CONFERENCE PROGRAM

Time is specified for the Time Zone UTC/GMT+3, Eastern European Time

MONDAY, 2nd of JUNE

9:50-10:00 **Opening Remarks**
Acting Director of the B. Verkin ILTPE of NAS of Ukraine
Corresponding Member of NAS of Ukraine
Prof. Alexander Dolbin
and
Chair of Organizing Committee Dr. Diana Hurova

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Valentin Koverya*

10:00-10:30 **Bias-driven quantum matter**
Pedro Ribeiro
Instituto Supeiror Técnico, Universidade de Lisboa, Lisbon, Portugal

10:30-11:00 **Fractional conductances in the strongly interacting one-dimensional system**
V. Kagalovsky
Shamoon College of Engineering, Beer-Sheva, Israel

ELECTRONIC PROPERTIES OF CONDUCTING AND SUPERCONDUCTING SYSTEMS

Chair *Dr. Valentin Koverya*

11:00-11:12 **Influence of As_2O_3 vapor pressure on phase formation and superconducting properties of Tl-1223 HTS**
I. R. Metskhvarishvili[1,2], Melita Menelaou[3], D. L. Surmanidze[1,4], T. E. Lobzhanidze[4], A. D. Tchankvetadze[1,4], B. G. Bendeliani[1], G. N. Dgebuadze[1], V. M. Gabunia[1,5], M. R. Metskhvarishvili[6], D. A. Jishiashvili[1,7]
[1]Ilia Vekua Sukhumi Institute of Physics and Technology, Tbilisi, Georgia
[2]Georgian Technical University, Tbilisi, Georgia
[3]Cyprus University of Technology, Limassol, Cyprus
[4]Ivane Javakhishvili Tbilisi State University, Tbilisi, Georgia
[5]Petre Melikishvili Institute of Physical and Organic Chemistry, Tbilisi, Georgia
[6]"Talga" Institute of Georgian Technical University, Tbilisi, Georgia
[7]V. Chavchanidze Institute of Cybernetics of the Georgian Technical University, Tbilisi, Georgia

11:12-11:24 **Current driven depinning of elastic vortex filaments in superconductors with columnar pinning sites**
O. S. Hrechykha[1], A. L. Kasatkin[2], V. P. Tsvitkovskyi[2]
[1]Kyiv Academic University, Kyiv, Ukraine
[2]G.V. Kurdyumov Institute for Metal Physics, NAS of Ukraine, Kyiv, Ukraine

11:24-11:36 Eigenspectrum of extraordinary Josephson plasma waves in cylindrical layered superconductors

Yu. O. Averkov[1], O. Yu. Averkov[2], E. N. Odarenko[3], A. A. Shmat'ko[2], V. A. Yampol'skii[1,2]

[1]*O.Ya. Usikov Institute for Radiophysics and Electronics of NAS of Ukraine, Kharkiv, Ukraine*
[2]*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*
[3]*Kharkiv National University of Radio Electronics, 14 Nauky Ave., Kharkiv, Ukraine*

11:36-11:48 Semantic segmentation of ARPES spectra for electronic dispersion analysis

Yu. V. Pustovit, M.O. Ohloblia

Taras Shevchenko National University of Kyiv, Kyiv, Ukraine

11:48-12:00 Bulk-to-surface oxygen vacancy diffusion in ITO: a possible superconductivity mechanism

O. Feia[1,2,3], D. Menesenko[1], A. Parra[4], A. Shapovalov[1,2], A. Aliev[4]

[1]*Kyiv Academic University, Kyiv, Ukraine*
[2]*G.V. Kurdyumov Institute for Metal Physics, NAS of Ukraine, Kyiv, Ukraine*
[3]*Leibniz Institute for Solid State and Materials Research, Dresden, Germany*
[4]*A.G. MacDiarmid NanoTech Institute, University of Texas at Dallas, Richardson, USA*

12:00-12:12 Peculiarities of the behavior of fluctuation conductivity and pseudogap in untwined $YBa_2Cu_3O_{7-\delta}$ single crystals under electron irradiation with an energy of 2.5 MeV

M. V. Shytov[1], K. Rogacki[2], L. V. Bludova[1], E. V. Petrenko[1], Yu. A. Kolesnichenko, A. L. Solovjov[1,2,3], A. Sedda[3], E. Lähderanta[3], R. V. Vovk[4]

[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*Institute for Low Temperatures and Structure Research, Wroclaw, Poland*
[3]*Lappeenranta University of Technology, Lappeenranta, Finland*
[4]*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*

12:12-12:24 Polar crosstalk effects and negative capacitance state in dense ferroelectric nanocomposite films

O. V. Bereznykov[1], O. S. Pylypchuk[1], S. E. Ivanchenko[2], D. O. Stetsenko[1], E. A. Eliseev[2], A. N. Morozovska[1]

[1]*Institute of Physics of NAS of Ukraine, Kyiv, Ukraine*
[2]*Frantsevich Institute for Problems in Materials Science, Kyiv, Ukraine*

12:24-12:36 Machine learning analysis of bilayer splitting in multiband superconductors

K. H. Bohachov[1,2], A. A. Kordyuk[1,2,3]

[1]*G.V. Kurdyumov Institute for Metal Physics, Kyiv, Ukraine*
[2]*Kyiv Academic University, Kyiv, Ukraine*
[3]*Leibniz Institute for Solid State and Materials Research, Dresden, Germany*

12:36-12:48 Study of the effect of magnetic field on the temperature dependence of the pseudogap in optimally doped $YBa_2Cu_3O_{7-\delta}$ films

A. S. Kolisnyk[1], M. V. Shytov[1], E. V. Petrenko[1], A. V. Terekhov[1], L. V. Bludova[1], K. Rogacki[2], A. L. Solovyov[1,2]

[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*Institute for Low Temperatures and Structure Research, Wroclaw, Poland*

12:48-13:00 Anomalous behaviour of the temperature dependencies of the upper critical fields in $(Dy_{1-x}Er_x)Rh_{3.8}Ru_{0.2}B_4$ (x=0, 0.2, 0.4)

V. M. Yarovyi[1], A. V. Terekhov[1], A. P. Kazakov[2], P. M. Fesenko[3], I. V. Zolochevskii[1], L. O. Ishchenko[1]

[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*Institute for Low Temperatures and Structure Research, Wroclaw, Poland*
[3]*National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine*

13:00-13:12 **Quantum reflectometry: effective capacitance of two- and multi-level systems**
O. Y. Kitsenko[1, 2], S. N. Shevchenko[1]
[1]B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
[2]V.N. Karazin Kharkiv National University, Kharkiv, Ukraine

13:12-13:24 **Magnetoresistance of $Bi_{88.08}Mn_{11.92}$ in magnetic fields up to 90 kOe**
V. M. Yarovyi[1], A. V. Terekhov[1], K. Rogacki[2], A. L. Solovjov[1,2]
[1]B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
[2]Institute for Low Temperatures and Structure Research, Wroclaw, Poland

13:25-14:20 **BREAK**

MAGNETISM AND MAGNETIC MATERIALS

Chair *Dr. Yuliya Savina*

14:20-14:32 **Electric field effect on superluminal-like magnons propagation in insulating antiferromagnets**
O. O. Boliasova[1,2], V. N. Krivoruchko[3]
[1]Kyiv Academic University, Kyiv, Ukraine
[2]G.V. Kurdyumov Institute for Metal Physics, NAS of Ukraine, Kyiv, Ukraine
[3]Donetsk Institute for Physics and Engineering named after O.O. Galkin, Kyiv, Ukraine

14:32-14:44 **Magnetic properties of the S = ½ spatially anisotropic triangular quantum magnet $Cu(tn)Cl_2$**
A. Darwich, R. Tarasenko, M. Orendáč, A. Orendáčová
Institute of Physics, P. J. Šafárik University, Košice, Slovakia

14:44-14:56 **Cu(*en*)(*sal*)Cl – a novel spin-½ 2D Heisenberg quantum magnet with ferromagnetic exchange interactions on the square lattice**
I. Kozin, R. Tarasenko, V. Tkáč, A. Orendáčová, E. Čižmár, M. Orendáč
Institute of Physics, P. J. Šafárik University, Košice, Slovakia

14:56-15:08 **Confinement effects on the weak-field magnetic susceptibility of a two-dimensional electron gas**
J. Kumar
Aalto University, Department of Applied Physics, Espoo, Finland

15:08-15:20 **Current-driven dynamics of vertical Bloch lines on a domain wall in magnetic films**
R. Teslia[1] and O. Kolezhuk[1,2]
[1]V.G. Baryakhtar Institute of Magnetism of the NAS of Ukraine, Kyiv, Ukraine
[2]Institute of Physics, Johannes Gutenberg-University, Mainz, Germany

15:20-15:32 **Electric-field-driven fractional parametric resonance in spintronic nanostuctures**
R. V. Verba[1], A. Grimaldi[2], D. V. Slobodianiuk[1], G. Finocchio[2]
[1]V.G. Baryakhtar Institute of Magnetism of the NAS of Ukraine, Kyiv, Ukraine
[2]Department of Engineering, University of Messina, Messina, Italy

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Yuliya Savina*

15:35-16:05 (08:35 UTC-4) **AC Hanle effect and spin wave generation on a single F/N interface**
Ya. B. Bazaliy
University of South Carolina, Columbia, SC, USA

16:05-16:30 **BREAK**

16:30-17:00 (09:30 UTC-4) **Microwave electrodynamics of spin-triplet superconductor UTe_2**
Arthur Carlton-Jones[1], Nicholas P. Butch[1,2], Johnpierre Paglione[1], and Steven M. Anlage[1]
[1]*Maryland Quantum Materials Center, University of Maryland, College Park, USA*
[2]*NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, Maryland, USA*

17:00-18:30 **POSTER SESSION (1, 2, 3 AND 4 SECTIONS)**

Chairs *Dr. Diana Hurova, Dr. Yuliya Savina*

17:00-17:45 **Stage 1 (P1-P28)**

17:45-18:30 **Stage 2 (P29-P56)**

(The list of poster speakers is presented below)

TUESDAY, 3rd of JUNE

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Maksym Barabashko*

10:00-10:30 **Chirality induced spin selectivity: what is it, what do we really know and understand?**
Jan M. van Ruitenbeek
Huygens-Kamerlingh Onnes Laboratory, Leiden University, Leiden, the Netherlands

10:30-11:00 **Phonon thermal conductance of 3D conductors of rectangular cross-section in the ballistic regime**
J. Amrit[1], K. Nemchenko[2], Ye. Nemchenko[2], S. Rogova[2], A. Tonkonozhenko[2], T. Vikhtinskaya[2]
[1]*LISN, Université Paris-Saclay, CNRS, Orsay, France*
[2]*V.N.Karazin Kharkiv National University, Kharkiv, Ukraine*

NANOPHYSICS AND NANOTECHNOLOGIES

Chair *Dr. Maksym Barabashko*

11:00-11:12 **Low-temperature heat capacity of thermally expanded graphite: contribution of ZA flexural phonons**

M. S. Barabashko[1], A. I. Krivchikov[1,2], A. Jeżowski[2], D. Szewczyk[2], Yu. Horbatenko[1], O. Romantsova[1,2], G. Dovbeshko[2,3], Yu. Sementsov[4]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*Institute for Low Temperatures and Structure Research, Wroclaw, Poland*
[3]*Institute of Physics, NAS of Ukraine, Kyiv, Ukraine*
[4]*Chuiko Institute of Surface Chemistry, NAS of Ukraine, Kyiv, Ukraine*

11:13-11:24 **Nanotechnology for future systems and equipment for improved survivability**

L. N. Illyashenko[1, 2, 3], N. N. Kolchigin[2], O. G. Nerukh[3]
[1]*National Academy of the National Guard of Ukraine, Zolochiv, Lviv Region, Ukraine*
[2]*V. N. Karazin Kharkiv National University, Kharkiv, Ukraine*
[3]*Kharkiv National University of Radio Electronics, Kharkiv, Ukraine*

11:25-11:36 **Dual hydrophobic/hydrophilic properties: a biomimetic microstructure taken from Salvinia leaf**

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

12:37-11:48 **TbO_{2-x} nanoparticles with pro-oxidant properties and ROS-dependent luminescence of Tb^{3+} ions**

M. I. Lupan , V. V. Seminko, P. O. Maksimchuk, K. O. Hubenko, V. K. Klochkov, S. L. Yefimova
Institute for Scintillation Materials of NAS of Ukraine, Kharkiv, Ukraine

11:49-12:00 **Raman spectroscopy of multilayer rhombohedral graphite**

S. I. Menshykova, S. I. Khaldeev, V. Mantena, P. Hakonen, M. Kumar, J. T. Mäkinen
Department of Applied Physics, Aalto University, Aalto, Finland

12:00-12:12 **Dynamics and structure of quasi-2D hybrid materials**

Y. M. Trotskyi[1], E. S. Syrkin[1], V. O. Lykah[2]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine*

12:12-12:24 **Enhancement of nematic ordering in cyanobiphenyl liquid crystals induced by resorcinol: novel insights on supramolecular arrangement in hydrogen-bonded liquid crystals**

P. V. Vashchenko[1], D. S. Sofronov[2], L. N. Lisetski[1]
[1]*Institute for Scintillation Materials of NAS of Ukraine, Kharkiv, Ukraine*
[2]*Institute for Single Crystals of NAS of Ukraine, Kharkiv, Ukraine*

12:25-13:20 **BREAK**

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Vlada Pashynska*

13:20-13:50 **Physicochemical properties of hazardous carbon smoke nanoparticles with heavy metals**
G. I. Dovbeshko[1,2], T. O. Borisova[1,2], O. Bezkrovnyi[2], O. P. Gnatyuk[1,2], A. S. Tolochko[1], V. V. Boiko[1,2], W. Strek[2]
[1]*Institute of Physics of NAS of Ukraine, Kyiv, Ukraine*
[2]*Institute for Low Temperatures and Structure Research, Wroclaw, Poland*

13:50-14:20 **Spectroscopic features of single-walled carbon nanotube films as biosensor elements**
A. Glamazda and V. Karachevtsev
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

BIOPHYSICS AND PHYSICS OF MACROMOLECULES

Chair *Dr. Vlada Pashynska*

14:20-14:32 **Peculiarities of a nanocomposite of molybdenum disulfide with cysteine amino acid as revealed by laser desorption/ionization mass spectrometry**
M. V. Kosevich[1], V. S. Shelkovsky[1], O. A. Boryak[1], P. O. Kuzema[2], V. A. Karachevtsev[1]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*Chuiko Institute of Surface Chemistry, Kyiv, Ukraine*

14:32-14:44 **Characteristic features of lipid domains formed by the mechanism of binding depending on surroundings - "preferential binding": results of computer simulation**
R. Ye. Brodskii[1], O. V. Vashchenko[2]
[1]*Institute for Single Crystals of NAS of Ukraine, Kharkiv, Ukraine*
[2]*Institute for Scintillation Materials of NAS of Ukraine, Kharkiv, Ukraine*

14:44-14:56 **Anticancer drugs interactions with the drug delivery nanostructures: mass spectrometry insight**
V. A. Pashynska[1], M. V. Kosevich[1], O. A. Boryak[1], I. M. Voloshin[1], P. O. Kuzema[2], V. A. Karachevtsev[1]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*Chuiko Institute of Surface Chemistry, Kyiv, Ukraine*

14:56-15:08 **Cellular approach to the zeta potential of aqueous-salt albumin solutions**
O. D. Stoliaryk[1], A. A. Guslisty[2], O. V. Khorolskyi[3]
[1]*Odesa I. I. Mechnikov National University, Odesa, Ukraine*
[2]*Family Medicine Center Amedika LLC, Odesa, Ukraine*
[3]*Poltava V. G. Korolenko National Pedagogical University, Poltava, Ukraine*

15:08-15:20 **Thermal profiles of unloaded liposomes and liposomes with MoS_2 nanoparticles**
M. V. Olenchuk, Eu. O. Andreev, Yu. M. Barabash, G. I. Dovbeshko
Institute of Physics of NAS of Ukraine, Kyiv, Ukraine

15:20-15:32 **Nanohybrids of uracil with graphene and noble metal nanoclusters**
T. Piddubnyi[1], S. Stepanian[1], L. Adamowicz[2]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*Department of Chemistry and Biochemistry, University of Arizona, Tucson, USA*

15:32-15:44 **Functionalization of transition metal dichalcogenides by organic polymers studied by mass spectrometry**
V. G. Zobnina[1], V. S. Shelkovsky[1], O. A. Boryak[1], P. O. Kuzema[2], M. V. Kosevich[1], V. A. Karachevtsev[1]
[1]B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
[2]Chuiko Institute of Surface Chemistry, Kyiv, Ukraine

15:44-15:56 **Fluorescent voltage sensors for neuronal activity monitoring**
A. G. Bulova
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

16:00-16:30 **BREAK**

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Diana Hurova*

16:30-17:00 **THz-driven magnetic switching and dynamical coupling in rare-earth orthoferrites with non-Kramers ions: theory and experiment**
N. R. Vovk[1], O. Y. Kovalenko[1], E. V. Ezerskaya[2], R. V. Mikhaylovskiy[1]
[1]Lancaster University, Bailrigg, Lancaster, United Kingdom
[2]V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

17:00-17:30 **Extremes of ultralow temperatures and high magnetic fields: opportunities for exploring quantum materials**
(10:00 UTC-4) Mark W. Meisel
Department of Physics and MagLab High B/T Facility, University of Florida, Gainesville, USA

17:30-19:00 **POSTER SESSION (5, 6, 7, 8 AND 9 SECTIONS)**

Chairs *Dr. Diana Hurova, Dr. Sergii Poperezhai*

17:30-18:15 **Stage 1 (P57-P87)**

18:15-19:00 **Stage 2 (P88-P117)**

(The list of poster speakers is presented below)

WEDNESDAY, 4th of JUNE

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Oleksii Konotop*

10:00-10:30 **Mass-selected matrix isolation spectroscopy of astrochemically relevant aromatic cations in solid neon**
Yu-Jong Wu[1,2]
[1]National Synchrotron Radiation Research Center, Hsinchu, Taiwan
[2]National Yang Ming Chiao Tung University, Hsinchu, Taiwan

10:30-11:00 **Radiolysis products and delayed desorption from methane-doped cryogenic matrices studied by emission spectroscopy methods**
M. A. Bludov, I. V. Khyzhniy, S. A. Uyutnov, E. V. Savchenko
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

QUANTUM LIQUIDS AND QUANTUM CRYSTALS, CRYOCRYSTALS

Chair *Dr. Oleksii Konotop*

11:00-11:12 **Creating of bounded Maiorana pairs in superconducting net of quantum nanowires in $SmMnO_{3+\delta}$**
F. N. Bukhanko
Donetsk Institute for Physics and Engineering named after O.O. Galkin, Kyiv, Ukraine

11:12-11:24 **The influence of second sound resonances on the vibrations of a quartz tuning fork in a superfluid solution of ^{3}He in ^{4}He**
V. K. Chagovets, V. E. Syvokon, S. S. Sokolov
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

11:24-11:36 **Peculiarities of growth of close packed phases in large substrate-free rare gas clusters**
O. P. Konotop, O. G. Danylchenko
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Oleksii Konotop*

11:40-12:10 **Structural evolution and thermal properties of SiOC glass derived from polymer: influence of atmosphere and porosity**
D. Szewczyk[1], M. Casseta[2], M. Biesuz[2]
[1]Institute for Low Temperature and Structure Research, Wroclaw, Poland
[2]Department of Industrial Engineering, University of Trento, Trento, Italy

12:10-13:00 **BREAK**

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Sergii Poperezhai*

13:00-13:30 **Exploring topological and quantum transport properties of topological crystalline insulator (111) $Pb_{1-x}Sn_xSe$ thin films grown by MBE**
Valentine V. Volobuev[1,2]
[1]*International Research Centre MagTop, Institute of Physics, Warsaw, Poland*
[2]*National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine*

OPTICS, PHOTONICS AND OPTICAL SPECTROSCOPY

Chair *Dr. Sergii Poperezhai*

13:30-13:42 **Resonant frequency intersection of toroidal modes in all-dielectric metasurface with hexagonal unit cell**
O. A. Breslavets[1], Z. E. Eremenko[1,2]
[1]*O.Ya. Usikov Institute for Radiophysics and Electronics Kharkiv, Ukraine*
[2]*Leibniz Institute for Solid State and Materials Research, Dresden, Germany*

14:42-13:54 **Combined optical effects in unconventional multilayer metamaterial structures**
A. F. Bukhanko
Donetsk Institute for Physics and Engineering named after O.O. Galkin, Kyiv, Ukraine

13:54-14:06 **Enhancement of optical chiral sensing with subwavelength gratings**
O. Demianyk[1], S. Polevoy[2], V. Tuz[1], O. Yermakov[1,3]
[1]*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*
[2]*O.Ya. Usikov Institute for Radiophysics and Electronics Kharkiv, Ukraine*
[3]*Leibniz Institute of Photonic Technology, Jena, Germany*

14:06-14:18 **Experimental determination of emission cross sections for electron-induced processes in a supersonic argon jet**
Yu. S. Doronin, A. A. Tkachenko, V. L. Vakula, G. V. Kamarchuk
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

14:18-14:30 **Engineering plasmon canalization for resonant plasmonic metasurfaces**
A. Hrinchenko[1], S. Polevoy[2], O. Demianyk [1], O. Yermakov[1,3]
[1]*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*
[2]*O.Ya. Usikov Institute for Radiophysics and Electronics Kharkiv, Ukraine*
[3]*Leibniz Institute of Photonic Technology, Jena, Germany*

14:30-14:42 **Optical scattering for ground combat capabilities**
O. G. Nerukh[1], L. N. Illyashenko[2]
[1]*Kharkiv National University of Radio Electronics, Kharkiv, Ukraine*
[2]*National Academy of the National Guard of Ukraine, Zolochiv, Lviv Region, Ukraine*

14:42-14:54 **Control of Brewster's angle with plasmonic metasurfaces**
O. Mankovska[1], T. Shudra[2], A. Hrinchenko[3], O. Yermakov[3,4]
[1]*Ivan Franko National University of Lviv, Lviv, Ukraine*
[2]*School "Basis", Kyiv, Ukraine*
[3]*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*
[4]*Leibniz Institute of Photonic Technology, Jena, Germany*

14:54-15:06 **Features of oxazine laser dyes in solvents of different polarity and proton donor activity**

V. V. Maslov[1], I. M. Pritula[2]
[1]*O.Ya. Usikov Institute for Radiophysics and Electronics Kharkiv, Ukraine*
[2]*Institute for Single Crystals of NAS of Ukraine, Kharkiv, Ukraine*

15:06-15:18 **Aggregation features of cyanine dyes in a liquid crystalline environment**

I. Yu. Ropakova[1,2], O. M. Samoilov[1], O. V. Sorokin[1], L. N. Lisetski[1], S. L. Yefimova[1]
[1]*Institute for Scintillation Materials of NAS of Ukraine, Kharkiv, Ukraine*
[2]*Dipartimento di Scienza dei Materiali, Università degli Studi Milano-Bicocca, Milano, Italy*

15:20-16:00 **BREAK**

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Sergii Poperezhai*

16:00-16:30 **OCT versus (and in complementarity with) X-ray biomedical imaging**

V.-F. Duma[1-3] and R.-A. Erdelyi[1]
[1]*Polytechnic University of Timisoara, Timisoara, Romania*
[2]*Aurel Vlaicu University of Arad, Arad, Romania*
[3]*National University of Science and Technology POLITEHNICA Bucharest, Bucharest, Romania*

OPTICS, PHOTONICS AND OPTICAL SPECTROSCOPY

Chair *Dr. Sergii Poperezhai*

16:30-16:42 **The influence of electron irradiation on the emission spectra of glucose and fructose in a gas discharge plasma**

Yu. Bandurin, E. Svitlichnyi
Institute of Electron Physics of NAS of Ukraine, Uzhhorod, Ukraine

16:42-16:54 **Increasing the sensitivity of a surface plasmon resonance biosensor based on the Kretschmann configuration using $Ti_3C_2T_x$-MXene nanomaterial**

R. S. Terekhov[1], Z. E. Eremenko[1,2], S. M. Kulish[3]
[1]*O.Ya. Usikov Institute for Radiophysics and Electronics Kharkiv, Ukraine*
[2]*Leibniz Institute of Photonic Technology, Jena, Germany*
[3]*National Aerospace University "Kharkiv Aviation Institute",Kharkiv, Ukraine*

16:56-17:08 **Dielectric metasurfaces for light control: polarizer, collector, demultiplexer and anti-reflector**

A. Ovcharenko[1], S. Polevoy[2], K. Nemchenko[1], V. Tuz[1], O. Yermakov[1,3]
[1]*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*
[2]*O.Ya. Usikov Institute for Radiophysics and Electronics Kharkiv, Ukraine*
[3]*Leibniz Institute of Photonic Technology, Jena, Germany*

17:08-17:20 **Study of gas-discharge plasma properties in mixtures of inert gases with selenium vapor**

A. General, E. Svitlichnyi
Institute of Electron Physics of NAS of Ukraine, Uzhhorod, Ukraine

WORKSHOP: OPPORTUNITIES AND TECHNOLOGIES FOR RESEARCHERS

Chair *Dr. Diana Hurova*

17:25-17:55 **LabsArena.com: connecting researchers, laboratories, and manufacturers to unlock new opportunities and boost global research**
R. M. Basnukaeva, B. O. Postolnyi
LabsArena.com

17:55-18:25 **Nanofabrication of Josephson junctions**
Maryna Dryhailo[1,2]
[1]CEA-Leti, Grenoble, France
[2]Université Grenoble-Alpes, Saint-Martin-d'Hères, France

THURSDAY, 5th of JUNE

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Yevhen Petrenko*

10:00-10:40 **Special talk on the 100th anniversary of Quantum Mechanics**

Variations on a theme of Aharonov and Bohm
Michael Berry
University of Bristol, Bristol, United Kingdom

10:40-11:10 **Low-temperature phase transitions in hybrid organic-inorganic halo-bismuthates (III) and halo-antimoniates (III)**
A. Gągor
Institute for Low Temperatures and Structure Research, Wroclaw, Poland

MATERIALS SCIENCE

Chair *Dr. Yevhen Petrenko*

11:10-11:22 **Study of the thermal conductivity of pressed nanocarbon materials at low temperatures**
D. Sokolov[1,2], K. Vorobieva[1], O. Vorobyova[1,2]
[1]Al-Farabi Kazakh National University, Almaty, Kazakhstan
[2]Almaty Technological University, Almaty, Kazakhstan

11:22-11:34 **Truncated Coulomb potential for planar channeling**
M. V. Bondarenco[1,2], N. S. Moskvitin[1,2]
[1]NSC Kharkov Institute of Physics and Technology of NAS of Ukraine, Kharkiv, Ukraine
[2]V.N. Karazin Kharkov National University, Kharkiv, Ukraine

11:34-11:46 **The ordering of defects controlled by the symmetry of the CdI_2 crystal lattice: justification and experimental confirmation**
N. Tovstyuk[1], M. Rudka[1], O. Bilenka[1], F. Ivashchyshyn[1], M. Karkuliovska[1], B. Seredyuk[2]
[1]Lviv Polytechnic National University, Lviv, Ukraine
[2]Hetman Petro Sahaidachnyi National Army Academy, Lviv, Ukraine

11:46-11:58 **Up-conversion and luminescent properties of SiO_2-CaF_2:Pr^{3+} nanoceramics**
O. Bezkrovna[1,2], R. Lisiecki[1], P. J. Dereń[1]
[1]Institute of Low Temperature and Structure Research, Wrocław, Poland
[2]Institute for Single Crystals of NAS of Ukraine, Kharkiv, Ukraine

11:58-12:10 **Connection of cryogenic pipelines made of different metals by bimetallic adapters**
L. M. Lobanov, A. G. Bryzgalin, E. D. Pekar, N. A. Pashin, O. L. Mikhodui, L. M. Malakhova
E. O. Paton Electric Welding Institute, Kyiv, Ukraine

12:10-12:22 **Study of structural, electronic, optical, and thermodynamic properties of $RbGeI_3$ perovskite using DFT**
T. Abera
Wachemo University, Hossana, Ethiopia

12:22-12:34 **Low-temperature ultrasonic investigations of CoCrFeMnNi high-entropy alloy doped with vanadium**
V. S. Klochko, A. V. Korniets, V. I. Sokolenko, I. V. Kolodiy, O. O. Kondratov, I. F. Kislyak, Yu. S. Lipovska, M. A. Tikhonovsky, T. M. Tikhonovska
National Science Center "Kharkiv Institute of Physics and Technology" Kharkiv, Ukraine

12:34-12:46 **Particularity of relaxation of mechanical properties of polyimide films of the Kapton H type at different strain rates after long-term exposure at environmental conditions**
V. A. Lototskaya
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

12:46-12:58 **Energetics of carbon-related defects in YAG and their role in controlling the concentration of anion and cation vacancies**
K. V. Hermash[1], D. V. Fil[1,2]
[1]Institute for Single Crystals of NAS of Ukraine, 60 Nauky Avenue, Kharkiv, Ukraine
[2]V.N. Karazin Kharkov National University, Kharkiv, Ukraine

12:58-13:10 **Investigation of electrophysical properties, phase diagrams and charge carrier transfer in $Bi_{1-x}Sm_xFeO_3$ nanopowders**
V. O. Kolupaiev, A. N. Morozovska, V. N. Poroshin, and O. S. Pylypchuk
Institute of Physics of NAS of Ukraine, Kyiv, Ukraine

13:10-14:00 **BREAK**

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Denys Laptiev*

14:00-14:30 **Wave phenomena in Josephson junction ladders: breathers, flat bands and more**
Y. Zolotaryuk
Bogolyubov Institute for Theoretical Physics, Kyiv, Ukraine

14:30-15:00 **Studying the properties of spin systems and their quantum states using quantum programming**
Kh. P. Gnatenko
Ivan Franko National University of Lviv, Lviv, Ukraine

THEORY OF CONDENSED MATTER PHYSICS

Chair *Dr. Denys Laptiev*

15:00-15:12 **Density of states and differential entropy in graphene in crossed magnetic and in-plane electric fields**
Andrii A. Chaika, Yelizaveta Kulynych, D. O. Oriekhov, and Sergei G. Sharapov
Bogolyubov Institute for Theoretical Physics, Kyiv, Ukraine

15:12-15:24 **On inhomogeneous equilibrium states in single-sublattice high-spin magnets**
M. Yu. Kovalevsky
National Science Center "Kharkiv Institute of Physics and Technology" Kharkiv, Ukraine

15:24-15:36 **Flexo-sensitive ferrons in Van der Waals ferrielectrics at low temperatures**
Oleksii V. Bereznykov[1], Anna N. Morozovska[1], Eugene. A. Eliseev[2], Mykola Ye. Yelisieiev[3], Guo-Dong Zhao[4], Yujie Zhu[5], Venkatraman Gopalan[4], Long-Qing Chen[4], Jia-Mian Hu[5], and Yulian M. Vysochanskii[6]
[1]Institute of Physics, National Academy of Sciences of Ukraine, Kyiv, Ukraine
[2]Frantsevich Institute for Problems in Materials Science, Kyiv, Ukraine
[3]Institute of Semiconductor Physics, Kyiv, Ukraine
[4]Pennsylvania State University, University Park, PA, USA
[5]University of Wisconsin-Madison, Madison, WI, USA
[6]Institute of Solid-State Physics and Chemistry, Uzhhorod University, Uzhhorod, Ukraine

15:36-15:48 **Measurement-induced phase transitions in the Lipkin-Meshkov-Glick spin model**
P. O. Kofman[1,2], N. Samos[1], P. Ribeiro[1,3]
[1]Instituto Superior Tecnico, Universidade de Lisboa, Lisbon, Portugal
[2]B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
[3]Beijing Computational Science Research Center, Beijing, China

15:48-16:00 **Maximization of squeezing and amplification in open quantum systems in the Jaynes-Cummings model by means of Holstein-Primakoff transformations**
R. T. Ovsiannikov[1], D. I. Bondar[2], K. Jacobs[3,4], A. G. Sotnikov[1]
[1]NSC «Kharkiv Institute of Physics and Technology», Kharkiv Ukraine
[2]Tulane University, New Orleans, Louisiana, United States
[3]United States Army Research Laboratory, Adelphi, Maryland, USA
[4]University of Massachusetts at Boston, Boston, Massachusetts, USA

16:00-16:12 **Interaction-induced directional tunneling through asymmetric potential barriers in the Fermi-Hubbard lattice model**
S. S. Litvinova[1], A. G. Sotnikov[1,2]
[1]*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*
[2]*Akhiezer Institute for Theoretical Physics, Kharkiv, Ukraine*

16:12-16:24 **Application of Kolmogorov-Arnold-network-based neural quantum states for continuous many-body systems**
M. O. Luhanko[1], I. V. Lukin[2], D. I. Bondar[3], A. G. Sotnikov[1,2]
[1]*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*
[2]*Akhiezer Institute for Theoretical Physics, Kharkiv, Ukraine*
[3]*Tulane University, New Orleans, Louisiana, United States*

16:24-16:36 **Comparison of viscoelastic properties of fluorosubstituted aliphatic alcohols using an artificial neural network**
O. V. Khorolskyi[1], A. M. Hetalo[1], Ye. G. Rudnikov[2,3]
[1]*Poltava V. G. Korolenko National Pedagogical University, Poltava, Ukraine*
[2]*Taras Shevchenko National University of Kyiv, Kyiv Ukraine*
[3]*National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Kyiv, Ukraine*

16:36-16:48 **The effect of inelastic scattering on the resonant peak in a binary alloy type model**
D. A. Dobushovskyi, A. M. Shvaika
Institute for Condensed Matter Physics of NAS of Ukraine, Lviv, Ukraine

16:50-17:30 **BREAK**

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Yevhen Petrenko*

17:30-18:00 **Controlling quantum coherence in diluted spin systems**
(10:30 UTC-4)
I. Chiorescu
Florida State University, Tallahassee, Florida, USA

18:00-18:30 **Novel quantum dynamics with superconducting qubits**
(08:00 UTC-7)
Pedram Roushan
Google Quantum AI, Santa Barbara, USA

18:30-19:00 **Radiation physics and chemistry in low temperature molecular ices: applications to astrochemistry and astrobiology**
(08:30 UTC-7)
Duncan V. Mifsud[1], Péter Herczku[1], Zuzana Kaňuchová[2], Béla Sulik[1], Gergő Lakatos[1,3], Richárd Rácz[1], Sándor Biri[1], Sergio Ioppolo[4], Zoltán Juhász[1], and Nigel J. Mason[1,5]
[1]*HUN-REN Institute for Nuclear Research, Debrecen, Hungary*
[2]*Slovak Academy of Sciences, Tatranska Lomnicá, Slovakia*
[3]*University of Debrecen, Debrecen, Hungary*
[4]*University of Aarhus, Aarhus, Denmark*
[5]*University of Kent, Canterbury, United Kingdom*

FRIDAY, 6th of JUNE

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Oleksii Konotop*

10:00-10:30 **Local surface properties as guides to chemical reactivity in nanostructured systems**
Tore Brinck
KTH Royal Institute of Technology, Stockholm, Sweden

10:30-11:00 **On collective phenomena in one-dimensional networks of threshold-type memristors**
V. A. Slipko[1], Yu. V. Pershin[2]
[1]Institute of Physics, Opole University, Opole, Poland
[2]Department of Physics and Astronomy, University of South Carolina, Columbia, SC, USA

TECHNOLOGIES AND INSTRUMENTATION FOR PHYSICAL EXPERIMENTS

Chair *Dr. Oleksii Konotop*

11:00-11:12 **Global perturbations of the ionosphere during the geospace storm on September 11-21, 2024**
L. F. Chernogor, V. O. Bessarabova
V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

11:12-11:24 **Analysis of total electron content disturbances in the ionosphere on May 10–11, 2024, caused by high solar activity**
L. F. Chernogor, R. M. Kovalov, M. B. Shevelev
V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

11:24-11:36 **Highly informative format for comprehensive analysis of space weather conditions**
L. F. Chernogor, D. R. Kulyk
V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

11:36-11:48 **Amorphous $Mo_{1-x}Si_x$ films for quantum systems applications**
O. O. Leha[1], V. Yu. Lyakhno[1,2], I. O. Martynenko[2], S. V. Bengus[1], O. G. Turutanov[3,1]
[1]B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
[2]G.V. Kurdyumov Institute for Metal Physics, Kyiv, Ukraine
[3]Comenius University, Bratislava, Slovakia

11:48-12:00 **Method of detonation velocity measuring of the condensed explosives**
E. D. Pekar, A. G. Bryzgalin, N. A. Pashin, S. D. Ventsev, L. M. Malakhova
E.O. Paton Electric Welding Institute, Kyiv, Ukraine

12:00-12:12 **System spectral analysis of infrasonic wave disturbances caused by the Tonga supervolcano eruption on January 15, 2022**
L. F. Chernogor[1], O. I. Liashchuk[2], N. M. Tilichenko[1], M. B. Shevelev[1]
[1]V. N. Karazin Kharkiv National University, Kharkiv, Ukraine
[2]National Center for Control and Testing of Space Means of the State Space Agency of Ukraine, Horodok, Zhytomyr region, Ukraine

12:12-12:24 **Global response of total electron content of ionosphere during powerful geospacer storm on November 4-5, 2023**
M. Yu. Tkachenko, L. F. Chernogor
V. N. Karazin Kharkiv National University, Krarkiv, Ukraine

12:24-12:36 **Computer modeling of a nitrogen-cooled cryopanel**
O. Vorobyova[1,2], D. Sokolov[1,2], Ye. Korshikov[1]
[1]Al-Farabi Kazakh National University, Almaty, Kazakhstan
[2]Almaty Technological University, Almaty, Kazakhstan

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Oleksii Konotop*

12:40-13:10 **New ionic conductors based on salts of hypodiphosphoric acid, $H_4P_2O_6$**
Vasyl Kinzhybalo
Institute for Low Temperatures and Structure Research, Wroclaw, Poland

13:10-13:40 **BREAK**

THEORY OF CONDENSED MATTER PHYSICS

Chair *Dr. Denys Laptiev*

13:40-13:52 **Two-qubit detector of microwave photons**
O. A. Ilinskaya, S. N. Shevchenko
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

13:52-14:04 **Implementing signal processing algorithms using the adiabatic-impulse model**
O. V. Ivakhnenko[1,2], D. O. Shendryk[1,3], S. N. Shevchenko[1], and F. Nori[2,4]
[1]B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
[2]Center for Quantum Computing, RIKEN, Wakoshi, Saitama, Japan
[3]Ruhr-Universität Bochum, Germany
[4]Physics Department, University of Michigan, Ann Arbor, MI, USA

14:04-14:16 **Tunneling transport in semiconductor nanostructures considering the presence of a weak time-dependent electromagnetic field: Lewis-Riesenfeld approach**
I. V. Boyko[1], Ju. O. Seti[2]
[1]Ternopil Ivan Puluj National Technical University, Ternopil, Ukraine
[2]Lviv Polytechnic National University, Lviv, Ukraine

14:16-14:28 **The fluxon interaction with the dipole impurity in the Josephson transmission line**
Ivan. O. Starodub, Yaroslav Zolotaryuk
Bogolyubov Institute for Theoretical Physics of the NAS of Ukraine, Kviv, Ukraine

14:28-14:40 **Longitudinal Josephson effect in two-layer systems with electron-hole pairing**
S. I. Shevchenko, O. M. Konstantynov
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

14:40-14:48 **Dynamics of small fluctuations in Boltzmann kinetics**
A. I. Sokolovsky, S. F. Lyagushyn
Oles Honchar Dnipro National University, Dnipro, Ukraine

15:00-15:30 **Closing Remarks**
Acting Director of the B. Verkin ILTPE of NAS of Ukraine
Corresponding Member of NAS of Ukraine
Prof. Alexander Dolbin
and
Chair of Organizing Committee Dr. Diana Hurova

THE LIST OF POSTER SPEAKERS

ELECTRONIC PROPERTIES OF CONDUCTING AND SUPERCONDUCTING SYSTEMS

P1 **Broadband and resonant spectroscopy of thin film resonators from disordered superconductors**
M. Baránek[1], P. Neilinger[1,2], D. Manca[1,2], O.G. Turutanov[1,3], M. Grajcar[1,2]
[1]*Comenius University Bratislava, Bratislava, Slovakia*
[2]*Institute of Physics, Slovak Academy of Sciences, Bratislava, Slovakia*
[3]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*

P2 **Detection of Villari effect in $FeSe_{1-x}S_x$ (x=0.075)**
I. V. Bilych[1], K. R. Zhekov[1], G. A. Zvyagina[1], V. D. Fil, D. V. Fil[2,3]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*Institute for Single Crystals, NAS of Ukraine, Kharkiv, Ukraine*
[3]*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*

P3 **Study of structural, mechanical, electronic and thermodynamic properties of the N_2CaNa full-Heusler alloy using DFT approach**
E. B. Ettah[1], M. E. Ishaje[1], K. A. Minakova[2], V. A. Sirenko[3], I. S. Bondar[3]
[1]*Cross River University of Technology, Calabar, Nigeria*
[2]*National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine*
[3]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*

P4 **Differential shot noise and Fano factor in mesoscopic junctions with inhomogeneous superconductors**
V. Dmytrenko[1], E. Zhitlukhina[1,2], P. Seidel[3]
[1]*O.O. Galkin Donetsk Institute for Physics and Engineering, Kyiv, Ukraine*
[2]*Comenius University Bratislava, Bratislava, Slovakia*
[3]*Institut für Festkörperphysik, Friedrich-Schiller-Universität Jena, Jena, Germany*

P5 **Anomalies of dissipative and kinetic properties of the high-entropy alloy $Al_{0.5}CoCuCrNiFe$ below ~300 K**
V. A. Frolov, N. A. Azarenkov, E. V. Karaseva, V. S. Klochko, A. V. Korniets, V. I. Sokolenko, V. S. Okovit, A. V. Poida
National Science Center "Kharkiv Institute of Physics and Technology", Kharkiv, Ukraine

P6 **Optical and transport properties of NbN thin films revisited**
S. Kern[1], P. Neilinger[1,2], M. Poláčková[1], M. Baránek[1], T. Plecenik[1], T. Roch[1], and M. Grajcar[1,2]
[1]*Comenius University Bratislava, Bratislava, Slovakia*
[2]*Institute of Physics, Slovak Academy of Sciences, Bratislava, Slovakia*

P7 **Spin-dependent resonant tunneling through a magnetic quantum dot coupled to superconducting and ferromagnetic leads: F-mQD-S system**

E. A. Koshina, V. N. Krivoruchko
O.O. Galkin Donetsk Institute for Physics and Engineering, Kyiv, Ukraine

P8 **Properties of a metal-dielectric-metal point junction before and after electrical breakdown of a dielectric nanolayer**

V. P. Koverya, A. V. Krevsun, S. I. Bondarenko
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

P9 **Electronic properties of the boundary between hexagonal and Lieb lattices**

I. V. Kozlov, Yu. A. Kolesnichenko
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

P10 **Point-contact spectroscopy features of MoRe superconducting alloy**

I. Martynenko[1,2], V. Tarenkov[2,3], V. Krivoruchko[3], A. Shapovalov[1,2], O. Kalenyuk[1,2], E. Zhitlukhina[3,4], M. Belogolovskii[2,4]
[1]*G.V. Kurdyumov Institute for Metal Physics, NAS of Ukraine, Kyiv, Ukraine*
[2]*Kyiv Academic University, Kyiv, Ukraine*
[3]*O.O. Galkin Donetsk Institute for Physics and Engineering, Kyiv, Ukraine*
[4]*Comenius University Bratislava, Bratislava, Slovakia*

P11 **Analysis of the influence of vortex dynamics on the possibility of an avalanche-like transition of a microwave nonlinear HTS transmission line into a dissipative state**

S. I. Melnyk
O.Ya. Usikov Institute for Radiophysics and Electronics, Kharkiv, Ukraine

P12 **Features of vortex dynamics in the description of microwave absorption by a thin HTSC disk**

S. I. Melnyk, N. T. Cherpak
O.Ya. Usikov Institute for Radiophysics and Electronics, Kharkiv, Ukraine

P13 **Electron transport in pressed VO_2 samples: Mott hopping vs percolation behavior**

E. Yu. Beliayev[1], I. G. Mirzoiev[1], V. A. Horielyi[1], A. V. Terekhov[1], I. A. Chichibaba[2]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine*

P14 **Hydrostatic pressure effect on the pseudogap in slightly doped $Y_{0.77}Pr_{0.23}Ba_2Cu_3O_{7-\delta}$ single crystals**

E. V. Petrenko[1], L. V. Bludova[1], A. S. Kolisnyk[1], A. Sedda[2], E. Lähderanta[2], R. V. Vovk[3], A. L. Solovjov[1,2,4]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*Lappeenranta University of Technology, Lappeenranta, Finland*
[3]*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*
[4]*Institute for Low Temperatures and Structure Research, Wroclaw, Poland*

P15 **Visualization of critical current oscillations in a doubly connected superconducting structure without Josephson junctions**

A. G. Sivakov, A. S. Pokhila, A. E. Kolinko
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

P16 **Precise tuning of superconducting and physical properties of $Mo_{1-x}Si_x$ thin films for photon detector applications**

O. V. Zraichenko[1], O. O. Leha[1], V. Yu. Lyakhno[1,2], S. V. Bengus[1], M. Yu. Mikhailov[3]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*G.V. Kurdyumov Institute for Metal Physics, NAS of Ukraine, Kyiv, Ukraine*
[3]*Delft University of Technology, Delft, The Netherlands*

P17 **Resistive switching and diode effect in conductivity of $TiTe_2$ point contacts**

O. E. Kvitnitskaya[1,2], L. Harnagea[3], D. V. Efremov[2], B. Büchner[2,4], Yu. G. Naidyuk[1]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*Leibniz Institute for Solid State and Materials Research, Dresden, Germany*
[3]*Institute for Solid State Research, Dresden, Germany*
[4]*Institute of Solid State and Materials Physics and Würzburg-Dresden Cluster of Excellence ct.qmat, Technische Universität Dresden, Dresden, Germany*

MAGNETISM AND MAGNETIC MATERIALS

P18 **Antiferromagnetic resonance in $CuCrP_2S_6$ layered crystal**

O. Bludov[1], Yu. Savina[1], V. Pashchenko[1], M. Kobets[1], K. Glukhov[2], Yu. Vysochanskii[2]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*Institute for Solid State Physics and Chemistry, Uzhhorod National University, Uzhhorod, Ukraine*

P19 **Tunable magnetic properties of layered double hydroxides: between cluster glass and canonical spin glass**

A. V. Fedorchenko[1], E. L. Fertman[1], I. P. Kobzar[1], Yu. G. Pashkevich[2], E. Čižmár[3], V. Tkáč[3], R. Tarasenko[3], A. Feher[3], M. Holub[4], A. N. Salak[5]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*O.O. Galkin Donetsk Institute for Physics and Engineering, Kyiv, Ukraine*
[3]*Institute of Physics, P.J. Šafárik University in Košice, Košice, Slovakia*
[4]*Synchrotron SOLEIL, L'Orme des Merisiers, St Aubin BP48, Gif sur Yvette Cedex, France*
[5]*CICECO – Aveiro Institute of Materials, University of Aveiro, Aveiro, Portugal*

P20 **Raman studies of two-compound spin-liquid candidate $(Na_{1-x}Li_x)_2IrO_3$**

A. Glamazda[1,4], V. Gnezdilov[1,2], P. Lemmens[2,3], P. Gegenwart[5]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*Institute for Condensed Matter Physics, TU-Braunschweig, Braunschweig, Germany*
[3]*Laboratory for Emerging Nanometrology and International Graduate School of Metrology, TU-Braunschweig, Braunschweig, Germany*
[4]*V. N. Karazin Kharkiv National University, Kharkiv, Ukraine*
[5]*Institute of Physics, University of Augsburg, Augsburg, Germany*

P21 **Low temperature thermodynamic of spin model formed by XX chains coupled via Ising spins**

E. V. Ezerskaya, A. O. Kabatova
V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

P22 **High-pressure study of magnetic and magnetic resonance properties of rare-earth paramagnet $KEr(MoO_4)_2$**

K. Kutko[1], V. Khrustalyov[1], T. Sakurai[2], H. Ohta[2], S. Kimura[3], H. Nojiri[3], and D. Kamenskyi[4]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*Molecular Photoscience Research Center, Kobe University, Kobe, Japan*
[3]*Institute for Materials Research, Tohoku University, Sendai, Japan*
[4]*Institute of Physics, University of Augsburg, Augsburg, Germany*

P23 **Magnetic properties of the Heisenberg–Ising model of nanomagnets on the base of transition metal polymeric complexes**

E. V. Ezerskaya, S. Ye. Kononenko
V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

P24 **Estimation of magnetic characteristics of Ni-Zn ferrite prepared by hydroxide precipitation method**

O. I. Tovstolytkin[1], A. F. Kravets[1,2], S. M. Konoplyuk[1]
[1]*Institute of Magnetism of the NAS of Ukraine, Kyiv, Ukraine*
[2]*Nanostructure Physics division, Royal Institute of Technology, Stockholm, Sweden*

P25 **Pressure effects on magnetic properties of $LaMnO_3$ and $YMnO_3$**

A.A. Lyogenkaya, A. S. Panfilov, G. E. Grechnev, and V. A. Pashchenko
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

P26 **Effect of magnetic field orientation on the behavior of linear dichroism in YIG:Co epitaxial film**

O. V. Myloslavska, Yu. M. Kharchenko, M. F. Kharchenko
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

P27 **About the nature of incommensurate phase in double Jahn-Teller rare-earth molybdates**

Yu. M. Kharchenko, K. V. Kutko, N. M. Nesterenko
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

P28 **Investigation of magnetic structure by spin-polarized scanning tunneling microscopy in ErB_4 tetraboride**

O. Onufriienko[1], D. Volavka[2], S. Gabáni[1], K. Flachbart[1], G. Pristáš[1], K. Siemensmeyer[3], K. Prokeš[3], N. Shitsevalova[4]
[1]*Centre of Low Temperature Physics, Institute of Experimental Physics, Košice, Slovakia.*
[2]*Centre of Low Temperature Physics, Faculty of Science, P.J. Safarik University, Košice, Slovakia.*
[3]*Helmholtz Zentrum für Materialien und Energie, Berlin, Germany.*
[4]*Institute for Problems of Materials Science, Kiev, Ukraine.*

P29 **Comparative analysis of Raman and IR spectra in $LiCoPO_4$ and $LiNiPO_4$ magnetoelectrics**

A. V. Peschanskii[1], V. P. Gnezdilov[1], and A. Yu. Glamazda[1,2]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*V. N. Karazin Kharkiv National University, Kharkiv, Ukraine*

P30 **Manifestation of spiral magnetic phase in optical absorption spectra of $NdFe_3(BO_3)_4$ crystal**

V. G. Piryatinskaya, V. V. Slavin, I. S. Kachur, V. S. Kurnosov
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

P31 **Dynamic cluster magnetic subsystems in diluted magnetic semiconductor $Ge_{1-x-y}Sn_xMn_yTe$**

V. E. Slynko[1], L. Kilanski[2], M. Arciszewska[2], V. I. Ivanov[1]
[1]*Chernivtsi Branch of Frantsevych Institute for Problems of Materials Science, Chernivtsi, Ukraine*
[2]*Institute of Physics, Polish Academy of Sciences, Warsaw, Poland*

P32 **Thermal conductivity of the $Dy_xY_{1-x}(PO_3)_3$ phosphate glasses**

V. Stadnyk[1], V. Tkáč[1], M. Tokarčík[1], P. Baloh[2], R. Tarasenko[1], E. Čižmár[1], M. Orendáč[1], A. Orendáčová[1], J. Holubová[3], E. Černošková[3], Z. Černošek[3], and A. Feher[1]
[1]*Institute of Physics, P. J. Šafárik University in Košice, Košice, Slovakia*
[2]*International Institute for Carbon-Neutral Energy Research, Kyushu University, Fukuoka, Japan*
[3]*University of Pardubice, Pardubice, Czech Republic*

P33 **Nonreciprocity of surface magnetoelastic waves in a ferromagnetic bilayer with noncollinear layer magnetizations**

L. I. Ushii[1], A. N. Slavin[2], R. V. Verba[1]
[1]*V.G. Baryakhtar Institute of Magnetism of the NAS of Ukraine, Kyiv, Ukraine*
[2]*Department of Physics, Oakland University, Rochester, Michigan, USA*

OPTICS, PHOTONICS AND OPTICAL SPECTROSCOPY

P34 **Optical properties of "left-handed" media based on a cubic lattice of metallic nanodimers**

L. O. Abramenko[1], A. V. Korotun[1,2], V. M. Matiushyn[1]
[1]National University Zaporizhzhia Politechnic, Zaporizhzhia, Ukraine
[2]G.V. Kurdyumov Institute for Metal Physics of the NAS of Ukraine, Kyiv, Ukraine

P35 **Two-photon interaction in a superconducting circuit with SQUID-mediated coupling**

E. V. Stolyarov[1], V. L. Andriichuk[2], and A. M. Sokolov[2]
[1]Institute of Physics of the National Academy of Sciences, Kyiv, Ukraine
[2]Bogolyubov Institute for Theoretical Physics, Kyiv, Ukraine

P36 **The effect of spatial dispersion on optical phenomena in spherical metallic nanoparticles**

R. Yu. Korolkov[1], O. Yu. Berezhnyi[1], A. V. Korotun[1,2]
[1]National University Zaporizhzhia Politechnic, Zaporizhzhia, Ukraine
[2]G.V. Kurdyumov Institute for Metal Physics of the NAS of Ukraine, Kyiv, Ukraine

P37 **Improvement of quantum efficiency of photodetectors by introducing plasmonic nanoparticles**

D. V. Demianenko[1], V. I. Reva[1], A. V. Korotun[1,2], E.V. Stegantsev[3]
[1]National University Zaporizhzhia Politechnic, Zaporizhzhia, Ukraine
[2] G.V. Kurdyumov Institute for Metal Physics of the NAS of Ukraine, Kyiv, Ukraine
[3]Zaporizhzhia National University, Zaporizhzhia, Ukraine

P38 **Masking of nanoparticles with the help of multilayer cylindrical coatings**

R. Yu. Korolkov[1], A. V. Korotun[1,2], V. M. Matiushyn[1], R. V. Fliahin[1]
[1]National University Zaporizhzhia Politechnic, Zaporizhzhia, Ukraine
[2]G.V. Kurdyumov Institute for Metal Physics of the NAS of Ukraine, Kyiv, Ukraine

P39 **Atomic structure calculations of singly ionized vanadium**

S. V. Gedeon, V. Yu. Lazur, V. I. Kazakov
Department of Theoretical Physics, Uzhhorod National University, Uzhhorod, Ukraine

P40 **Threshold conditions analysis of microlaser configuration with gold film and DBR**

S. S. Herasymov
Kharkiv National University of Radio Electronics, Kharkiv, Ukraine

P41 **Self-stabilization of microwave current in a superconducting resonator for photon detection**

O. Kalenyuk[1,2], S. Futimsky[1,2], I. Martynenko[1], A. Shapovalov[1,2]
[1]G.V. Kurdyumov Institute for Metal Physics of the NAS of Ukraine, Kyiv, Ukraine
[2]Kyiv Academic University, Kyiv, Ukraine

P42 **Absorption cross-section of toroidal metallic nanoparticles**

A. V. Korotun[1,2]
[1]National University Zaporizhzhia Politechnic, Zaporizhzhia, Ukraine
[2]G.V. Kurdyumov Institute for Metal Physics of the NAS of Ukraine, Kyiv, Ukraine

P43 **Width of the line of the surface plasmonic resonance in metal-dielectric nanocups**

V. I. Reva[1], R. O. Malysh[1], R. Yu. Korolkov[1], A. V. Korotun[1,2], I. M. Titov[1]
[1]National University Zaporizhzhia Politechnic, Zaporizhzhia, Ukraine
[2]G.V. Kurdyumov Institute for Metal Physics of the NAS of Ukraine, Kyiv, Ukraine

P44 **Plasmonic capacitance of the gap between two closely spaced spherical metal nanoparticles**

H. V. Moroz[1], A. V. Korotun[1,2], V. P. Kurbatsky[1]
[1]National University Zaporizhzhia Politechnic, Zaporizhzhia, Ukraine
[2]G.V. Kurdyumov Institute for Metal Physics of the NAS of Ukraine, Kyiv, Ukraine

P45 **Tensor of electric field enhancement in the vicinity of a metallic triangular equilateral nanoprism**

N. I. Pavlyshche
National University Zaporizhzhia Politechnic, Zaporizhzhia, Ukraine

P46 **The role of donor-acceptor defect complexes in the recombination of non-equilibrium carriers in cadmium iodide**

M. Rudka
National University "Lviv polytechnic", Lviv, Ukraine

P47 **Electrical controlled multi-spectral light slowing in metasurface with graphen/dielectric/metal sandwich microresonators**

Yu. N. Savin
O.Ya. Usykov Institute for Radiophysics and Electronics, Kharkiv, Ukraine

P48 **Overheating of metallic nanoparticles under excitation of plasmonic resonances on their surface**

R. Yu. Korolkov[1], M. A. Shvydkyi[1], A. V. Korotun[1,2], I. M. Titov[1]
[1]National University Zaporizhzhia Politechnic, Zaporizhzhia, Ukraine
[2]G.V. Kurdyumov Institute for Metal Physics of the NAS of Ukraine, Kyiv, Ukraine

P49 **Signatures of disorder in the heat capacity of Nd-doped LAO laser materials**

V. Sokolenko, D. Szewczyk, N. Miniajluk-Gaweł, P. Dereń
Institute for Low Temperatures and Structure Research, Wroclaw, Poland

P50 **Effect of molecular impurity N_2 on photoluminescence and structure of fullerite C_{60} during diffusion intercalation and chemical sorption**

V. N. Zoryansky, P.V. Zinoviev, N.N. Galtsov and Yu.O. Semerenko
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

P50_1 **Optical and electrical characteristics of FeS_2 thin films obtained in gas discharge**

E. Svitlichnyi[1], A. Molnar[2]
[1]Institute of Electron Physics of NAS of Ukraine, Uzhhorod, Ukraine
[2] Uzhgorod National University, Uzhgorod, Ukraine

P50_2 **Obtaining of FeS_2 thin films on glass substrates in gas discharge plasma**

E. Svitlichnyi[1], A. Minya[2], M. Pop[2], R. Gritsak[2], M. Feldii[2]
[1]Institute of Electron Physics of NAS of Ukraine, Uzhhorod, Ukraine
[2]Uzhgorod National University, Uzhgorod, Ukraine

QUANTUM LIQUIDS AND QUANTUM CRYSTALS, CRYOCRYSTALS

P51 **Scattering amplitude of C_{60} fullerite in the ordered phase. Theory and calculations**

N. A. Aksenova[1], D. E. Hurova[2], V. Kinzhybalo[3], N. N. Galtsov[2]
[1]*V. N. Karazin Kharkiv National University, Kharkiv, Ukraine*
[2]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[3]*Institute for Low Temperatures and Structure Research, Wroclaw, Poland*

P52 **Correlation between the thermal conductivity plateau and the hump in heat capacity of polymer and composite materials**

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

P53 **The substrate nanoroughness analysis by surface electrons over helium film**

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

P54 **Phase transitions in large atomic clusters. Computer modeling**

M. Ratner, V. V. Yanovsky
Institute for Single Crystals of NAS of Ukraine, Kharkiv, Ukraine

P55 **Thermal conductivity of nanostructured thin films and a composite material based on PbTe and PbSe**

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

P56 **Multi-channel heat transfer in CO_2 solutions with N_2O and Xe impurities**

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

NANOPHYSICS AND NANOTECHNOLOGIES

P57 **The role of incomplete ionization in radial p-n junction structures at low temperatures**

J. Sh. Abdullayev[1], I. B. Sapaev[1, 2]
[1]*National Research University TIIAME, Tashkent, Uzbekistan*
[2]*Western Caspian University, Baku, Azerbaijan*

P58 **Dimensional effects in the thermal expansion of carbon fiber reinforced plastic at low temperatures**

N. A. Vinnikov, A. V. Dolbin, V. B. Esel'son, V. G. Gavrilko, R. M. Basnukaeva, E. M. Grytsiuk, L. M. Buravtseva
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

P59 **Vibrational characteristics of graphene-based materials and hexagonal modification of niobium dichalcogenide: stability, low-dimensional peculiarities and peculiarities of phonon expansion and localization**

K. A. Minakova[1], V. A. Sirenko[1], I. S. Bondar[2], I. G. Mirzoiev[2]
[1]*National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine*
[2]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*

P60 **Low-temperature thermodynamics of branched spin-1/2 system formed by XX chains connected through Ising spins**

K. S. Dzhenzherova, E. V. Ezerskaya, V. O. Kovalenko
V.N. Karazin Kharkiv National University, Kharkiv, Ukraine

P61 **Effect of dispersion in various liquid crystal matrices on the excitonic properties of cyanine dye J-aggregates**

S. S. Hrankina[1,2], O. M. Samoilov[1], I. I. Grankina[1], L. N. Lisetski[1], S. L. Yefimova[1], O. V. Sorokin[1]
[1]*Institute for Scintillation Materials of NAS of Ukraine, Kharkiv, Ukraine*
[2]*Kharkiv National Medical University, Kharkiv, Ukraine*

P62 **Physical sorption of aluminum in carbon honeycomb structures: models and experiment**

M. A. Kabanenko[1], V. O. Hamalii[1], Y. A. Mastrikov[2], E. A. Kotomin[2], N. V. Krainyukova[1]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*Institute of Solid State Physics, University of Latvia, Riga, Latvia*

P63 **Selective sorption of argon in carbon honeycombs of different sizes**

M. A. Kabanenko, V. O. Hamalii, N. V. Krainyukova
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

P64 **Magnetic properties of two finite spin-1/2 XX chains connected through two Ising spins**

K. S. Dzhenzherova, E. V. Ezerskaya, V. O. Kovalenko
V.N. Karazin Kharkiv National University, Kharkiv, Ukraine

P65 **Inter-strip coupling effects in graphene-based metasurface**

K. S. Kuznetsova[1], Z. E. Eremenko[1], V. A. Pashynska[1,2]
[1]*O.Ya. Usykov Institute for Radiophysics and Electronics, Kharkiv, Ukraine*
[2]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*

P66 **Information recording medium based on tunnel magnetic transitions**

M. M. Krupa
V.G. Baryakhtar Institute of Magnetism of the NAS of Ukraine, Kiev, Ukraine

P67 **Spin-boson model with time-dependent coupling to a selected vibrational mode**

V. O. Leonov, Ye. V. Shevchenko, V. I. Teslenko, E. G. Petrov
Bogolyubov Institute for Theoretical Physics of NAS of Ukraine, Kyiv, Ukraine

P68 **Resonances in a chain of bimetallic nanoparticles on a dielectric substrate**

M. S. Maniuk[1], A. V. Korotun[1,2], V. P. Kurbatsky[1]
[1]*National University Zaporizhzhia Politechnic, Zaporizhzhia, Ukraine*
[2]*G.V. Kurdyumov Institute for Metal Physics, Kyiv, Ukraine*

P69 **Fetal bovine serum-mediated enhancement of cerium oxide-based luminescent sensors for hydrogen peroxide detection**

Ye. Neuhodov[1], P. Maksimchuk[1], G. Grygorova[1], A. Onishchenko[2], N. Kavok[1], G. Dudetskaya[1], Yu. Kot[3], S. Yefimova[1], V. Seminko[1]
[1]*Institute for Scintillation Materials of NAS of Ukraine, Kharkiv, Ukraine*
[2]*Kharkiv National University of Radio Electronics, Kharkiv, Ukraine*
[3]*School of Biology, V. N. Karazin Kharkiv National University, Kharkiv, Ukraine*

P70 **Magnetic and magnetotransport properties of modified by cobalt carbon nanotubes**

I. Ovsiienko[1], D. Shpylka[1], T. Len[1], L. Matzui[1], A. Sedda[2], E. Lähderanta[2,3,4], A. Terekhov[4], I. Mirzoiev[4]

[1]*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*
[2]*Lappeenranta University of Technology, Lappeenranta, Finland*
[3]*Institute for Low Temperatures and Structure Research, Wroclaw, Poland*
[4]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*

P71 **Josephson junctions with barrier from semiconductor doped by metal**

V. E.Shaternik, A. P. Shapovalov

G.V. Kurdyumov Institute for Metal Physics, Kyiv, Ukraine

P72 **Dielectric properties of layer crystals and nanostructures based on them**

B. O. Seredyuk[1], M. S. Karkulovska[2], N. K. Tovstyuk[2], O. Y. Mykytiuk[3].

[1]*National Army Academy named after Hetman Petro Sahaidachnyi, Lviv, Ukraine*
[2]*Institute of Mathematics and Applied Physics, Lviv Polytechnic National University, Lviv, Ukraine*
[3]*Bukovinian State Medical University, Chernivtsi, Ukraine*

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P73 **The effect of mutations on the binding affinity of macrolides with ribosomal proteins: a molecular docking approach**

N. V. Khmil[1,2], V. G. Kolesnikov[1]

[1]*O.Ya. Usykov Institute for Radiophysics and Electronics, Kharkiv, Ukraine*
[2]*Kharkiv National University of Radio Electronics, Kharkiv, Ukraine*

P74 **Analysis of low-temperature electron transport in a composite film of reduced graphene oxide with molybdenum disulfide**

N. V. Kurnosov, A. M. Plokhotnichenko, V. A. Karachevtsev

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

P75 **Mass spectrometry and Raman spectroscopy characterization of the bactericidal nanofiber mats with incorporated antibiotics**

V. A. Pashynska[1], A. M. Plokhotnichenko[1], A. Yu. Glamazda[1], P. O. Kuzema[2], V. A. Karachevtsev[1]

[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2] *Chuiko Institute of Surface Chemistry, Kyiv, Ukraine*

P76 **Peculiarities of interaction of the sulfur-containing antiviral drug lamivudine with molybdenum disulfide**

T. Piddubnyi[1], S. Stepanian[1], L. Adamowicz[2]

[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*Department of Chemistry and Biochemistry, University of Arizona, Tucson AZ, USA*

P77 **On the features of multi-charged meso-porphyrin binding to nucleic acids**

O. A. Ryazanova

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

P78 **Mass spectrometric probing of C60 with MoS_2 composite produced in aqueous medium**

V. S. Shelkovsky[1], M. V. Kosevich[1], O. A. Boryak[1], P. O. Kuzema[2], A. V. Dolbin[1], N. A. Vinnikov[1], S. V. Cherednichenko[1], V. A. Karachevtsev[1]

[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2] *Chuiko Institute of Surface Chemistry, Kyiv, Ukraine*

P79 **Experimental and theoretical study of the binding of native DNA to MoS_2 nanoflakes**

E. Usenko[1], A. Glamazda[1,2], V. Valeev[1], I. Voloshin[1], S. Petrushenko[2], S. Stepanian[1], L. Adamowicz[3], V. Karachevtsev[1]

[1]B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
[2]V. N. Karazin Kharkiv National University, Kharkiv, Ukraine
[3]Department of Chemistry and Biochemistry, University of Arizona, Tucson AZ, USA

P80 **The impact of the outer membrane and general porins on cyanide diffusion in gram-negative bacteria**

V. Yakovliev, B. Lev

Bogolyubov Institute for Theoretical Physics, Kyiv, Ukraine

MATERIALS SCIENCE

P81 **Structural and optical study of undoped and Ag-doped Sb2S3 polycrystals and thin films**

Y. M. Azhniuk[1], V. V. Lopushansky[1], A. I. Pogodin[2], M. J. Filep[3], I. M. Voynarovych[1], V. M. Kryshenik[1], A. V. Gomonnai[1]

[1]Institute of Electron Physics, Uzhhorod, Ukraine
[2]Uzhhorod National University, Uzhhorod, Ukraine
[3]Ferenc Rákóczi II Transcarpathian Hungarian Institute, Berehovo, Ukraine

P82 **Optical properties and transition temperatures of multiple structures of amorphous ice mixed with CO_2**

N. N. Chigambayeva, A. Y. Nurmukan

Al-Farabi Kazakh National University, Almaty, Kazakhstan

P83 **Change of structure of polyimide PM-A after low temperature deformation**

V. G. Geidarov

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

P84 **Classical and fractal models of chalcogenide glasses viscoelasticity**

A. A. Horvat, A. A. Molnar, V. V. Minkovych

Uzhhorod National University, Uzhhorod, Ukraine

P85 **The microstructure and low-temperature mechanical properties of ultrafine-grained copper: effect of deformation and annealing**

T. Hryhorova[1], S. Shumilin[1], P. Zabrodin[1,2], D. Drozdenko[3]

[1]B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
[2]Institute of Theoretical and Applied Mechanics, Prague, Czech Republic
[3]Charles University, Faculty of Mathematics and Physics, Prague, Czech Republic

P86 **The low-temperature plasticity and deformation microstructure of SPD Al-Li alloy**

T. Hryhorova[1], S. Shumilin[1], P. Zabrodin[1,2], D. Drozdenko[3]

[1]B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
[2]Institute of Theoretical and Applied Mechanics, Prague, Czech Republic
[3]Charles University, Faculty of Mathematics and Physics, Prague, Czech Republic

P87 **Peculiarities of the electronic and elastic properties of indium selenide in different structural modifications**

O. I. Korolov, L. Yu. Kharkhalis, K. E. Glukhov

Institute for Physics and Chemistry of Solid State, Uzhhorod National University, Uzhhorod, Ukraine

P88 **The role of internal stresses in the realisation of dislocation-diffusion viscous flow of eutectic alloys under the conditions of superplasticity**

V. F. Korshak[1], Y. O. Shapovalov[2], P. P. Pal-Val[2]
[1]*V. N. Karazin Kharkiv National University, Kharkiv, Ukraine*
[2]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*

P89 **Photo- and thermostimulated phase transformations in $Ge_2Sb_2Se_{5-x}Te_x$ glasses**

V. M. Kryshenik[1], S. M. Hasynets[1], Y. M. Azhniuk[1], M. J. Filep[2], V. V. Lopushansky[1], O. O. Gomonnai[3], V. Y. Loya[1], A. V. Gomonnai[1]
[1]*Institute of Electron Physics, Uzhhorod, Ukraine*
[2]*Ferenc Rákóczi II Transcarpathian Hungarian Institute, Berehovo, Ukraine*
[3]*Uzhhorod National University, Uzhhorod, Ukraine*

P90 **Study of the sensory response of porous films with fluorescent dyes to microconcentrations of acetone and ammonia**

Ya. P. Lazorenko[1], V. P. Mitsai[2]
[1]*G.V. Kurdyumov Institute for Metal Physics, Kyiv, Ukraine*
[2]*V.G. Baryakhtar Institute of Magnetism, Kyiv, Ukraine*

P91 **Experimental studies of hydrogen-palladium interaction in the α-region of the Pd-H diagram**

O. M. Liubymenko
State higher education institution "Donetsk National Technical University", Drohobych, Ukraine

P92 **The influence of hydrogen diffusion on electrical resistivity of amorphous metallic alloys**

A. Grib, V. Makharynskyi
V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

P93 **Modification of electrophysical parameters of $CuInP_2S_6$ crystals by betta, gamma and neutron irradiation**

A. Molnar[1], A. Haysak[1], I. Haysak[1], D. Gál[2]
[1]*Uzhhorod National University, Uzhhorod, Ukraine*
[2]*HUN-REN WIGNER Research Center for Physics, Budapest, Hungary*

P94 **Estimation of the thermal conductivity of porous silicon using molecular dynamics and machine learning methods**

V. V. Kuryliuk, O. Ya. Olikh
Taras Shevchenko National University of Kyiv, Kyiv, Ukraine

P95 **Prediction of isomorphous substitutions of strontium or barium by sodium and actinides for their immobilization in molybdates with a scheelite-type structure**

S. V. Radio, E. I. Get'man
Vasyl' Stus Donetsk National University, Vinnytsia, Ukraine

P96 **Low-temperature thermal properties of carbon-based nanomaterials: exploration of graphene oxide and fullerene composites**

O. O. Romantsova[1,2], D. Szewczyk[2], A. Jeżowski[2], Yu. Horbatenko[1], M. Vinnikov[1], S. Cherednichenko[1], A. I. Krivchikov[1,2]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*Institute of Low Temperatures and Structure Research, Wroclaw, Poland*

P97 **The effect of the vanadium content on the microhardness of $CoCrFeNiMnV_x$ high-entropy alloys in the temperature range of 77-293 K**

H. V. Rusakova[1], L. S. Fomenko[1], S. V. Lubenets[1], M. A. Tikhonovsky[2], I. F. Kislyak[2], E. D. Tabachnikova[1], Yi Huang[3], and Terence G. Langdon[4]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*National Science Center "Kharkiv Institute of Physics and Technology", Kharkiv, Ukraine*
[3]*Faculty of Science and Technology, Bournemouth University, Poole, Dorset, UK*
[4]*Department of Mechanical Engineering, University of Southampton, Southampton, UK*

P98 **The effect of low temperatures on the rheological properties of amorphous and amorphous-crystalline polymers**

V. D. Natsik, H. V. Rusakova, V. A. Lototskaya
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

P99 **Investigation of low-temperature dislocation structure and dynamics in the high-entropy alloy $Al_{0.5}CoCrCuFeNi$**

Yu. Semerenko[1], V. Natsik[1], N. Galtsov[1], D. Hurova[1], V. Zoryansky[1], E. Tabachnikova[1], T. Bednarchuk[2], Yu. Lipovska[3]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*Institute of Low Temperatures and Structure Research, Wroclaw, Poland*
[3]*National Science Center "Kharkiv Institute of Physics and Technology", Kharkiv, Ukraine*

P100 **Comparative analysis of mechanical properties and microstructure of coarse-grained and nanostructured nonequiatomic medium-entropy alloys $Fe_{40}Mn_{40}Co_{10}Cr_{10}$ and $Fe_{50}Mn_{30}Co_{10}Cr_{10}$ in the temperature range of 4.2–300 K**

S. E. Shumilin[1], T. V. Hryhorova[1], S. N. Smirnov[1], Yu. O. Semerenko[1], I. V. Kashuba[1], Yu. O. Shapovalov[1], E. D. Tabachnikova[1], M. A. Tikhonovsky[2], Y. Huang[3], T. G. Langdon[4]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine*
[2]*National Science Center "Kharkiv Institute of Physics and Technology", Kharkiv, Ukraine*
[3]*Faculty of Science and Technology, Bournemouth University, Poole, Dorset, UK*
[4]*Department of Mechanical Engineering, University of Southampton, Southampton, UK*

P101 **On the influence of surface roughness of polymer kapton-H on momentum transfer in supersonic flow of atomic oxygen plasma**

V. A. Shuvalov, G. S. Kochubei, Yu. P. Kuchugurnyi, D. K. Voronovskyi, B. V. Yurkov
Institute of Technical Mechanics, Dnipro, Ukraine

P102 **Strain rate dependent deformation behavior of Ti-Nb alpha-alloys at low temperatures**

V. A. Moskalenko, R. V. Smolianets
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

P103 **Study of pore distribution in activated carbon by low-temperature nitrogen adsorption**

V. M. Vashchynskyi
Lviv Polytechnic National University, Lviv, Ukraine

P104 **Impact of electromagnetic radiation from spark discharge on the dielectric properties of $Cd_{1-x}Zn_xTe$ crystals within the low-frequency region**

O. Chugai, S. Kulish, Yu. Voloshyn, S. Sulyma
National Aerospace University "Kharkiv Aviation Institute", Kharkiv, Ukraine

P105 **Formation energies of point defects in Ti-doped YAG crystals: first-principles calculations**

M. Y. Vovsianiker, D. V. Fil
Institute for Single Crystals of NAS of Ukraine, Kharkiv, Ukraine

P106 **The temperature dependences of resistivity of spinel-nanocarbon-epoxy composites**

O. Yakovenko[1], L. Matzui[1], L. Vovchenko[1], L. Kaykan[2], J. Mazurenko[1, 2, 3], D. Zaiatc[1], K. Dubyk[1], D. Shpylka[1]
[1]*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*
[2]*G.V. Kurdyumov Institute for Metal Physics, Kyiv, Ukraine*
[3]*Institute of Experimental Physics SAS, Košice, Slovak Republic*

THEORY OF CONDENSED MATTER PHYSICS

P107 **Modeling of metal strengthening during severe plastic deformation**
O. V. Khomenko, A. P. Chopov, K. P. Khomenko, M. S. Holubnycha
Sumy State University, Sumy, Ukraine

P108 **Theory of Bose-Einstein condensation with pair correlations within successive iteration method**
M. Bulakhov[1,2], A.S. Peletminskii[1,2]
[1]Akhiezer Institute for Theoretical Physics, Kharkiv, Ukraine
[2]National Science Center"Kharkiv Institute of Physics and Technology", Kharkiv, Ukraine

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M. Bulakhov[1], A. S. Peletminskii[1], and Yu. V. Slyusarenko[1,2]
[1]Akhiezer Institute for Theoretical Physics, Kharkiv, Ukraine
[2]Lviv Polytechnic National University, Lviv, Ukraine

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S. P. Lukyanets, O. V. Kliushnichenko
Institute of Physics of NAS of Ukraine, Kyiv, Ukraine

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O. V. Charkina, M. M. Bogdan
B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

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O. V. Charkina[1], Igor Poltavskyi[2], Anton Charkin-Gorbulin[2], M. M. Bogdan[1]
[1]B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
[2]University of Luxembourg, Luxembourg City, Luxembourg

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Ju. O. Seti[1], I. V. Boyko[2]
[1]Lviv Polytechnic National University, Lviv, Ukraine
[2]Ternopil Ivan Puluj National Technical University, Ternopil, Ukraine

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V. Yu. Globa[1], G. O. Kovalov[1], M. O. Chyzh[1], G. V. Shustakova[2], Ed. Yu. Gordiyenko[2], Yu. V. Fomenko[2]
[1]Institute for Problems of Cryobiology and Cryomedicine, Kharkiv, Ukraine
[2]B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine

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P. E. Trofymenko, O. V. Khomenko, M. V. Naida, D. T. Lohvynenko
Sumy State University, Sumy, Ukraine

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M. Romanov[1], D. Harbuz[1], V. Belan[1], O. Pospelov[2], L. Kamarchuk[3], V. Gudimenko[1] and G. Kamarchuk[1]

[1]B.Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine
[2]National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine
[3]SI "Institute for Children and Adolescents Health Care" of NAMS of Ukraine, Kharkiv, Ukraine

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A. K. Sauleyeva[1], Ye. S. Korshikov[1], K. Turlybekuly[2], V. V. Nesvizhevsky[3]

[1]Institute of Experimental and Theoretical Physics, al-Farabi Kazakh National University, Almaty, Kazakhstan
[2]Institute of Nuclear Physics, Ministry of Energy of the Republic of Kazakhstan, Almaty, Kazakhstan
[3]European Centre for Neutron Research "Institut Max von Laue – Paul Langevin", Grenoble, France