

CONFERENCE HALL

THEORY OF CONDENSED MATTER PHYSICS

Chair Denis Laptev

- 15:20-15:35 ELECTROMAGNETIC WAVE ABSORPTION AND SURFACE PLASMON PROPAGATION IN A DOUBLE LAYER GRAPHENE SYSTEM WITH ELECTRON-HOLE PAIRING 181**
K. V. Germash, D. V. Fil
Institute for Single Crystals of NAS of Ukraine, Kharkiv, Ukraine
- 15:35-15:50 SHUTTLE INSTABILITY INDUCED BY TEMPERATURE GRADIENT 182**
O. A. Ilinskaya
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
- 15:50-16:05 OPTIMAL EFFICIENCY OF THERMOELECTRICS BASED ON THERMOMAGNETIC EFFECT IN TUNNELING OF SPIN-POLARIZED ELECTRONS THROUGH A QUANTUM DOT IN EXTERNAL MAGNETIC FIELD 183**
Yu. D. Zubov¹, O. A. Ilinskaya²
¹*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*
²*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
- 16:05-16:20 INVESTIGATION OF STRUCTURAL AND ELECTRONIC PROPERTIES OF BN COMPOUND UNDER HIGH PRESSURE: AN AB-INITIO MOLECULAR DYNAMICS STUDY 184**
C. Kurkcu, H. Ozturk
Ahi Evran University, Faculty of Arts and Sciences, Department of Physics, Kirsehir, Turkey
- 16:20-16:35 JOSEPHSON EFFECTS IN ATOMTRONIC CIRCUITS 185**
O. Y. Matsyshyn¹, Y. M. Bidasyuk², M. Weyrauch², A. I. Yakimenko¹
¹*Department of Physics, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*
²*Physikalisch-Technische Bundesanstalt, Braunschweig, Germany*
- 16:35-16:50 REALIZATION OF COMPOSITE FERMION TYPE (QUASI) PARTICLES BY DEFORMED FERMIONS. ENTANGLEMENT MEASURES 186**
Yu. A. Mishchenko, A. M. Gavrilik
Bogolyubov Institute for Theoretical Physics of NAS of Ukraine, Kyiv, Ukraine
- 16:50-17:05 MODELING OF KINETICS OF THE MATERIALS FRAGMENTATION MODES AT SEVERE PLASTIC DEFORMATION 187**
A. V. Khomenko, D. S. Troshchenko, I. O. Solonar
Sumy State University, Sumy, Ukraine

17:05-18:00

POSTER SESSION I

TUESDAY, 7 JUNE**CONFERENCE HALL****PLENARY LECTURES OF INVITED SPEAKERS**Chair *Mariia Pashchenko*

10:00-10:40 TRANSPORT PROPERTIES IN SUPERCONDUCTING HYBRID NANOSYSTEMS **29**

A. Braggio^{1,2}¹*CNR-SPIN Dipartimento di Fisica, Genova (Italy)*²*INFN, Sezione di Genova, Dipartimento di Fisica, Genova (Italy)*

10:40-11:20 ABRIKOSOV FLUXONICS IN WASHBOARD NANOLANDSCAPES **30**

O. V. Dobrovolskiy^{1,2}, M. Huth¹, V. A. Shklovskij²¹*Physikalisches Institut, Goethe University, Frankfurt/M, Germany*²*Physics Department, V. N. Karazin National University, Kharkiv, Ukraine*

11:20-11:40

*Coffee Break***CONFERENCE HALL****ELECTRONIC PROPERTIES OF CONDUCTING AND SUPERCONDUCTING SYSTEMS**Chair *Valentin Kovrya*

11:40-11:55 PSEUDOGAP AND FLUCTUATION CONDUCTIVITY IN $Y_{1-x}Pr_xBa_2Cu_3O_{7-\delta}$ SINGLE CRYSTALS WITH DIFFERENT PRASEODYMIUM (Pr) CONTENT **45**

L. V. Omelchenko¹, A. V. Solovjov¹, R. V. Vovk²¹*B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*²*Physics Department, V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*

11:55-12:10 SPECIFIC FEATURES OF THE EXCESS CONDUCTIVITY AND PSEUDOGAP BEHAVIOR IN $FeSe_{0.94}$ IRON-BASED SUPERCONDUCTORS **46**

E. V. Petrenko¹, V. B. Stepanov¹, A. L. Solovjov¹, K. Buchkov², E. Nazarova²¹*B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*²*Institute of Solid State Physics, Bulgarian Academy of Sciences, Sofia, Bulgaria*

12:10-12:25 INFLUENCE OF ALTERNATING MAGNETIC FIELD ON PHYSICAL AND MECHANICAL PROPERTIES OF CRYSTALS **47**

V. I. Karas^{1,2}, E. V. Karasyova¹, A. V. Mats¹, V. I. Sokolenko¹, A. M. Vlasenko¹, V. E. Zakharov^{3,4}¹*National Science Center «Kharkov Institute of Physics and Technology», Kharkiv, Ukraine*²*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*³*P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Moscow, Russia*⁴*L.D.Landau Institute for Theoretical Physics of the Russian Academy of Sciences, Chernogolovka, Russia*

- 12:25-12:40 PECULIARITIES OF AVALANCHES DYNAMICS OF MAGNETIC FLUX IN HARD SUPERCONDUCTORS** **48**
 E. I. Kuchuk
O.O. Galkin Donetsk Institute for Physics and Engineering of NAS of Ukraine, Kyiv, Ukraine
- 12:40-12:55 SPIN-CURRENT INDUCED SWITCHING BETWEEN STATES OF THE NONCOLLINEAR ANTIFERROMAGNET IrMn** **49**
V. Kuchkin¹, O. Gomonay^{1,2}
¹National Technical University of Ukraine "KPI", Kyiv, Ukraine
²Institut für Physik, Johannes Gutenberg Universität at Mainz, Mainz, Germany

SMALL CONFERENCE HALL BIOPHYSICS AND PHYSICS OF MACROMOLECULES

Chair *Valentyna Zobnina*

- 11:40-11:55 EFFECT OF DIVALENT CATIONS ON THE PROTON TRANSPORT IN ISOLATED ERYTHROCYTE** **149**
D. F. Astapovich, V. P. Berest
V. N. Karazin Kharkiv National University, Kharkiv, Ukraine
- 11:55-12:10 PHARMACEUTICAL INTERACTIONS IN MODEL LIPID BILAYERS BY MEANS OF DIFFERENTIAL SCANNING CALORIMETRY** **150**
L. V. Budianskaia, O. V. Vashchenko
Institute for Scintillation Materials of NAS of Ukraine, Kharkiv, Ukraine
- 12:10-12:25 LUMINESCENCE ENHANCEMENT FROM CARBON NANOTUBES INDUCED BY THIOL COMPOUNDS** **151**
N. V. Kurnosov, V. S. Leontiev, V. A. Karachevtsev
B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
- 12:25-12:40 CORRELATION OF SOME MOLECULAR PARAMETERS OF BIOLOGICALLY RELEVANT SUBSTANCES AND THEIR EFFECT ON MODEL LIPID MEMBRANES** **152**
A. O. Sadchenko, O. V. Vashchenko, N. A. Kasian
Institute for Scintillation Materials of NAS of Ukraine, Kharkiv, Ukraine
- 12:40-12:55 COMPARISON OF NONCOVALENT INTERACTIONS OF LINEAR HETEROCYCLIC ORGANIC MOLECULES WITH CARBON NANOTUBES OR WITH GRAPHENE** **153**
E. S. Zarudnev, S. G. Stepanian, V. A. Karachevtsev
B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

13:00-14:00



Time for Lunch

14:00-15:00



LAB TOUR

CONFERENCE HALL**PLENARY LECTURES OF INVITED SPEAKERS**

Chair *Valentyna Zobnina*

- 15:00-15:40 ONE-MOLECULE SHOW: NOVEL APPLICATIONS OF METHYLENE BLUE DYE IN PHARMACOLOGY AND NANOBIOPHYSICS 34**
 M. V. Kosevich
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

CONFERENCE HALL**ELECTRONIC PROPERTIES OF CONDUCTING AND SUPERCONDUCTING SYSTEMS**

Chair *Valentin Koverya*

- 15:40-15:55 SOLITON DYNAMICS IN AN ASYMMETRIC ARRAY OF JOSEPHSON JUNCTIONS 50**
I. O. Starodub, Ya. O. Zolotaryuk
Bogolyubov Institute for Theoretical Physics of NAS of Ukraine, Kiev, Ukraine
- 15:55-16:10 SUPERCONDUCTING VORTEX ORBITS VISUALIZED BY SCANNING TUNNELING MICROSCOPY 51**
T. Samuely¹, M. Timmermans², D. Lotnyk¹, B. Raes², J. Van de Vondel², V.V. Moshchalkov²
¹*Centre of Low Temperature Physics, Faculty of Science, P.J. Šafárik University in Košice, Slovakia*
²*Institute for Nanoscale Physics and Chemistry (INPAC), KU Leuven, Belgium*
- 16:10-16:25 THE EFFECT OF SINTERING IN DIFFERENT ATMOSPHERE ON SUPERCONDUCTIVITY PARAMETERS OF YBCO 52**
M. Başoğlu¹, İ. Düzgün²
¹*Gümüşhane University, Department of Energy Systems Engineering, Gümüşhane, Turkey*
²*Gümüşhane University, Department of Physics Engineering, Gümüşhane, Turkey*
- 16:25-16:40 EFFECT OF Dy SUBSTITUTION AT Ca SITES IN BSCCO CERAMIC SUPERCONDUCTORS 53**
İ. Düzgün¹, A. Öztürk² and S. Çelebi²
¹*Gümüşhane University, Department of Physics Engineering, Gümüşhane, Turkey*
²*Karadeniz Technical University, Department of Physics, Trabzon, Turkey*
- 16:40-16:55 JOSEPHSON EFFECT IN GRAPHENE JUNCTIONS 54**
P. P. Shyhorin, I. P. Dmytruk and Yu. Datsiuk
Lesya Ukrainka East European National University, Lutsk, Ukraine

SMALL CONFERENCE HALL**BIOPHYSICS AND PHYSICS OF MACROMOLECULES**

Chair *Valentyna Zobnina*

- 15:40-15:55 INFLUENCE OF FREEZING DOWN TO -196°C ON STRUCTURE AND ANTIOXIDANT POWER OF SEVERAL PROTEINS 154**
S. V. Narozhnyi, S. L. Rozanova, O. A. Nardid
Institute for Problems of Cryobiology and Cryomedicine, Kharkiv, Ukraine

- 15:55-16:10 THE VIBRATIONAL SPECTRA OF 5-FLUOROURACIL MOLECULES ISOLATED IN THE LOW TEMPERATURE Ar MATRICES** **155**
I. I. Shkapo, A. Yu. Ivanov, Yu. V. Rubin, V. A. Karachevtsev
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
- 16:10-16:25 MASS SPECTROMETRIC INVESTIGATION OF INTERACTION OF PUTRESCINE WITH OLYGOMERS OF POLYETHYLENE GLYCOL** **156**
V. G. Zobnina¹, O. A. Boryak¹, M. V. Kosevich¹, K. Vekey², A. Gomory²
¹*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
²*Core Technologies Centre of Research Centre for Natural Sciences of the Hungarian Academy of Sciences, Budapest, Hungary*
- 16:25-16:40 THE INFLUENCE OF THE PROTONATION ON THE STABILITY OF THE SPIROPYRAN AND MEROCYANINE MOLECULES** **157**
O. A. Kovalenko¹, Yu. M. Lopatkin¹, P. O. Kondratenko²
¹*Sumy State University, Sumy, Ukraine*
²*Aerospace Institute, National Aviation University, Kiev, Ukraine*

16:55-18:00

POSTER SESSION II

WEDNESDAY, 8 JUNE**CONFERENCE HALL****PLENARY LECTURES OF INVITED SPEAKERS**

Chair *Mariia Pashchenko*

10:00-10:40 OPPORTUNITIES AND TECHNIQUES IN THE NHMFL HIGH B/T FACILITY AT THE UNIVERSITY OF FLORIDA 35

J. S. Xia, N. Masuhara, C. Huan, A. Serafin, M. W. Meisel and N. S. Sullivan
Department of Physics and the National High Magnetic Field, University of Florida, Gainesville, FL, USA

10:40-11:20 TUNEABLE LDHs 39

A. N. Salak¹, D. E. L. Vieira¹, A. V. Fedorchenko^{2,3}, E. L. Fertman³, A. B. Lopes¹,
A. Feher², M. G. S. Ferreira¹

¹*Department of Materials and Ceramic Engineering, CICECO – Aveiro Institute of Materials, University of Aveiro, Aveiro, Portugal*

²*Institute of Physics, Faculty of Science, P.J. Šafárik University in Košice, Košice, Slovakia*

³*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*

11:20-11:40



Coffee Break

CONFERENCE HALL**MATERIALS SCIENCE**

Chair *Vusal Geidarov*

11:40-11:55 CHANGE OF STRUCTURE OF POLYIMIDE PM-A AFTER EXPOSURE TO LOW TEMPERATURE AND DEFORMATION 165

V. G. Geidarov, Y. M. Plotnikova

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

11:55-12:10 X-RAY DETERMINATION OF STRUCTURAL PARAMETERS IN CP-TITANIUM UNDER CRYOROLLING 166

Y. M. Plotnikova

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

12:10-12:25 INDENTATION SIZE EFFECT IN TITANIUM VT1-0 167

A. V. Rusakova

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

12:25-12:40 STRAIN HARDENING, STRAIN RATE SENSITIVITY AND DUCTILITY OF THE NANOCRYSTALLINE TITANIUM 168

R. V. Smolianets

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

12:40-13:30



LAB TOUR

13:30-14:00



Time for Lunch

CONFERENCE HALL

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Olena Vatazhuk*

- 14:00-14:40 TERA-MIR RADIATION: MATERIALS, GENERATION, DETECTION AND APPLICATIONS III 38**
M. F. Pereira
Materials and Engineering Research Institute, Sheffield Hallam University, Sheffield, United Kingdom
- 14:40-15:20 LOW-TEMPERATURE ACOUSTIC PROPERTIES OF NANOSTUCTURED Cu AND Cu-BASED NANOCOMPOSITES OBTAINED BY DIFFERENT METHODS OF SEVERE PLASTIC DEFORMATION 37**
P. P. Pal-Val
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

CONFERENCE HALL

MATERIALS SCIENCE

Chair *Olena Vatazhuk*

- 15:20-15:35 PEIERLS BARRIERS FOR <a>-TYPE SCREW DISLOCATIONS IN MAGNESIUM 169**
O. M. Vatazhuk¹, A. Ostapovets², R. Gröger²
¹*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
²*CEITEC-IPM, Institute of Physics of Materials ASCR, Brno, Czech Republic*
- 15:35-15:50 PECULIARITIES OF PLASTIC DEFORMATION OF UFG AZ31 AT LOW TEMPERATURE 170**
P. A. Zabrodin
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
- 15:50-16:05 EFFECT OF DOPING AMINO ACIDS L-ARGININE ON THE STRENGTH AND NONLINEAR OPTICAL PROPERTIES OF KDP CRYSTALS 171**
E. I. Kosteniukova, O.N. Bezkrovnaya
STC "Institute for Single Crystals", Kharkiv, Ukraine
- 16:05-16:15 PLASTIC PROPERTIES OF TUNGSTEN-POTASSIUM IN A WIDE TEMPERATURE RANGE 172**
S. V. Lebediev¹, T. V. Khvan¹, V. I. Dubinko², D. Terentyev³
¹*V. N. Karazin Kharkiv National University, Kharkiv, Ukraine*
²*National Scientific Centre Kharkiv Institute of Physics and Technology, Kharkiv, Ukraine*
³*Belgian Nuclear Research Centre SCK-CEN*



17:00-21:00

WELCOME PARTY

THURSDAY, 9 JUNE**CONFERENCE HALL****PLENARY LECTURES OF INVITED SPEAKERS***Chair Mariia Pashchenko*

10:00-10:40 THERMODYNAMIC STUDIES ON THE SUPERCONDUCTIVITY AND THE SPIN LIQUID STATE IN ORGANIC CHARGE TRANSFER COMPOUNDS **36**

Y. Nakazawa, S. Yamashita, R. Yoshimoto, S. Imajo, H. Akutsu
Department of Chemistry, Graduate School of Science, Osaka University, Osaka, Japan

10:40-11:20 LOW TEMPERATURE FTIR SPECTROSCOPY IN THE STUDIES OF SURFACE PHENOMENA **41**

A.A. Tsyganenko
V.A.Fock Institute of Physics, St.Petersburg State University, St.Petersburg, Russia

11:20-11:35*Coffee Break***CONFERENCE HALL****QUANTUM LIQUIDS AND QUANTUM CRYSTALS,
CRYOCRYSTALS***Chair Ivan Gritsenko*

11:35-11:50 THE THERMAL CONDUCTIVITY OF POLYMORPHS 4-BROMOBENZOPHENONE CRYSTALS **107**

Yu. V. Horbatenko, O. O. Romantsova, A. I. Krivchikov, O. A. Korolyuk
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

11:50-12:05 ON THE DIPOLE MOMENT OF QUANTIZED VORTICES IN THE PRESENCE OF FLOWS **108**

S. I. Shevchenko, A. M. Konstantinov
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

12:05-12:20 ANALYSIS OF INFLUENCE OF LIQUID DIELECTRIC FILM THICKNESS ON THE CHARACTERISTICS OF THE PHASE TRANSITION TO A SPATIALLY PERIODIC STRUCTURE IN A GAS OF CHARGED PARTICLES ABOVE IT **109**

D. M. Lytvynenko^{1,2}
¹*Akhiezer Institute for Theoretical Physics NSC KIPT, Kharkiv, Ukraine*
²*Kharkiv V.N. Karazin National University, High-Technology Institute, Kharkiv, Ukraine*

12:20-12:35 BOSE-EINSTEIN CONDENSATION IN A MIXED FERMION-BOSON SYSTEM OF INTERACTING PARTICLES **110**

Yu. M. Poluektov, S. N. Shulga
Akhiezer Institute for Theoretical Physics NSC KIPT, Kharkiv, Ukraine

- 12:35-12:50 THE ELECTRIC POLARIZATION OF He II WITH MOTION OF SUPERFLUID COMPONENT RELATIVE TO THE VORTICES 111**
I. N. Adamenko, E. K. Nemchenko
V. N. Karazin Kharkiv National University, Kharkiv, Ukraine
- 12:50-13:05 EFFECTS CAUSED BY ORIENTATIONAL DISORDER ON THERMAL CONDUCTIVITY OF MOLECULAR CRYSTALS 112**
G. A. Vdovychenko, A. I. Krivchikov, O. A. Korolyuk, O. O. Romantsova, Yu. V. Horbatenko
V. N. Karazin Kharkiv National University, Kharkiv, Ukraine
- 13:05-13:20 SPONTANEOUS CURRENT OSCILLATIONS IN A PHOTO-EXCITED 2D ELECTRON SYSTEM ON LIQUID HELIUM 113**
K. Nasyedkin¹, K. Kono^{1,2,3}
¹*RIKEN Center for Emergent Matter Science, Wako, Saitama, Japan*
²*Institute of Physics, National Chiao Tung University, Hsinchu, Taiwan*
³*Institute of Physics, Kazan Federal University, Kazan, Russia*

HALL

YOUNG SCIENTISTS WORKSHOP

Chair Mariia Pashchenko

13:20-14:20 Workshop devoted to celebration of 100 years anniversary of OSA (Optical Society of America) and Carrier Development opportunities for young scientists and students

Mariia Pashchenko

ILTPE NASU

“Introduction about SPIE and OSA Societies”

Alexander Semchenkov

web-manufacture.net

“3D-printer and its potential”

Prof. Mauro F. Pereira

Materials and Engineering Research Institute, Sheffield Hallam University, Sheffield, United Kingdom

”Special Program for Students”



14:30-19:00

Excursion to ECOPark

FRIDAY, 10 JUNE**CONFERENCE HALL****PLENARY LECTURES OF INVITED SPEAKERS***Chair Mariia Pashchenko***10:00-10:40 ELECTRON-PHONON COUPLING IN BINARY MOLIBDATES 33**D. Kamenskyi¹, A. Pronin², K. Kutko³, S. Poperezhai³¹High Field Magnet Laboratory, Radboud University, Nijmegen, The Netherlands²Universitat Stuttgart, Stuttgart, Germany³B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine**10:40-11:20 CLUSTERING PROCESSES IN HYDROGEN-BONDED LIQUIDS BY MATRIX-ISOLATION FTIR SPECTROSCOPY 31**I. Doroshenko¹, V. Pogorelov¹, G. Pitsevich², V. Sablinskas³ and V. Balevicius³¹Taras Shevchenko National University of Kyiv, Kyiv, Ukraine²Belarusian State University, Minsk, Belarus³Vilnius University, Vilnius, Lithuania**11:20-11:40***Coffee Break***CONFERENCE HALL****OPTICS, PHOTONICS AND OPTICAL SPECTROSCOPY***Chair Sergii Poperezhai***11:40-11:55 THz STUDY OF LOW ENERGY EXCITATIONS IN KEr(MoO₄)₂ 89**S. Poperezhai¹, K. Kutko¹, P. Gogoi², D. Kamenskyi²¹B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine²High Field Magnet Laboratory, Radboud University, Nijmegen, The Netherlands**11:55-12:10 FLUORESCENCE ENHANCEMENT BY J-AGGREGATES 90**I. Yu. Ropakova, I. I. Grankina, A. V. Sorokin, Yu. V. Malyukin*Institute for Scintillation Materials, STC "Institute for Single Crystals", Kharkiv, Ukraine***12:10-12:25 PHOTOLUMINESCENCE PROPERTIES OF THE Li₂OxGeO₂ GLASS-CERAMIC DOPED WITH SOME THREE CHARGED IONS 91**Ya. Rybak¹, S. Nedilko¹, V. Scherbatskii¹, M. Trubitsyn², M. Volnianskii²¹Taras Shevchenko National University of Kyiv, Kyiv, Ukraine²Oles Honchar Dnipropetrovsk National University, Dnipropetrovsk, Ukraine**12:25-12:40 INTEGRATED QUANTUM CORRELATION COUNTER BASED ON MULTI-ELEMENT SUPERCONDUCTING NANOWIRE SINGLE PHOTON DETECTOR 92**M. Yu. Mikhailov^{1,2}, V. Zwiller¹¹Kavli Institute of Nanoscience Delft, Delft University of Technology, Delft, The Netherlands²B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

- 12:40-12:55 INFLUENCE OF ZINC CONCENTRATION ON STRUCTURAL AND OPTICAL PROPERTIES OF POLYCRYSTALLINE CZT THICK FILMS OBTAINED BY THE CLOSE SPACED SUBLIMATION** **93**
Y. V. Znamenshchykov, V. V. Kosyak, A. S. Opanasyuk
Sumy State University, 2, Sumy, Ukraine
- 12:55-13:10 EFFECT OF THE STRUCTURE ON THE CHARACTERISTICS OF THE LANTHANUM-GALLIUM SILICATE GROUP CRYSTALS** **94**
 O. A. Buzanov¹, A. P. Kozlova², N. S. Kozlova², E. V. Zabelina², N. A. Siminel²,
 D. A. Spassky³
¹*Fomos Materials Ltd., Moscow, Russia*
²*National University of Science and Technology "MISiS", Moscow, Russia*
³*Skobeltsyn Institute of Nuclear Physics, Moscow State University, Moscow, Russia*

SMALL CONFERENCE HALL

NANOPHYSICS AND NANOTECHNOLOGIES

Chair Maxym Barabashko

- 11:40-11:55 LOW TEMPERATURE HEAT CAPACITY OF THE 1D METHANE CHAINS** **129**
M. S. Barabashko, M. I. Bagatskii, V. V. Sumarokov
B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
- 11:55-12:10 THE QUANTUM EFFECTS IN HYDROGEN SORPTION BY MESOPOROUS MATERIALS** **130**
M. V. Khlistuck, A. V. Dolbin, V. B. Esel'son, V. G. Gavrilko, N. A. Vinnikov,
 R. M. Basnukaeva
B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
- 12:10-12:25 STRUCTURAL FEATURES OF SURFACE LAYERS THIN FILMS OF YTTRIUM IRON GARNET** **131**
 O. V. Kovalenko
V. N. Karazin Kharkiv National University, Kharkiv, Ukraine
- 12:25-12:40 AN INFLUENCE OF DOPINGS ON THE GROUND STATE SPIN OF NL ACCORDING TO T-J MODEL** **132**
 A. A. Kravchenko
V. N. Karazin Kharkiv National University, Kharkiv, Ukraine
- 12:40-12:55 OPTICAL AND ELECTROPHYSICAL PROPERTIES OF CARBON NANOTUBES DISPERSIONS IN NEMATIC LIQUID CRYSTALS WITH PHOTOACTIVE COMPONENTS** **133**
 O. M. Samoilo
Institute for Scintillation Materials, Kharkiv, Ukraine
- 12:55-13:10 FUNCTIONALIZATION OF N(B)-DOPED SINGLE-WALLED CARBON NANOTUBES AND GRAPHENE BY THE XO₄²⁻ (X = Cr, Mo, W) OXYANIONS** **134**
V. Borysiuk¹, Yu. Hizhnyi¹, S. Nedilko¹, A. Shyichuk²
¹*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*
²*Department of Rare Earth, Faculty of Chemistry, Adam Mickiewicz University, Poznań, Poland*

*The End***13:30-14:00****CLOSING****14:00-15:00***Time for Lunch***15:00-16:00****CONCERT OF CLASSICAL MUSIC**

17:05-18:00

**POSTER SESSION I
MONDAY, 6 JUNE**

MAGNETISM AND MAGNETIC MATERIALS

- P1** **MAGNETIC PROPERTIES AND H-T PHASE DIAGRAM OF
GdCr₃(BO₃)₄** **78**
O. Bludov¹, Yu. Savina¹, V. Pashchenko¹, S. Gnatchenko¹, T. Zajarniuk²,
M. U. Gutowska², A. Szewczyk²
¹*B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
²*Institute of Physics, Polish Academy of Sciences, Warsaw, Poland*
- P2** **MAGNETOPIEZOELECTRIC EFFECT AND
MAGNETOCAPACITANCE IN NEODYMIUM FERROBORATE** **79**
T. N. Gaydamak¹, I. A. Gudim², G. A. Zvyagina¹, I. V. Bilich¹, K. R. Zhekov¹,
V. D. Fil¹
¹*B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
²*L. V. Kirensky Institute for Physics, Siberian Branch of the Russian Academy of Sciences,
Krasnoyarsk, Russia*
- P3** **ANTIFERROMAGNETIC RESONANCE IN MESOTWINED
NiMnCoSn FILMS** **80**
Yu. Kharlan, D. Popadyuk
B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
- P4** **BEHAVIOR OF THE ND_{0.9}DY_{0.1}FE₃(BO₃)₄ CRYSTAL IN THE
MAGNETIC FIELD TILTED FROM THE CRYSTALLOGRAPHIC
AXES** **81**
M. P. Kolodyazhnaya¹, I. V. Bilych¹, K. R. Zhekov¹, G. A. Zvyagina¹,
A. A. Zvyagin¹, A. N. Bludov¹, V. A. Pashchenko¹, I. A. Gudim²
¹*B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
²*L. V. Kirensky Institute for Physics, Siberian Branch of the Russian Academy of Sciences,
Krasnoyarsk, Russia*
- P5** **MAGNETO-OPTICAL PROPERTIES OF THIN FILM SYSTEMS
BASED ON Fe AND Au** **82**
D. V. Chereda, Yu. M. Shabelnyk, I. M. Pazukha, I. Yu. Protsenko
Sumy State University, Sumy, Ukraine
- P6** **LOW TEMPERATURE MAGNETORESISTANCE IN GRAPHITE
INTERCALATION COMPOUNDS WITH COBALT** **83**
V. Ya. Tkachuk¹, I. V. Ovsienko¹, L. Yu. Matzui¹, I. B. Berkutov², I. G.
Mirzoiev², G. E. Grechnev², Yu. A. Kolesnichenko²
¹*B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
²*Institute of Physics, Warsaw, Poland*
³*Dresden High Magnetic Field Laboratory, Helmholtz-Zentrum Dresden-Rossendorf, Dresden,
Germany*
- P7** **ELECTRONIC STRUCTURE AND MAGNETIC PROPERTIES OF
BiFeO₃, SrFe₁₂O₁₉ AND SrCoTiFe₁₀O₁₉ COMPOUNDS** **84**
A. A. Lyogenkaya, G. E. Grechnev, A. S. Panfilov, O. V. Kotlyar, V. O.
Pashchenko, A. N. Bludov
B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

- P8 STRUCTURAL AND MAGNETIC PROPERTIES OF THE NICKEL ORTHOBORATE $\text{Ni}_3(\text{BO}_3)_2$** 85
K. N. Boldyrev¹, A. D. Molchanova¹, M. A. Prosnikov², R.V. Pisarev²
¹*Institute of Spectroscopy, Russian Academy of Sciences, Fizicheskaya st. 5, Troitsk, 142190 Moscow, Russia*
²*Ioffe Physical Technical Institute, Russian Academy of Sciences, Polytekhnicheskaya st. 26, 194021 St.-Petersburg, Russia*

OPTICS, PHOTONICS AND OPTICAL SPECTROSCOPY

- P9 THE ELECTRIC FIELD INDUCED ROTATION OF POLARIZATION PLAN IN $\text{HoAl}_3(\text{BO}_3)_4$** 95
M. I. Pashchenko¹, V. A. Bedarev¹, D. N. Merenkov¹, L. N. Bezmaternykh², V. L. Temerov²
¹*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
²*L.V. Kirenskiy Institute of Physics, Siberian Branch of the Russian Academy of Sciences, Krasnoyarsk, Russia*
- P10 ANISOTROPY OF THE REFRACTIVE INDICES OF Rb_2ZnCl_4 CRYSTALS** 96
V. B. Stakhura, V. Yu. Kurlyak, V. Yo. Stadnyk, R. S. Brezvin, L. T. Karplyuk
Ivan Franko National University of Lviv, Lviv, Ukraine
- P11 MODEL CALCULATIONS OF Eu^{3+} LUMINESCENCE SPECTRA IN NANOSTRUCTURED CARBON NITRIDE FILMS** 97
R. Yu. Babkin¹, O. G. Viagin², O. V. Gornostaeva³, K. V. Lamonova¹, S. M. Orel¹, A. M. Prudnikov¹, Yu. V. Malyukin², Yu. G. Pashkevich¹
¹*O. O. Galkin Donetsk Institute for Physics and Engineering, Kiev, Ukraine*
²*Institute for Single Crystals, National Academy of Sciences of Ukraine, Kharkiv, Ukraine*
³*G. V. Kurdyumov Institute for Metal Physics, Kiev, Ukraine*
- P12 LUMINESCENCE PROPERTIES OF POLYCRYSTALLINE SYSTEM $\text{Ca}_{3-x}\text{Cd}_x\text{Ga}_2\text{Ge}_3\text{O}_{12}$ DOPED WITH Eu^{3+}** 98
L. V. Kostyk, M. R. Panasyuk, A. P. Vas'kiv, M. S. Rudko, I. S. Novosad, S. S. Novosad
Ivan Franko Lviv National University, Lviv, Ukraine
- P13 LUMINESCENCE OF PAIR IODINE CENTERS IN AGBRI MICROCRYSTALS** 99
A. A. Akhmerov, A. V. Tyurin, S. A. Zhukov, A. A. Rimashevskii
Scientific Research Institute of Physics of Odessa I.I.Mechnikov National University, Odessa, Ukraine
- P14 KINETICS OF LOW TEMPERATURE EXCITON PHOTOLUMINESCENCE IN PbCdI_2 CRYSTALS** 100
A. P. Bukivskii¹, Yu. P. Gnatenko¹, Yu. P. Piryatinski¹
Institute of Physics of National Academy of Sciences of Ukraine, Kyiv, Ukraine
- P15 PECULIARITIES OF GLASS FORMING OF THE FULLERITE C_{60} SATURATED BY THE CARBON MONOOXIDE MOLECULES: PHOTOLUMINESCENCE STUDIES** 101
P. V. Zinoviev, V. N. Zoryansky, Yu. E. Stetsenko, V. V. Danchuk
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

- P16** **TEMPERATURE DEPENDENCE LUMINESCENCE OF Ag_8SnSe_6 ARGYRODITE** **102**
I. V. Semkiv, H. A. Ilchuk, V. V. Kusnezh
Lviv Polytechnic National University, Lviv, Ukraine
- P17** **PHOTOCONDUCTIVITY KINETICS IN INGAAS QUANTUM WIRE HETEROSTRUCTURES** **103**
S. A. Iliash, S. V. Kondratenko
Taras Shevchenko National University of Kyiv, Kyiv, Ukraine
- P18** **DISPERSIVE READOUT OF A SUPERCONDUCTING QUBIT WITH A PHOTODETECTOR** **104**
A. Sokolov
Institute of Physics of NAS of Ukraine, Kyiv, Ukraine

QUANTUM LIQUIDS AND QUANTUM CRYSTALS, CRYOCRYSTALS

- P19** **ELECTRON-STIMULATED DESORPTION OF EXCITED ATOMS FROM NITROGEN FILMS** **114**
A. P. Barabashov, I. V. Khyzhniy, S. A. Uytunov, E. V. Savchenko
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
- P20** **RESEARCH OF QUALITY OF SURFACES BY ELECTRONS OVER A HELIUM FILM ON A SUBSTRATE** **115**
Ya. Yu. Bezsmolnyy, V. A. Nikolaenko, S. S. Sokolov
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
- P21** **STUDY OF QUASI-LAMINAR FLOW IN SUPERFLUID HELIUM USING QUARTZ TUNING FORK** **116**
I. A. Gritsenko, K. A. Klokol, S. S. Sokolov and G. A. Sheshin
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
- P22** **ISOCHORIC THERMAL CONDUCTIVITY OF 1-PROPANOL IN ORDERED CRYSTAL PHASE** **117**
A. V. Karachevtseva, V. A. Konstantinov, V. P. Revyakin, V. V. Sagan
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
- P23** **THE DESCRIPTION OF BEHAVIOR OF THE THERMAL CONDUCTIVITY OF SOLID $\text{C}_3\text{H}_7\text{OH}$** **118**
V. A. Konstantinov, V. V. Sagan, V. P. Revyakin, A. V. Karachevtseva
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
- P24** **RADIATION-INDUCED SPECIES MONITORING IN NITROGEN SOLIDS** **119**
I. V. Khyzhniy¹, E. V. Savchenko¹, S. A. Uytunov¹, M. A. Bludov¹,
A. P. Barabashov¹, G. B. Gumenchuk² and V. E. Bondybey²
¹*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
²*Lehrstuhl für Physikalische Chemie II TUM, München, Germany*
- P25** **ADDED MASS OF THE OSCILLATING BODY IMMERSSED IN SUPERFLUID HELIUM IN A TURBULENT FLOW** **120**
I. A. Gritsenko, K. A. Klokol and G. A. Sheshin
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

20	VII International Conference for Young Scientists LOW TEMPERATURE PHYSICS June 6 - 10, 2016, Kharkiv	
P26	ELECTRON DIFFRACTION STUDIES OF N₂ - CH₄ ALLOY FORMATION IN THE MOLECULAR MATRIX <u>N. S. Mysko</u> , A. A. Solodovnik and M. A. Strzhemechny <i>B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine</i>	121
P27	NUCLEAR MAGNETIC RELAXATION OF ³He ADSORBED ON MCM-41 SUBSTRATE A. P. Birchenko, <u>Ya. Yu. Fysun</u> , N. P. Mikhin <i>B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine</i>	122
P28	MAGNETIC RELAXATION TIMES IN QUENCHED HCP ³He-⁴He CRYSTALS <u>A. P. Birchenko</u> , N. P. Mikhin <i>B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine</i>	123
P29	THE LINEAR DRAG COEFFICIENT OF QUARTZ TUNING FORK IN SUPERFLUID SOLUTIONS ³He - ⁴He <u>V. A. Bakhvalova</u> , V. K. Chagovets <i>B. Verkin Institute for Low Temperature Physics and Engineering o, Kharkiv, Ukraine</i>	123
P30	NEW FEATURES OF PLASTIC FLOW OF SOLID 3HE AT LOW TEMPERATURES A. A. Lisunov, V. A. Maidanov, V. Yu. Rubanskyi, <u>S. P. Rubets</u> , E. Ya. Rudavskii, S. N. Smirnov <i>B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine</i>	124
P31	MESURING LOW TEMPERATURE THERMAL CONDUCTIVITY OF EXTRA SMALL SOLID SAMLES WITH STEADY STATE METHOD <u>G. A. Vdovychenko</u> , A. I. Krivchikov, O. A. Korolyuk, O. O. Romantsova <i>B. Verkin Institute for Low Temperature Physics and Engineering o, Kharkiv, Ukraine</i>	126

THEORY OF CONDENSED MATTER PHYSICS

P32	MODELING THE NOISE EFFECT ON ICE SURFACE PREMELTING DURING FRICTION A. V. Khomenko ^{1, 2} , B. N. J. Persson ² , <u>M. A. Khomenko</u> ¹ , S. V. Rudenko ¹ ¹ <i>Sumy State University, Sumy, Ukraine</i> ² <i>Peter Grünberg Institut-1, Jülich, Germany</i>	188
P33	MAGNETIC AND MAGNETOCALORIC PROPERTIES OF FRUSTRATED SPIN CLUSTERS OF REGULAR TETRAHEDRA <u>M. Mohylna</u> ^{1, 2} , M. Žukovič ² ¹ <i>V. N. Karazin Kharkiv National University, Kharkiv, Ukraine</i> ² <i>Institute of Physics, P.J. Šafárik University, Košice, Slovakia</i>	189
P34	WEAK LOCALIZATION AND INTERACTION EFFECTS IN ACCEPTOR GRAPHITE INTERCALATION COMPOUNDS <u>O. I. Prokopov</u> ¹ , I. V. Ovsienko ¹ , L. Yu. Matzui ¹ , T. A. Len ¹ , O. A. Brusylovets ² <i>Taras Shevchenko National University of Kyiv, Departments of Physics¹ and Chemistry², Kyiv, Ukraine</i>	190
P35	INVESTIGATION OF STRUCTURAL AND ELECTRONIC PROPERTIES OF ZnO: A FIRST PRINCIPLES STUDY <u>C. Yamcicier</u> ¹ , Z. Merdan ² , S. Yamcicier ³ ¹ <i>Gazi University, Institute of Science, Department of Physics, Ankara, Turkey</i> ² <i>Gazi University, Science Faculty, Department of Physics, Ankara, Turkey</i>	191

16:55-18:00

POSTER SESSION II
TUESDAY, 7 JUNE**ELECTRONIC PROPERTIES OF CONDUCTING AND SUPERCONDUCTING SYSTEMS**

- P1** **YANSON POINT-CONTACT SPECTROSCOPY OF TERNARY RARE-EARTH COPPER ANTIMONIDES LaCuSb_2** **55**
N. V. Gamayunova, O. E. Kvitnitskaya, A. V. Terekhov, Yu. G. Naidyuk
B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
- P2** **PHOTON TRANSPORT IN QUBIT-RESONATOR STRUCTURES** **56**
D. S. Karpov¹, A. N. Sultanov², Ya. S. Greenberg², S. N. Shevchenko^{1,3}
¹*B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
²*Novosibirsk State Technical University, Novosibirsk, Russia*
³*V. N. Karazin Kharkiv National University, Kharkiv, Ukraine*
- P3** **EFFECT OF PRESSURE ON MgB_2 -LCMO NANOCOMPOSITE** **57**
V. V. Kononenko¹, V. Yu. Tarenkov¹, V. N. Krivoruchko¹, A. I. D'yachenko²
¹*O.O. Galkin Donetsk Institute for Physics and Engineering of NAS of Ukraine, Kyiv, Ukraine*
²*G.V. Kurdyumov Institute for Metal Physics of NAS of Ukraine, Kyiv, Ukraine*
- P4** **CONDUCTIVE CHARACTERISTICS OF ANION-RADICAL TCNQ SALTS WITH COMPLEX CATIONS** **58**
A. S. Bukrinev¹, A. S. Krasnyi², A. S. Mazitov¹, S. V. Vitushkina¹,
A. V. Khotkevich^{1,2}
¹*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*
²*B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
- P5** **ABOUT AN INFLUENCE OF A HIGH DENSITY CURRENT ON A CRITICAL CURRENT OF NIOBIUM BRIDGES** **59**
S. I. Link¹, V. P. Koverya¹, A. V. Krevsun¹, E. V. Ilichev², U. Hubner²,
S. I. Bondarenko¹
¹*B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
²*Leibniz Institute of Photonic Technology, Jena, Germany*
- P6** **SPECIFIC HEAT STUDY OF SUPERCONDUCTIVITY IN $\beta\text{-Bi}_2\text{Pd}$** **60**
O. Mezhenska¹, J. Kačmarčík², Z. Pribulová², H. Suderow³, D. Prabhakaran⁴, and
P. Samuely²
¹*V. N. Karazin Kharkiv National University, Kharkiv, Ukraine*
²*Centre of Low Temperature Physics @ Institute of Experimental Physics, Slovak Academy of Sciences and P. J. Šafárik University, Košice, Slovakia*
³*Laboratorio de Bajas Temperaturas, Departamento de Física de la Materia Condensada, Instituto Nicolás Cabrera and Condensed Matter Physics Center, Universidad Autónoma de Madrid, Madrid, Spain*
⁴*Department of Physics, Clarendon Laboratory, University of Oxford, Park Road, Oxford, UK*
- P7** **SUPERCONDUCTING DENSITY OF STATES OF B-DOPED DIAMOND INVESTIGATED BY TUNNELING SPECTROSCOPY** **61**
Oleksander Onufriienko¹, Tomas Samuely¹, Gufei Zhang², Pavol Szabó¹, Victor V. Moshchalkov² and Peter Samuely¹
¹*Centre of Low Temperature Physics, Institute of Experimental Physics, Slovak Academy of Sciences & Faculty of Science, P. J. Safarik University, Kosice, Slovakia*
²*INPAC-Institute for Nanoscale Physics and Chemistry, KU Leuven, Heverlee, Belgium*

- P8** **INFLUENCE OF THE DEPAIRING EFFECTS UPON THE CURRENT-PHASE RELATION IN SIS JUNCTION FOR ARBITRARY CONCENTRATIONS OF NONMAGNETIC IMPURITIES** **62**
O. Y. Pastukh, A. M. Shutowskiy, V. Y. Sakhnyuk
Lesya Ukrainka Eastern European National University, Lutsk, Ukraine
- P9** **PHASE SEPARATION IN IRON CHALCOGENIDE SUPERCONDUCTOR $Rb_yFe_{2-x}Se_2$ AS SEEN BY AB-INITIO CALCULATIONS AND RAMAN LIGHT SCATTERING** **63**
T. Shevtsova¹, Yu. Pashkevich¹, V. Gnezdilov², P. Lemmens³, S. Gnatchenko², E. Pomjakushina⁴, and K. Conder⁴
¹*O.O. Galkin Donetsk Institute for Physics and Engineerin , Kyiv, Ukraine*
²*B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
³*Institute for Condensed Matter Physics, Braunschweig, Germany*
⁴*Laboratory for Developments and Methods, Villigen, Switzerland*
- P10** **EFFECT OF PRESSURE ON PARACONDUCTIVITY IN $HoBa_2Cu_3O_{7-\delta}$ SINGLE CRYSTALS WITH OXYGEN DEFICIENCY** **64**
K. V. Tiutierieva^{1,2}, R. V. Vovk^{1,2}
¹*Ukrainian State University of Railway Transport, Kharkiv, Ukraine*
²*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*
- P11** **CONDUCTIVITY OF INHOMOGENEOUS TUNNEL MAGNETIC BARRIER** **65**
N. R. Vovk^{1,2}, Yu. A. Kolesnichenko²
¹*V. N. Karazin Kharkiv National University, Kharkiv, Ukraine*
²*B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
- P12** **VORTEX LATTICE OF Mo/Si AND W/Si MULTILAYERS IN TILTED MAGNETIC FIELDS** **66**
O. I. Yuzepovich^{1,2}, S. V. Bengus^{1,2}, M. Yu. Mikhailov¹, D. Gaida², K. Rogacki²
¹*B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
²*International Laboratory of High Magnetic Fields and Low Temperatures, Polish Academy of Sciences, Wroclaw, Poland*
- P13** **ELECTRONIC STRUCTURE AND MAGNETIC PROPERTIES OF RT_4Al_8 (R =Sc, Y, La, Lu; T=Fe, Mn, Cr) COMPOUNDS. HYDROSTATIC PRESSURE EFFECT** **67**
I. P. Zhuravleva, G. E. Grechnev, A. S. Panfilov, A. A. Lyogenkaya, O. V. Kotlyar,
 A. V. Fedorchenko
B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

NANOPHYSICS AND NANOTECHNOLOGIES

- P14** **LOW-TEMPERATURE MAGNETIC ENTROPY CHANGE IN NOVEL $Gd_2O_3@SiO_2$ NANOCOMPOSITES** **135**
A. Berkutova^{1,2}, A. Zelenáková¹, P. Hrubovčák¹, O. Kapusta¹, V. Zelenák³
¹*Department of Condensed Matter Physics, Košice, Slovakia*
²*V. N. Karazin Kharkiv National University, Kharkiv, Ukraine*
³*Department of Inorganic Chemistry, Košice, Slovakia*

24	VIII International Conference for Young Scientists LOW TEMPERATURE PHYSICS June 6 - 10, 2016, Kharkiv	
P15	MOLECULAR DYNAMICS OF ULTRATHIN FILM OF LIQUID ARGON COMPRESSED BETWEEN ATOMICALLY SMOOTH DIAMOND PLATES A. V. Khomenko, <u>D. V. Boyko</u> , M. V. Zakharov, K. P. Khomenko <i>Sumy State University, Sumy, Ukraine</i>	136
P16	LOW-TEMPERATURE FEATURES OF TUNNELING MAGNETORESISTANCE HYSTERESIS IN CrO₂ PRESSED POWDER WITH AN ADMIXTURE OF IRON: THE EFFECT OF TEMPERATURE AND CURRENT <u>V. A. Horielyi</u> , N. V. Dalakova, E. Yu. Beliayev <i>B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine</i>	137
P17	CATHODOLUMINESCENCE STUDY OF NEUTRAL AND CHARGED EXCIMER COMPLEXES IN ICOSAHEDRAL AND CRYSTALLINE NANOCLUSTERS OF XENON <u>O. P. Konotop</u> , O. G. Danylchenko, Yu. S. Doronin, G. V. Kamarchuk, A. A. Tkachenko, V. N. Samovarov, V. L. Vakula <i>B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine</i>	138
P18	BIAS REGULATED PHOTOCURRENT IN A MOLECULAR DIOD <u>V. O. Leonov</u> , E. G. Petrov <i>Bogolyubov Institute for Theoretical Physics, Kyiv, Ukraine</i>	139
P19	INVESTIGATION OF THE GAS-SENSITIVE POINT CONTACTS' NONMONOTONIC RESPONSE UNDER HUMAN BREATH GAS A. S. Klimkin ¹ , <u>M. A. Maslivets</u> ² , V. A. Gudimenko ¹ , A. P. Pospelov ³ , G. V. Kamarchuk ¹ ¹ <i>B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine</i> ² <i>V. N. Karazin Kharkiv National University, Kharkiv, Ukraine</i> ³ <i>National Technical University "Kharkov Polytechnic Institute", Kharkiv, Ukraine</i>	140
P20	X-RAY STUDIES THE PHYSICAL AND CHEMICAL SORPTION OF CO MOLECULES BY FULLERITE C₆₀ <u>V. V. Meleshko</u> , I. V. Legchenkova, Yu. E. Stetsenko, A. I. Prokhvatilov <i>B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine</i>	141
P21	THE STEP-EDGE EFFECTS ON SPECTRAL PROPERTIES AND PLANAR STABILITY OF METALLIC BIGRAPHENE <u>K. A. Minakova</u> ¹ , I. S. Bondar ² ¹ <i>National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine</i> ² <i>B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine</i>	142
P22	THE PART OF ACOUSTIC PHONONS IN THE NEGATIVE THERMAL EXPANSION OF THE LAYERED STRUCTURES AND NANOTUBES BASED ON THEM <u>K. A. Minakova</u> ¹ , I. S. Bondar ² ¹ <i>National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine</i> ² <i>B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine</i>	143
P23	CONVERSION OF ELECTRON BEAM ENERGY INTO VACUUM ULTRAVIOLET RADIATION OF ARGON CLUSTERS <u>O. Y. Tkachenko</u> ¹ , Yu. S. Doronin ² , A. A. Tkachenko ² , V. L. Vakula ² ¹ <i>V. N. Karazin Kharkiv National University, Kharkiv, Ukraine</i> ² <i>B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine</i>	144

- P24** **FEATURES OF THERMAL EXPANSION OF QUASI-TWO-DIMENSIONAL ORGANIC CONDUCTOR (BEDT-TTF)₂Cu[N(CN)₂]Cl** **145**
R. M. Basnukaeva¹, A. V. Dolbin¹, M. V. Khlistuck¹, V. B. Eselson¹,
V. G. Gavrilko¹, N. A. Vinnikov¹, V. V. Danchuk¹, V. A. Konstantinov¹,
Y. Nakazawa²
¹*B.Verkin Institute for Low Temperature Physics and Kharkiv, Ukraine*
²*Department of Chemistry, Graduate School of Science, Osaka University, Osaka, Japan*

BIOPHYSICS AND PHYSICS OF MACROMOLECULES

- P25** **STRUCTURE AND FUNCTIONAL STATE OF HUMAN HEMOGLOBIN IN ALGINATE MICROSPHERES AFTER FREEZING DOWN TO -196 °C** **158**
A V. N. Kuchkov, S. L. Rozanova
Institute for Problems of Cryobiology and Cryomedicine, Kharkiv, Ukraine
- P26** **THE CONFORMATIONAL FEATURES OF PROTEINS AND LIPOPROTEINS FROM TENEBRIO MOLITOR LARVAE DURING COLD ACCLIMATION** **159**
D. V. Tretyak¹, O. K. Gulevsky¹, A. L. Tatarts², L. D. Patsenker²
¹*Institute for Problems of Cryobiology and Cryomedicine, Kharkiv, Ukraine*
²*State Scientific Institution "Institute for Single Crystals", Kharkiv, Ukraine*
- P27** **METHODS AND MEANS OF FOURIER-STOKES POLARIMETRY AND THE SPATIAL FREQUENCY FILTERING OF PHASE ANISOTROPY MANIFESTATIONS IN DIAGNOSIS OF KIDNEY PATHOLOGY** **160**
A. V. Dubolazov, V. O. Ushenko, I. V. Soltys, R. M. Besaga
Chernivtsi National University, Chernivtsi, Ukraine
- P28** **RELATIONSHIP OF THE PHASE AND AMPLITUDE PARAMETERS WITH ANISOTROPY OF MULLER-MATRIX INVARIANTS** **161**
Yu. O. Ushenko, A. V. Dubolazov, V. O. Ushenko, L. Pidkamin
Chernivtsi National University, Chernivtsi, Ukraine
- P29** **MUELLER-MATRIX DIFFERENTIATION OF FIBRILLAR NETWORKS OF BIOLOGICAL TISSUES WITH DIFFERENT PHASE AND AMPLITUDE ANISOTROPY** **162**
Yu. O. Ushenko, A. V. Dubolazov, V. O. Ushenko
Chernivtsi National University, Chernivtsi, Ukraine

MATERIALS SCIENCE

- P30** **EVIDENCE FOR THE GAS ACTION ON THE PROCESS OF DENDRITIC NANOSCALE POINT CONTACTS CREATION** **173**
A. O. Gerus¹, A. V. Savitsky¹, A. P. Pospelov², G. V. Kamarchuk¹
¹*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
²*National Technical University "Kharkov Polytechnic Institute", Kharkiv, Ukraine*

26	VIII International Conference for Young Scientists LOW TEMPERATURE PHYSICS June 6 - 10, 2016, Kharkiv	
P31	INFLUENCE OF GROWTH CONDITIONS ON THE PROPERTIES OF PbMoO₄:Nd SINGLE CRYSTALS <u>Yu. N. Gorobets</u> , A. N. Shekhovtsov <i>Institute for Single Crystals, NAS of Ukraine, Kharkiv, Ukraine</i>	174
P32	FIRST PRINCIPLES STUDY OF VIBRATIONAL PROPERTIES OF In_xTl_{1-x}I SUBSTITUTIONAL SOLID SOLUTIONS A. V. Franiv, <u>A. I. Kashuba</u> <i>Ivan Franko National University of Lviv, Department of Physics, Lviv, Ukraine</i>	175
P33	THE INFLUENCE OF COMBINATION OF DIFFERENT TYPES OF LOW-TEMPERATURE DEFORMATION ON STRUCTURE AND MECHANICAL PROPERTIES OF TITANIUM GRADE VT1-0 <u>Y. S. Osadchuk</u> ¹ , N. A. Shulgin ² , A. A. Chupikov ² ¹ <i>V. N. Karazin Kharkiv National University, Kharkiv, Ukraine</i> ² <i>National Scientific Centre Kharkiv Institute of Physics and Technology, Kharkiv, Ukraine</i>	176
P34	LOW TEMPERATURE MECHANICAL PROPERTIES OF THE Ti₃₀Zr₂₅Hf₅Nb₂₀Ta₁₀ HIGH ENTROPY ALLOY <u>V. V. Voloschuk</u> ¹ , E. D. Tabachnikova ¹ , A. V. Podolskiy ¹ , V. F. Gorban ² ¹ <i>B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine</i> ² <i>Frantsevich Institute for Problems of Materials Science NASU, Kyiv, Ukraine</i>	177
P35	INFLUENCE OF PHYSICAL AND CHEMICAL PARAMETERS OF SOLIDS ON THE YIELD OF PARTICLES IN THE EXCITED STATE <u>I. S. Zelenina</u> , V. V. Bobkov <i>Karazin Kharkiv National University, Kharkiv, Ukraine</i>	178