CONFERENCE PROGRAM

Time is specified for the Time Zone UTC/GMT+3,
Eastern European Summer Time (EEST)

MONDAY, 1st 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

Chairs *Dr. Valentin Koverya, Dr. Andrii Terekhov*

10:00-10:30 **Thermal transport properties and phonon glass features in dimer-Mott quantum spin-liquid compounds**
(16:00 UTC+9) Y. Nakazawa[1], L. Zhang[1], T. Nomoto[2], S. Yamashita[1], and H. Akutsu[1]
[1]Dept. of Chemistry, Graduate School of Science, the University of Osaka, Osaka, Japan
[2]RIKEN Center for Emergent Matter Science (CEMS), Wako, Saitama, Japan

10:30-11:00 **The Role of A in ARPES**
S. Borisenko
IFW-Dresden, Dresden, Germany

ELECTRONIC PROPERTIES OF CONDUCTING AND SUPERCONDUCTING SYSTEMS

Chair *Dr. Valentin Koverya, Dr. Andrii Terekhov*

11:00-11:12 **Pinning and dynamics of Abrikosov vortices in S-F bilayer films**
A. L. Kasatkin, V. P. Tsvitkovskyi
G.V.Kurdyumov Institute for Metal Physics of NASU, Kyiv, Ukraine

11:12-11:24 **Excitation of eigenmodes in cylindrical layered superconductors by non-relativistic electron flows**
Yu. O. Averkov, O. Yu. Averkov, Yu. V. Prokopenko, V. A. Yampol'skii
O.Ya.Usikov Institute for Radiophysics and Electronics of NASU, Kharkiv, Ukraine

11:24-11:36 **Enhancing electronic dispersion determination by employing an ensemble learning approach**
Yu. V. Pustovit, M. O. Ohloblia, Ya. B. Yanenko
Taras Shevchenko National University of Kyiv, Kyiv, Ukraine

11:36-11:48 **Comparative analysis of the effects of low-energy helium-ion (He^+) and high-energy electron irradiation on fluctuation conductivity and pseudogap in $YBa_2Cu_3O_{7-\delta}$ compounds**

A. L. Solovjov[1,2,3], M. V. Shytov[1], L. V. Bludova[1], A. S. Kolisnyk[1], A. Sedda[3], E. Lähderanta[3], W. Lang[4]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine*
[2]*Institute of Low Temperatures and Structure Research of PAS, Wroclaw, Poland*
[3]*Department of Physics, LUT University, Lappeenranta, Finland*
[4]*Faculty of Physics, University of Vienna, Vienna, Austria*

11:48-12:00 **Non-stationary longitudinal Josephson effect in electron-hole bilayers**

O. M. Konstantynov, S. I. Shevchenko
B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

12:00-12:12 **Charge transport and dielectric properties of the $BaTiO_3$ ceramics**

O. V. Bereznykov[1], D. O. Stetsenko[1], T. O. Kuzmenko[1,2], O. S. Pylypchuk[1], S. E. Ivanchenko[3], V. I. Styopkin[1], A. N. Morozovska[1], V. N. Poroshin[1], V. V. Vainberg[1]
[1]*Institute of Physics, NAS of Ukraine, Kyiv, Ukraine*
[2]*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*
[3]*Frantsevich Institute for Problems in Materials Science, NAS of Ukraine, Kyiv, Ukraine*

12:12-12:24 **Balance between optical and superconducting properties in oxygen-deficient ITO films**

D. Menesenko[1,2], O. Feia[1, 2, 3], A. Shapovalov[1,2]
[1]*Kyiv Academic University, Kyiv, Ukraine*
[2]*G.V.Kurdyumov Institute for Metal Physics of NASU, Kyiv, Ukraine*
[3]*Leibniz Institute for Solid State and Materials Research, Dresden, Germany*

12:24-12:36 **Enhancement of superconductivity in twisted metallic materials**

V. Tarenkov[1,2], D. Mindich[3], V. Dmytrenko[1], E. Zhitlukhina[1], V. Krivoruchko[1], I. Gavrysh[2], A. Shapovalov[2,3], O. Kalenyuk[2,3], M. Belogolovskii[3]
[1]*O.O.Galkin Donetsk Institute for Physics and Engineering of NASU, Kyiv, Ukraine*
[2]*G.V.Kurdyumov Institute for Metal Physics of NASU, Kyiv, Ukraine*
[3]*Kyiv Academic University, Kyiv, Ukraine*

12:36-12:48 **Spin-paramagnetic effects and possible singlet–triplet transition in $Dy_{1-x}Er_xRh_{3.8}Ru_{0.2}B_4$**

P. M. Fesenko[1], A. V. Terekhov[2], K. O. Minakova[1], A. P. Kazakov[3], I. V. Zolochevskii[2]
[1]*National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine*
[2]*B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine*
[3]*International Research Centre MagTop, Institute of Physics of PAS, Warsaw, Poland*

12:48-13:00 **Anomalous magnetoresistance in $Bi_{95.69}Mn_{3.69}Fe_{0.62}$ and $Bi_{88.08}Mn_{11.92}$ solid solutions**

V. M. Yarovyi[1], A. V. Terekhov[1], K. Rogacki[2], E. Lähderanta[3], A. L. Solovjov[1,2,3]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine*
[2]*Institute of Low Temperatures and Structure Research of PAS, Wroclaw, Poland*
[3]*Lappeenranta University of Technology, Lappeenranta, Finland*

13:00-13:15 **Quantum reflectometry meets quantum averaging theory**

O. Yu. Kitsenko[1,2], S. N. Shevchenko[1,3], L. Peri[4,5], F. Nori[6,7]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine*
[2]*V.N.Karazin Kharkiv National University, Kharkiv, Ukraine*
[3]*Department of Mathematics, Kyiv School of Economics, Kyiv, Ukraine*
[4]*Quantum Motion, London, United Kingdom*
[5]*Cavendish Laboratory, University of Cambridge, Cambridge, UK*
[6]*Quantum Computing Center, RIKEN, Saitama, Japan*
[7]*Physics Department, The University of Michigan, Ann Arbor, MI, USA*

13:15-14:00 **BREAK**

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Sergii Poperezhai*

14:00-14:30 **Structural defects as crucial factors for persistent luminescence in Cr-doped $ZnGa_2O_4$ spinels**
V. Boiko
Institute of Low Temperatures and Structure Research of PAS, Wroclaw, Poland

14:30-15:00 **From near-infrared silicon photonics to magnetic control of matter: extending design principles across scales**
M. F. Pereira[1,2], H. Zafar[1], A. Al-Ateqi[1] and Y. Tawalbeh[1,2]
[1]*Department of Physics, Khalifa University, Abu Dhabi, UAE*
[2]*Institute of of Physics, Czech Academy of Sciences, Prague, Czech Republic*

OPTICS, PHOTONICS AND OPTICAL SPECTROSCOPY

Chair *Dr. Sergii Poperezhai*

15:00-15:12 **High-speed photonic VQE: overcoming optimization latency with liquid crystals**
B. Bilash[1,2*], I. Ali[1,2], J. Lee[1,2], D. Parvatharajan[1], H.-T. Lim[1,2], and Y.-S. Kim[1,2†]
[1]*Center for Quantum Technology, KIST, Seoul, Republic of Korea*
[2]*Division of Quantum Information, KIST School, UST, Seoul, Republic of Korea*

15:12-15:24 **Features of surface waves in extremely anisotropic media**
A. F. Bukhanko
O.O.Galkin Donetsk Institute for Physics and Engineering of NASU, Kyiv, Ukraine

15:24-15:36 **Influence of the distribution of energies of monomers on dynamical characteristics of molecular aggregates**
I. Yu. Ropakova[1], A. A. Zvyagin[2]
[1]*Institute for Scintillation Materials of the NASU, Kharkiv, Ukraine*
[2]*B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine*

15:36-15:50 **Using an optimization algorithm to improve the metrological performance of a surface plasmon resonance biosensor**
R. S. Terekhov[1], Z. E. Eremenko[1,2], S. M. Kulish[1,3]
[1]*O.Ya.Usikov Institute for Radiophysics and Electronics of NASU, Kharkiv, Ukraine*
[2]*Leibniz Institute for Solid State and Materials Research, Dresden, Germany*
[3]*National Aerospace University "Kharkiv Aviation Institute", Kharkiv, Ukraine*

15:50-16:30 **BREAK**

16:30-18:10 **POSTER SESSION (1, 2, 3, 4, AND 5 SECTIONS)**

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

16:30-17:20 **Stage 1 (P1-P39)**

17:20-18:10 **Stage 2 (P40-P78)**

List of poster participants you can see at the end of the document.

TUESDAY, 2nd of JUNE

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Maksym Barabashko*

10:00-10:30 **The CISS effect as a unsolved problem**
J. M. van Ruitenbeek
Huygens-Kamerlinhgh Onnes Laboratory, Leiden University, Leiden, Netherlands

10:30-11:00 **Sagnac and Mashhoon effects in graphene**
Y. V. Shtanov[1], T.-H. O. Pokalchuk[2], S. G. Sharapov[1,2]
[1]Bogolyubov Institute for Theoretical Physics of NASU, Kyiv, Ukraine
[2]Kyiv Academic University, Kyiv, Ukraine

NANOPHYSICS AND NANOTECHNOLOGIES

Chair *Dr. Maksym Barabashko*

11:00-11:12 **The effect of $BaTiO_3$ nanoparticles on the dielectric properties of the 5CB nematic liquid crystal**
J. M. Gudenko[1], V. V. Vainberg[1], O. S. Pylypchuk[1], S. E. Ivanchenko[2], V. N. Poroshin[1], D. O. Stetsenko[1], I. A. Gvozdovskyy[1], A. N. Morozovska[1]
[1]Institute of Physics, NAS of Ukraine, Kyiv, Ukraine
[2]Frantsevich Institute for Problems in Materials Science, NAS of Ukraine, Kyiv, Ukraine

11:12-11:24 **Universal method of selective detection of a wide range of pollutants in liquids using conductance quantization**
A. Herus[1], O. Pospelov[2], A. Savytskyi[1], V. Vakula[1], M. Sakhnenko[2], N. Kalashnyk[3], E. Faulques[3], G. Kamarchuk[1]
[1]B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine
[2]National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine
[3]Univ. Lille, CNRS, Centrale Lille, Yncréa ISEN, Univ. Polytechnique Hauts -de -France, Lille, France

11:24-11:36 **Correlations between the dielectric properties and phase diagrams of $Bi_{1-x}Sm_xFeO_3$ nanopowders**
V. O. Kolupaiev[1], O. S. Pylypchuk[1], V. V. Vainberg[1], V. N. Poroshin[1], I. V. Fesych[2], L. D. Demchenko[3,4], E. A. Eliseev[5], A. N. Morozovska[1]
[1]Institute of Physics, NAS of Ukraine, Kyiv, Ukraine
[2]Taras Shevchenko National University of Kyiv, Kyiv, Ukraine
[3]Stockholm University, Department of Chemistry, Stockholm, Sweden
[4]University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Kyiv, Ukraine
[5]Frantsevich Institute for Problems in Materials Science, NAS of Ukraine, Kyiv, Ukraine

11:36-11:48 **Optimization of thermal transport properties in silicon structures with inhomogeneous porosity: experiment and machine learning**
P. O. Lishchuk, L.I. Chepela, V. B. Shevchenko, M. O. Borovoy, V. V. Kuryliuk, O. Ya. Olikh
Taras Shevchenko National University of Kyiv, Kyiv, Ukraine

11:48-12:00 **Controlling the pro-oxidant properties of cerium oxide nanocrystals by Fe^{3+} doping and morphology modification**
M. I. Lupan, G. V. Grygorova, V. V. Seminko, P. O. Maksimchuk, S. L. Yefimova
Institute for Scintillation Materials of the NASU, Kharkiv, Ukraine

12:00-12:12 **Defect evolution in irradiated multilayer graphene**

S. I. Menshykova*, S. I. Khaldeev[1], A. Ruhtinas[2], S. Moulick[1], J. T. Mäkinen[1], P. Hakonen[1]

[1]Department of Applied Physics, Aalto University, Aalto, Finland

[2]Nanoscience Center, University of Jyväskylä, Jyväskylä, Finland

12:12-12:24 **Nanoceria-based complexes for improved sensing of redox-active molecules in biological media**

V. V. Seminko, Ye. I. Neuhodov, P. O. Maksimchuk, G. V. Grygorova, S. L. Yefimova

Institute for Scintillation Materials of the NASU, Kharkiv, Ukraine

12:24-12:36 **Dimensional effect on relaxation processes of polypropylene glycol 1000 confined in silica-gel nanopores**

A. O. Sobchuk[1], D. A. Andrusenko[1], V. B. Shevchenko[1], S. A. Alekseev[1], K. S. Yablochkova[1], R. V. Dinzhos[2,3]

[1]Taras Shevchenko National University of Kyiv, Kyiv, Ukraine

[2]Petro Mohyla Black Sea National University, Mykolaiv, Ukraine

[3]Institute of Polymers, Bulgarian Academy of Sciences, Sofia, Bulgaria

12:36-12:48 **Analytical approaches to describe phonon heat transfer in two-dimensional nanoconductors**

J. Amrit[1], I. Kudriavtsev[2], K. Nemchenko[2], Y. Niemchenko[2], M. Spotar[2], T. Vikhtynska[2]

[1]LISN, Université Paris-Saclay, CNRS, Orsay, France

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

12:48-13:00 **Long-range tunneling of magnons between nanomagnets connected by a ferromagnetic chain**

S. M. Tunyk, E. G. Petrov

Bogolyubov Institute for Theoretical Physics of NASU, Kyiv, Ukraine

13:00-13:12 **Influence of post annealing temperature and aging effect on electrical properties of chromium nanofilms**

S. Udachan[1], S. B. Kolavekar[1], N. H. Ayachit[1], L. A. Udachan[2], S. S. Kolkundi[3], S. Ramya[4], S. Veeresh[4]

[1]School of Advanced Sciences, KLE Technological University, Hubballi, India

[2]S.S.Tegnoor Degree College, Kalaburagi, India

[3]Government First Grade College, Shahapur, Yadgir, India

[4]Shree Sangam Vidya Mandir, Kalburagi, India

MATERIALS SCIENCE

Chair *Dr. Maksym Barabashko*

13:12-13:25 **Thermal behaviour and evaluation of individual kinetic analysis approaches in the Al_2O_3-Yb_2O_3-Er_2O_3 glass systems**

L. Šedivá[1,2], K. Faturíková[3], B. Pecušová[3], P. Švančárek[2], J. Valúchová[2], A. Prnová[2], D. Galusek[2,3]

[1]Faculty of Chemical and Food Technology STU, Bratislava. Slovakia

[2]Joint Glass Centre of the IIC SAS, TnUAD, and FCHPT STU, Trenčín. Slovakia

[3]Alexander Dubček University of Trenčín, Trenčín. Slovakia

13:25-14:00 **BREAK**

PLENARY LECTURES OF INVITED SPEAKERS

Chairs *Dr. Sergii Poperezhai, Dr. Yuliya Savina*

14:00-14:30 **Optical coherence tomography versus scanning electron microscopy for investigations of metallic fractures**
G. Hutiu[1], V.-F. Duma[2], D. Demian[1], A. Bradu[3], A. Podoleanu[3]
[1]Aurel Vlaicu" University of Arad, Arad, Romania
[2]Polytechnic University of Timisoara, Timisoara, Romania
[3]School of Physical Sciences, University of Kent, Canterbury, UK

14:30-15:00 **THz-driven nonlinear magnetization dynamics and the magnetic Jahn-Teller effect in rare-earth orthoferrites with Kramers and non-Kramers ions**
N. R. Vovk[1], O. Y. Kovalenko[2], E. V. Ezerskaya[3], R. V. Mikhaylovskiy[2]
[1]James Watt School of Engineering, University of Glasgow, Glasgow, UK
[2]Lancaster University, Bailrigg, Lancaster, United Kingdom
[3]V.N.Karazin Kharkiv National University, Kharkiv, Ukraine

MAGNETISM AND MAGNETIC MATERIALS

Chairs *Dr. Sergii Poperezhai, Dr. Yuliya Savina*

15:00-15:12 **Comprehensive Law of approach to saturation for the determination of magnetic anisotropy in Co/SiO2 granular films**
O. E. Baibara[1], Y. A. Stelmakh[2], L. A. Krushinskaya[2], A. I. Ievtushenko[1]
[1]Frantsevich Institute for Problems in Materials Science, NAS of Ukraine, Kyiv, Ukraine
[2]E.O.Paton Electric Welding Institute, NAS of Ukraine, Kyiv, Ukraine

15:12-15:24 **Electric-field control of spin-wave propagation: the Aharonov-Casher effect**
O. O. Boliasova[1,2], V. N. Krivoruchko[3]
[1]Kyiv Academic University, Kyiv, Ukraine
[2]G.V.Kurdyumov Institute for Metal Physics of NASU, Kyiv, Ukraine
[3]O.O.Galkin Donetsk Institute for Physics and Engineering of NASU, Kyiv, Ukraine

15:24-15:36 **Eigenoscillations of the topological spin texture in an antiferromagnet with the Dzyaloshinskii–Moriya interaction**
V. S. Gerasimchuk[1], I. V. Gerasimchuk[1,2]
[1]National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Kyiv, Ukraine
[2]V.G.Baryakhtar Institute of Magnetism of the NASU, Kyiv, Ukraine

15:36-15:48 **Ab initio calculations of altermagnetic materials**
O. Hrechykha, O. Feia
Kyiv Academic University, Kyiv, Ukraine

15:48-16:00 **From a quasi-2D isotropic square-lattice ferromagnet to ferromagnetic chains: refined spin Hamiltonian of Cu(*en*)(*sal*)Cl**
I. Kozin[1], R. Tarasenko[1], J. Šebesta[2], D. Legut[2, 3], J. Strečka[1], E. Čižmár[1], A. Orendáčová[1], V. Tkáč[1], and M. Orendáč[1]
[1]Institute of Physics, P.J. Šafárik University in Košice, Košice, Slovakia
[2]IT4Innovations, VŠB-Technical University of Ostrava, Ostrava-Poruba, Czech Republic
[3]Charles University, Prague, Czech Republic

16:00-16:12 **Magnetic-field-driven release of strain in FeRh films**
I. Lukiienko[1,2], V. Uhlíř[1]
[1]Central European Institute of Technology, Brno, Czechia
[2]B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

16:12-16:24 **Impact of ferroelastic phase transition on magnetic susceptibility of ferromagnet and magnetocaloric effect**
V. A. L'vov[1], A. Kosogor[1,2]
[1]*V.G.Baryakhtar Institute of Magnetism of the NASU, Kyiv, Ukraine*
[2]*University of Vienna, Faculty of Physics, Vienna, Austria*

16:24-16:36 **Propagation of spin excitations along domain walls in d-wave altermagnets**
O. Peschanska[1], V. Kravchuk[1,2]
[1]*Bogolyubov Institute for Theoretical Physics of NASU, Kyiv, Ukraine*
[2]*Leibniz Institute for Solid State and Materials Research, Dresden, Germany*

16:36-16:50 **Rotational symmetry in s = 1/2 dimers and tetramers with non-collinear local ion axes**
O. V. Zhuravlev
O.O.Galkin Donetsk Institute for Physics and Engineering of NASU, Kyiv, Ukraine

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

17:30-19:10 **POSTER SESSION (6, 7, 8, AND 9 SECTIONS)**

Chairs *Dr. Diana Hurova, Dr. Oleksii Konotop*

17:30-18:20 **Stage 1 (P79-P112)**

18:20-19:10 **Stage 2 (P113-P145)**

List of poster participants you can see at the end of the document.

WEDNESDAY, 3rd of JUNE

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Nikita Kurnosov*

10:00-10:30 **Biophysical processes in the Universe as viewed by mass spectrometry**
M. V. Kosevich
B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

10:30-11:00 **CARS, SHG, Raman spectroscopy and imaging for analysis of biological molecules and cells**
G. I. Dovbeshko[1], A. Dementjev[2], O. P. Gnatyuk[1]
[1]*Institute of Physics, NAS of Ukraine, Kyiv, Ukraine*
[2]*Center for Physical Sciences and Technology, Vilnius, Lithuania*

BIOPHYSICS AND PHYSICS OF MACROMOLECULES

Chair *Dr. Nikita Kurnosov*

11:00-11:12 **Enzyme adsorption on single-walled carbon nanotubes: Raman spectroscopy analysis**
A. Glamazda and V. Karachevtsev
B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

11:12-11:24 **Quantitative assessment of tryptophan content in the blood plasma of oropharyngeal cancer patients after COVID-19**

I. Gnatyuk[1], D. Doni[2], S. Verevka[2], A. Tarasenko[3], O. Gnatyuk[1], T. Isokov[1], G. Dovbeshko[1]

[1]Institute of Physics, NAS of Ukraine, Kyiv, Ukraine
[2]O.S.Kolomiychenko Institute of Otolaryngology, NAMS of Ukraine, Kyiv, Ukraine
[3]A.V.Palladin Institute of Biochemistry, NAS of Ukraine, Kyiv, Ukraine

11:24-11:36 **Machine learning–based conformational sampling does not improve rigid protein–protein docking performance**

I. Koleiev[1,2], T. Voitsitskyi[1,2], I. Savchenko[1,2], S. Starosyla[2], S. Yesylevskyy[1,2]

[1]Institute of Physics, NAS of Ukraine, Kyiv, Ukraine
[2]Receptor.AI Inc., London, United Kingdom

11:36-11:48 **Composite film of N-doped reduced graphene oxide with MoS_2: spectroscopy characterization and analysis of low-temperature electron transport**

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

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

11:48-12:00 **Correlative nanoscale imaging of adherent Lewis lung carcinoma cells**

G. Monastyrskyi[1], O. Gnatyuk[1], M. Olenchuk[1], D. Kolesnik[2], A. Boisen[3], Z. Zhang[3], S. Karakhim[4], G. Solyanik[2], G. Dovbeshko[1]

[1]Institute of Physics, NAS of Ukraine, Kyiv, Ukraine
[2]R.E.Kavetsky Institute of Experimental Pathology, Oncology and Radiobiology of the NAS of Ukraine, Kyiv, Ukraine
[3]Technical University of Denmark, Lyngby, Denmark
[4]O.V.Palladin Institute of Biochemistry of the NAS of Ukraine, Kyiv, Ukraine

12:00-12:15 **Protein-ligand molecular docking with unbound protein conformations using machine learning**

T. Voitsitskyi[1,2], I. Koleiev[1,2], I. Savchenko[1,2], S. Starosyla[2], S. Yesylevskyy[1,2]

[1]Institute of Physics, NAS of Ukraine, Kyiv, Ukraine
[2]Receptor.AI Inc., London, United Kingdom

12:15-13:20 **BREAK**

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Oleksii Konotop*

13:20-13:50 **^{4}He and ^{3}He – ^{4}He mixture films studied by neutron reflectometry**

O. Kirichek[1], A. T. Jones[1], C. J. Kinane[1], C. R. Lawson[1], S. Langridge[1], and P. V. E. McClintock[2]

[1]ISIS Neutron and Muon Source, Rutherford Appleton Laboratory, Harwell Science and Innovation Campus, Oxon, UK
[2]Department of Physics, Lancaster University, Lancaster, UK

QUANTUM LIQUIDS AND QUANTUM CRYSTALS, CRYOCRYSTALS

Chair *Dr. Oleksii Konotop*

13:50-14:02 **Photon-driven relaxation in cryogenic solids and the role of charged particles**

E. V. Savchenko, I. V. Khyzhniy, M. A. Bludov, S. A. Uyutnov

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

14:02-14:14 **Molecular-shape control of Boson-peak-like heat-capacity anomalies in polycyclic aromatic hydrocarbon crystals**
V. Sokolenko[1], D. Szewczyk[1], A. I. Krivchikov[1,2], A. Jeżowski[1]
[1]Institute of Low Temperatures and Structure Research of PAS, Wroclaw, Poland
[2]B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

14:14-14:26 **Low-temperature heat capacity scaling patterns in cryocrystals**
M. Barabashko[1], A. Jeżowski[2], A. Krivchikov[1,2]
[1]B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine
[2]Institute of Low Temperatures and Structure Research of PAS, Wroclaw, Poland

14:26-14:38 **Rotation of chains of vortices and dipoles in circular cylinders**
T. I. Zueva
B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

14:38-14:50 **Condensed-state rearrangements in N_2O-CO_2 alloys according to THEED data**
O. P. Konotop, A. A. Solodovnik
B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

14:50-15:02 **Persistent current oscillation in double-ring quantum gas**
A. A. Chaika[1], A. O. Oliinyk[1], I. V. Yatsuta[2], Y. O. Nikolaieva[1], M. Edwards[3], N. P. Proukakis[4], T. Bland[5], A. I. Yakimenko[1,6]
[1]Taras Shevchenko National University of Kyiv, Kyiv, Ukraine
[2]Weizmann Institute of Science, Rehovot, Israel
[3]Georgia Southern University, Statesboro, Georgia, USA
[4]Newcastle University, Newcastle upon Tyne, United Kingdom
[5]LTH, Lund University, Lund, Sweden
[6]Universit´a di Padova, Padova, Italy

15:02-15:15 **Optimization of phonon transmission through the interface between superfluid ^{4}He and bilayer solid structures**
J. Amrit[1], V. Luzik[2], K. Niemchenko[2], Ye. Niemchenko[2], T. Vikhtynska[2]
[1]LISN, Université Paris-Saclay, CNRS, Orsay, France
[2]V.N.Karazin Kharkiv National University, Kharkiv, Ukraine

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

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Diana Hurova*

16:00-16:20 **On the 125th anniversary of the birth of Lev V. Shubnikov**
Yu. G. Naidyuk
B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

WORKSHOP: OPPORTUNITIES AND TECHNOLOGIES FOR RESEARCHERS

Chair *Dr. Diana Hurova*

16:20-17:20 **Modern scientific computing and data visualisation in Python**
P. Jaeger
Pexon Consulting GmbH, Munich, Germany

THURSDAY, 4th of JUNE

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Yevhen Petrenko*

10:00-10:30 **Formation of bio-oligomers in space through low-temperature radiation chemistry**

(00:00 UTC-7) D. V. Mifsud[1,2,3], A. T. Hopkinson[4], P. Herczku[3], R. Rácz[3], A. M. Wilson[4], J. Pitfield[4], A. Traspas Muiña[5], G. Lakatos[3,6], B. Sulik[3], Z. Juhász[3], S. Biri[3], R. W. McCullough[7], N. J. Mason[3,8], C. Scavenius[4], L. Hornekær[4], S. Ioppolo[4]

[1]NASA Ames Research Center, Moffett Field CA, United States
[2]Bay Area Environmental Research Institute, Moffett Field CA, United States
[3]HUN-REN Institute for Nuclear Research (ATOMKI), Debrecen, Hungary
[4]University of Aarhus, Aarhus DK, Denmark
[5]Queen Mary University of London, London, United Kingdom
[6]University of Debrecen, Debrecen, Hungary
[7]Queen's University Belfast, Belfast, United Kingdom
[8]University of Kent, Canterbury, United Kingdom

10:30-11:00 **Applied aspects of pulsed and continuous wave laser microstructuring of materials for sensors and optoelectronics**

P. Lytvyn, A. Korchovyii, A. Rusavsky, A. Vasin, S. Serhiichuk, I. Minailova, K. Svezhentsova, V. Dzhagan

V.Ye.Lashkaryov Institute of Semiconductor Physics, NAS of Ukraine, Kyiv, Ukraine

MATERIALS SCIENCE

Chair *Dr. Yevhen Petrenko*

11:00-11:12 **Crystallization of amorphous films of ytterbium oxide sulfide at thermal and electron beam influence**

A. G. Bagmut

National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine

11:12-11:24 **UVC up-conversion and vis-luminescence of $CaF_2:Pr^{3+}$ crystallites**

O. Bezkrovna[1,2], R. Lisiecki[1], P.J. Dereń[1]

[1]Institute of Low Temperatures and Structure Research of PAS, Wroclaw, Poland
[2]Institute for Single Crystals of NAS of Ukraine, Kharkiv, Ukraine

11:24-11:36 **Quantum tunneling and above-barrier reflection of high-energy positively charged particles in oriented crystals**

M. V. Bondarenco[1,2]

[1]National Science Center "Kharkiv Institute of Physics and Technology" of NASU, Kharkiv, Ukraine
[2]V.N.Karazin Kharkov National University, Kharkiv, Ukraine

11:36-11:48 **DFT investigation of native and carbon defects in oxides grown under a CO atmosphere: a case study of YAG**

K. V. Hermash[1], D. V. Fil[1,2]

[1]Institute for Single Crystals of NAS of Ukraine, Kharkiv, Ukraine
[2]V.N.Karazin Kharkov National University, Kharkiv, Ukraine

11:48-12:00 **Crystal growth and properties of co-doped (Cr, Co, Fe):ZnSe**

O. K. Kapustnyk, S. V. Naydenov, O. K. Kosteniukova, D. S. Sofronov, and I. M. Pritula

Institute for Single Crystals of NAS of Ukraine, Kharkiv, Ukraine

12:00-12:12 **Low-temperature ultrasonic studies of $CoCrFeMnNiV_{0.85}$ high-entropy alloy in different structural states**

V. S. Klochko, A. V. Korniiets, V. I. Sokolenko, I. V. Kolodiy, O. O. Kondratov, I. F. Kislyak, Yu. S. Lypovska, T. M. Tykhonovska

National Science Center "Kharkiv Institute of Physics and Technology" of NASU, Kharkiv, Ukraine

12:12-12:24 **Effect of iodine pentoxide evaporation on the synthesis and superconducting properties of Tl-1223**

I. R. Metskhvarishvili[1,2], M. 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]

[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 of the Ivane Javakhishvili Tbilisi State University, Tbilisi, Georgia
[6]"Talga" Institute of Georgian Technical University, Tbilisi, Georgia

12:24-12:36 **Intrinsic and radiation defects in ZrO_2 powders**

V. V. Nosenko, I. P. Vorona, T. L. Petrenko, L. Yu. Khomenkova

V.Ye.Lashkaryov Institute of Semiconductor Physics, NAS of Ukraine, Kyiv, Ukraine

12:36-12:48 **DFT study of point defects in Y_2O_3 doped with fluorine**

D. O. Puhachev[1] and D. V. Fil[1,2]

[1]Institute for Single Crystals of NAS of Ukraine, Kharkiv, Ukraine
[2]V.N.Karazin Kharkov National University, Kharkiv, Ukraine

12:48-13:00 **Implementation of a methodology for crystal structure prediction using genetic algorithms integrated into the Python ASE library**

B. Y. Semeniuk, O. D. Feia

Kyiv Academic University, Kyiv, Ukraine

13:00-13:12 **Formation and characterization of TBCCO superconductor coated lanthanum aluminate films via organometalic routes**

A. D. Tchankvetadze[1,2], T. E. Lobzhanidze[2], M. Menelaou[3], I. R. Metskhvarishvili[1,4], D. L. Surmanidze[2], V. M. Gabunia[1,5], G. N. Dgebuadze[1], B. G. Bendeliani[1]

[1]Ilia Vekua Sukhumi Institute of Physics and Technology, Tbilisi, Georgia
[4]Ivane Javakhishvili Tbilisi State University, Tbilisi, Georgia
[3]Cyprus University of Technology, Limassol, Cyprus
[4]Georgian Technical University, Tbilisi, Georgia
[5]Petre Melikishvili Institute of Physical and Organic Chemistry of the Ivane Javakhishvili Tbilisi State University, Tbilisi, Georgia

13:12-13:25 **Effect of pressure on electrical resistivity of tin films**

S. L. Udachan[1], S. B. Kolavekar[1], N. H. Ayachit[1], L. A. Udachan[2], S. S. Kolkundi[3], S. Ramya[4], S. Veeresh[4]

[1]School of Advanced Sciences, KLE Technological University, Hubballi, India
[2]S.S.Tegnoor Degree College, Kalaburagi, India
[3]Government First Grade College, Shahapur, Yadgir, India
[4]Shree Sangam Vidya Mandir, Kalaburagi, India

13:25-14:30 **BREAK**

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Denys Laptiev*

14:30-15:00 **Superconducting quantum & classical thermoelectricity**
A. Braggio
CNR-NANO & NEST, Scuola Normale Superiore Pisa, Pisa, Italy

THEORY OF CONDENSED MATTER PHYSICS

Chair *Dr. Denys Laptiev*

15:00-15:12 **Polaron dynamics in external magnetic field**
L. S. Brizhik[1], B. M. A. G. Piette[2]
[1]Bogolyubov Institute for Theoretical Physics of NASU, Kyiv, Ukraine
[2]University of Durham, Durham, UK

15:12-15:24 **The Lindblad equation in different bases: application to two- and multilevel systems**
O. A. Ilinskaya[1], O. V. Ivakhnenko[1,2], A. I. Ryzhov[1], S. N. Shevchenko[1,3]
[1]B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine
[2]RIKEN Center for Quantum Computing (RQC), Wakoshi, Saitama, Japan
[3]Kyiv School of Economics, Kyiv, Ukraine

15:24-15:36 **Fast GPU-based quantum interferometry solver**
O. V. Ivakhnenko[1,2], S. N. Shevchenko[1,3], and F. Nori[2,4]
[1]B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine
[2]RIKEN Center for Quantum Computing (RQC), Wakoshi, Saitama, Japan
[3]Kyiv School of Economics, Kyiv, Ukraine
[4]University of Michigan, Ann Arbor, MI, USA

15:36-15:48 **Hydrodynamics of polarons in semiconductors**
S. O. Sokolovsky[1,2], A. I. Sokolovsky[3]
[1]Dnipro polylingual lyceum №23 of Dnipro city council, Dnipro, Ukraine
[2]Dnipro Academy of Continuing Education, Dnipro, Ukraine
[3]Oles Honchar Dnipro National University, Dnipro, Ukraine

15:48-16:00 **Comprehensive investigation of the structural, mechanical, electronic, phonon, thermodynamic and hydrogen storage properties of the hydride perovskite Mg_2IrH_6**
C. Aksu[1], N. Arikan[1], A. İyigör[2] and E. Tel[1]
[1]Osmaniye Korkut Ata University, Osmaniye, Türkiye
[2]Kırşehir Ahi Evran University, Kırşehir, Türkiye

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

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Denys Laptiev*

16:30-17:00 **Soft point-contact spectroscopy of PdTe at ultralow temperatures**
(09:30 UTC-4) S. Lee[1], D. Duong[2], A. M. Donald[1], S. Hauang[2], R. Gazizulin[1], M. W. Meisel[1], and R. Jin[2]
[1]Department of Physics and MagLab High B/T Facility, University of Florida, Gainesville, FL, USA
[2]SmartState Center for Experimental Nanoscale Physics, University of South Carolina, Columbia, USA

Chair *Dr. Denys Laptiev*

17:00-17:12 **Algorithm for unitary evolution of quantum systems with tridiagonal Hamiltonians**

D. Bondar[1], R. T. Ovsiannikov[2], K. Jacobs[3, 4], A. G. Sotnikov[2]
[1]*Tulane University, New Orleans, Louisiana, United States*
[2]*National Science Center "Kharkiv Institute of Physics and Technology" of NASU, Kharkiv, Ukraine*
[3]*United States Army Research Laboratory, Adelphi, Maryland, USA*
[4]*University of Massachusetts at Boston, Boston, Massachusetts, USA*

17:12-17:24 **Heisenberg model on the face-centered cubic lattice: iPEPS study**

I. V. Lukin[1,2], A. G. Sotnikov[2,3]
[1]*Haiqu, Inc., San Francisco, California, United States*
[2]*Akhiezer Institute for Theoretical Physics, NSC KIPT, Kharkiv, Ukraine*
[3]*V.N.Karazin Kharkiv National University, Kharkiv, Ukraine*

17:24-17:36 **Tensor network study of quasi-one-dimensional Hubbard models**

O. R. Hryniv[1,2], I. V. Lukin[1,2], A. G. Sotnikov[2,3]
[1]*Haiqu, Inc., San Francisco, California, United States*
[2]*Akhiezer Institute for Theoretical Physics, NSC KIPT, Kharkiv, Ukraine*
[3]*V.N.Karazin Kharkiv National University, Kharkiv, Ukraine*

17:36-17:48 **Spin-dependent atomtronic current induced by 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, NSC KIPT, Kharkiv, Ukraine*

17:48-18:00 **Inhomogeneous equilibrium structures in s=3/2 magnets under spontaneously broken SO(3)×U(1) symmetry**

M. Yu. Kovalevsky, M. G. Shatnev
National Science Center "Kharkiv Institute of Physics and Technology" of NASU, Kharkiv, Ukraine

FRIDAY, 5th of JUNE

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Denys Laptiev*

10:00-10:30 **Fractional charges and conductances in the strongly interacting wires**
V. Kagalovsky
Shamoon College of Engineering, Beer-Sheva, Israel

THEORY OF CONDENSED MATTER PHYSICS

Chair *Dr. Denys Laptiev*

10:30-10:42 **Statistical ensembles for non-Boltzmann-Gibbs distributions of Ising-Markov sequences**
O. V. Usatenko[1,2]
[1]*O.Ya.Usikov Institute for Radiophysics and Electronics of NASU, Kharkiv, Ukraine*
[2]*Center for Theoretical Physics, Polish Academy of Sciences, Warsaw, Poland*

10:42-10:54 **Resonant transmission of nonlinear terahertz waves through layered superconductors**
T. Rokhmanova[1], Z. Maizelis[1,2], V. Yampol'skii[2]
[1]*O.Ya.Usikov Institute for Radiophysics and Electronics of NASU, Kharkiv, Ukraine*
[2]*V.N.Karazin Kharkiv National University, Kharkiv, Ukraine*

10:54-11:06 **Impact of frequency noise statistics on measurement-assisted entanglement**
A. O. Guzenko[1], O. M. Konovalenko[1] and Z. A. Maizelis[1,2]
[1]*O.Ya.Usikov Institute for Radiophysics and Electronics of NASU, Kharkiv, Ukraine*
[2]*V.N.Karazin Kharkiv National University, Kharkiv, Ukraine*

11:06-11:18 **Sensitivity of two qubit Werner state entanglement preservation to decoherence parameters in measurement based protocol**
O. Konovalenko[1], Z. Maizelis[1,2]
[1]*O.Ya.Usikov Institute for Radiophysics and Electronics of NASU, Kharkiv, Ukraine*
[2]*V.N.Karazin Kharkiv National University, Kharkiv, Ukraine*

11:18-11:30 **Exceptional-point control of reset-induced quantum Zeno and anti-Zeno transport**
J. Kumar
Aalto University, Aalto, Espoo, Finland

11:30-11:42 **First-principles investigation of Mg_3XH_4 (X = Sc, Ti) hydrides: structural, electronic, elastic, thermodynamic, and hydrogen storage properties**
C. Aksu[1], N. Arikan[1], A. İyigör[2] and E. Tel[1]
[1]*Osmaniye Korkut Ata University, Osmaniye, Türkiye*
[2]*Kırşehir Ahi Evran University, Kırşehir, Türkiye*

11:42-11:54 **Predicting magnetic properties of one-dimensional Ising systems with arbitrary lattice geometry**
O. O. Kryvchikov, D. V. Laptiev
B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

11:54-12:06 **Zero-temperature phase diagrams and thermodynamic properties of the armchair-type and zigzag-type decorated honeycomb Ising spin chains**
D. V. Laptiev, O. O. Kryvchikov
B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

12:06-12:18 **Influence of magnetic quantization and exchange interaction on the seebeck coefficient in diluted magnetic semiconductor superlattices**
M. M. Mahmudov, R. Y. Damirov
Baku State University, Baku, Azerbaijan

12:18-12:30 **Current-Voltage & Current ? Phase of superconducting order parameter scattering matrix for semiconducting & superconducting structures**
K. Pomorski[1,2], D. Khadka[1], M. Osinski[1]
[1]University of New Mexico, Center for High Technology Materials, Albuquerque, USA
[2]Quantum Hardware Systems, Lodz, Poland

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Diana Hurova*

13:30-14:00 **A high-temperature limit penalizing high-frequency quantum fluctuations**
E. Aurell
KTH Royal Institute of Technology, Stockholm, Sweden

14:00-14:30 **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

MONDAY, 1st of JUNE 16:30-18:10

LIST OF POSTER SESSION I (1, 2, 3, 4, AND 5 SECTIONS)

16:30-17:20 Stage 1 (P1-P39)

17:20-18:10 Stage 2 (P40-P78)

ELECTRONIC PROPERTIES OF CONDUCTING AND SUPERCONDUCTING SYSTEMS

P1 **Study of structural, mechanical and electronic properties of the 2H-$NbSe_2$ alloy using density functional theory approach**
I. S. Bondar[1], V. A. Sirenko[1], K. A. Minakova[2]
[1]B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine
[2]National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine

P2 **Spin Hall effect in aluminum and platinum**
Yu. N. Chiang (Tszyan), M. O. Dzyuba
B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

P3 **Violation of the Wiedemann-Franz law in $Al_{0.5}$CoCuCrNiFe high entropy alloy and its correlation with thermopower anomaly**
V. A. Frolov, N. A. Azarenkov, E. V. Karaseva, A. V. Korniiets, V. I. Sokolenko, V. S. Okovit
National Science Center "Kharkiv Institute of Physics and Technology", Kharkiv, Ukraine

P4 **Microwave response of MoSi-based superconducting resonator under infrared excitation**
O. A. Kalenyuk[1,2], S. I. Futimsky[1,2], A. P. Shapovalov[1,2], O. O. Leha[3], V. Yu. Lyakhno[1,3], O. V. Zraichenko[3]
[1]G.V.Kurdyumov Institute for Metal Physics of NASU, Kyiv, Ukraine
[2]Kyiv Academic University, Kyiv, Ukraine
[3]B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

P5 **Deviations from variable-range hopping transport in LSCO**
E. Beliayev[1], I. Mirzoiev[1], V. Horielyi[1], A. Terekhov[1], V. Andrievskii[1], I. Chichibaba[2]
[1]B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine
[2]National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine

P6 **Quantum-mechanical analysis of electron transport in a cylindrical crossed-field vacuum diode with a periodic boundary potential**
D. V. Kadygrob
O.Ya.Usikov Institute for Radiophysics and Electronics of NASU, Kharkiv, Ukraine

P7 **Distinguishing transport characteristics of ferromagnetic metal–magnetic quantum dot–superconductor (F-mQD-SC) nanoscale structures**
E. A. Koshina, V. N. Krivoruchko
O.O.Galkin Donetsk Institute for Physics and Engineering of NASU, Kyiv, Ukraine

P8 **Features of determining the superconducting properties of single-crystal FeSe using EPR-spectrometer**
S. I. Bondarenko[1], A. A. Prokhorov[2], N. N. Galtsov[1], V. P. Timofeev[1], V. P. Koverya[1], A. V. Krevsun[1]
[1]B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine
[2]Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic

P9 **Structure and properties of the boundary between graphene-like and Lieb lattices**

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

P10 **Dissipative Landau-Zener-Stückelberg-Majorana gates**

B. A. Kushnarov[1,2], A. I. Ryzhov[2], O. V. Ivakhnenko[2,3], S. N. Shevchenko[2,4]
[1]*V.N.Karazin Kharkiv National University, Kharkiv, Ukraine*
[2]*B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine*
[3]*Center for Quantum Computing, RIKEN, Saitama, Japan*
[4]*Department of Mathematics, Kyiv School of Economics, Kyiv, Ukraine*

P11 **Point-contact exploration of the superconducting state in Te-doped $PtBi_2$**

O. E. Kvitnitskaya[1,2], S. Ash[2], Yu. G. Naidyuk[1], B. Büchner[2,3]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine*
[2]*Leibniz Institute for Solid State and Materials Research, Dresden, Germany*
[3]*Würzburg-Dresden Cluster of Excellence ct.qmat, Dresden, Germany*

P12 **Manifestation of the superconducting proximity effect in superconductor–magnet contacts**

I. Martynenko[1,2], O. Kalenyuk[1,2], V. Tarenkov[1,3], A. Shapovalov[1,2]
[1]*G.V.Kurdyumov Institute for Metal Physics of NASU, Kyiv, Ukraine*
[2]*Kyiv Academic University, Kyiv, Ukraine*
[3]*O.O.Galkin Donetsk Institute for Physics and Engineering of NASU, Kyiv, Ukraine*

P13 **The influence of hysteresis absorption locality in a microwave nonlinear HTS transmission line on its properties**

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

P14 **Phenomenological model of the influence of Majorana states in the vortex structure of a nonconventional superconductor film on the microwave absorption features**

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

P15 **Hydrostatic pressure effect on the pseudogap in slightly doped $Y_{0.66}Pr_{0.34}Ba_2Cu_3O_{7-\delta}$ single crystals**

Ye. V. Petrenko[1,2,3,4], L. V. Bludova[1], A. S. Kolisnyk[1], M. V. Shytov[1], A. Sedda[5], E. Lähderanta[5], R. V. Vovk[4], A. L. Solovjov[1,5,6]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine*
[2]*Centre of Low Temperature Physics, Institute of Experimental Physics, Košice, Slovakia*
[3]*Centre of Low Temperature Physics, Faculty of Science, P. J. Šafárik University, Košice, Slovakia*
[4] *V.N.Karazin Kharkiv National University, Kharkiv, Ukraine*
[5]*LUT University, Lappeenranta, Finland*
[6]*Institute of Low Temperatures and Structure Research of PAS, Wroclaw, Poland*

P16 **Phase slip processes in $Bi_2Sr_2CaCu_2O_8$ single crystals**

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

MAGNETISM AND MAGNETIC MATERIALS

P17 **The study of piezomagnetism in MnF_2 single crystals**

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 of NASU, Kharkiv, Ukraine*
[2]*Institute for Single Crystals, NAS of Ukraine, Kharkiv, 61072, Ukraine*
[3]*V.N.Karazin Kharkiv National University, Kharkiv, Ukraine*

P18 **Magnetic properties of $EuCr_3(BO_3)_4$**

O. Bludov[1], Yu. Savina[1], I. Lukiienko[1,2], V. Pashchenko[1], M. Kobets[1], O. Zaremba[3], Yu. Tyvanchuk[3]

[1]B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine
[2]Central European Institute of Technology, Brno University of Technology, Brno, Czechia
[3]Ivan Franko National University of Lviv, Lviv, Ukraine

P19 **Ferromagnetic nanoparticles as a perspective tool for the investigations and the therapy of the oncological diseases**

P. M. Boltovets[1], B. A. Snopok[1], V. V. Bondar[2], V. F. Chekhun[2]

[1]V.Ye.Lashkaryov Institute of Semiconductor Physics, NAS of Ukraine, Kyiv, Ukraine
[2]R.E.Kavetsky Institute of Experimental Pathology, NAS of Ukraine, Kyiv, Ukraine

P20 **Magneto-dynamic response of YIG ceramics: influence of secondary phases**

V. Borynskyi[1], D. Popadiuk[2], A. Kravets[2], S. Solopan[3], A. Belous[3], V. Korenivski[2], A. Tovstolytkin[1]

[1]V.G.Baryakhtar Institute of Magnetism of the NASU, Kyiv, Ukraine
[2]Royal Institute of Technology, Stockholm, Sweden
[3]V.I.Vernadsky Institute of General and Inorganic Chemistry of the NASU, Kyiv, Ukraine

P21 **Low-temperature magnetism of Co-Al-based LDH**

A. V. Fedorchenko[1], E. L. Fertman[1], I. P. Kobzar[1], Yu. G. Pashkevich[2,3], V. Tkáč[4], R. Tarasenko[4], E. Čižmár[4], A. Feher[4], M. Holub[5], C. S. Neves[6], D. E. L. Vieira[6], A. N. Salak[6]

[1]B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine
[2]O.O.Galkin Donetsk Institute for Physics and Engineering of NASU, Kyiv, Ukraine
[3]Fribourg Center for Nanomaterials, University of Fribourg, Fribourg, Switzerland
[4]Institute of Physics, P.J. Šafárik University in Košice, Košice, Slovakia
[5]AGH University of Krakow, Krakow, Poland
[6]CICECO – Aveiro Institute of Materials, University of Aveiro, Aveiro, Portugal

P22 **Field-controlled thermal spin transport in rutile-type altermagnets**

Y. I. Gusieva[1, 2], K. V. Yershov[3,4], V. P. Kravchuk[3,4]

[1]G.V.Kurdyumov Institute for Metal Physics of NASU, Kyiv, Ukraine
[2]Kyiv Academic University, Kyiv, Ukraine
[3]Leibniz Institute for Solid State and Materials Research, Dresden, Germany
[4]Bogolyubov Institute for Theoretical Physics of the NASU, Kyiv, Ukraine

P23 **Direct and indirect estimates of magnetocaloric response in Fe-Mn-Ga alloys**

S. M. Konoplyuk[1], A. V. Kolomiets[2], E. Dzevin[3], V. E. Danilchenko[3]

[1]Institute of Magnetism of NASU and MESU, Kyiv, Ukraine
[2]Lviv Polytechnic National University, Lviv, Ukraine
[3]G.V.Kurdyumov Institute for Metal Physics of NASU, Kyiv, Ukraine

P24 **Magneto-controlled static and dynamic optical properties of ferro-nematic liquid molecular crystals**

A. M. Korostil

V.G.Baryakhtar Institute of Magnetism of the NASU, Kyiv, Ukraine

P25 **Equilibrium of kink-like torsional deformation of a magnetoactive elastomer in a magnetic field**

A. V Kyryliuk[1], Yu. I. Dzhezherya[1,2,3], S. V. Cherepov[1], Yu. B. Skirta[1], S. O. Reshetnyak[1,2], S. M. Ryabchenko[3], V. M. Kalita[1,2,3]

[1]V.G.Baryakhtar Institute of Magnetism of the NASU, Kyiv, Ukraine
[2]National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Kyiv, Ukraine
[3]Institute of Physics, NAS of Ukraine, Kyiv, Ukraine

P26 **Residual magnetization of magnetic field-induced bending deformation of a magnetically active elastomer beam**

A. V. Kyryliuk[2], V. M. Kalita[1,2,3], Yu. I. Dzhezherya[2,3], S. V. Cherepov[2], Yu. B. Skirta[2], S. O. Reshetnyak[3], A. V. Bodnaruk[1], S. M. Ryabchenko[1]

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[2]Institute of Magnetism of NASU and MESU, Kyiv, Ukraine
[3]National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Kyiv, Ukraine

P27 **Ab initio study of the electronic structure of orthorhombic iron selenide**

A. A. Lyogenkaya, A. S. Panfilov, I. P. Kobzar, A. V. Logosha, G. E. Grechnev, A. V. Fedorchenko

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

P28 **Temperature changes of magnetic states in Co-doped YIG films probed by magnetic circular dichroism hysteresis loops**

M. F. Kharchenko, Yu. M. Kharchenko, O. V. Myloslavska

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

P29 **Magnetic fields induced structural modification in magnetoelastic $KEr(MoO_4)_2$**

V. Khrustalyov[1], K. Kutko[1], N. Nesterenko[1], D. Kamenskyi[2,3]

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[2]Institute of Optical Sensor Systems, German Aerospace Center (DLR), Berlin, Germany
[3]Humboldt-Universität zu Berlin, Berlin, Germany

P30 **Anomalous Hall effect in graphite intercalation compounds with cobalt**

I. Ovsiienko[1], T. Len[1], L. Matzui[1], Yu. Prylutskyy[2], I. Mirzoiev[3], P. Lishchuk[1]

[1,2]Taras Shevchenko National University of Kyiv, Kyiv, Ukraine
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P31 **Raman spectroscopy studies of the $HoFe_3(BO_3)_4$ single crystal**

A. V. Peschanskii[1], A. Yu. Glamazda[1,2], V. P. Gnezdilov[1]

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

P32 **Low temperature optical absorption spectra of $Nd_{0.75}Dy_{0.25}Fe_3(BO_3)_4$ ferroborate**

V. G. Piryatinskaya, I. S. Kachur

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

P33 **Low-temperature magnetometry and EPR studies of $Ca_3Y_2(BO_3)_4$:Nd (0.75 wt.%) single crystal**

S. N. Poperezhai[1], D. N. Merenkov[1], V. A. Bedarev[1], A. N. Shekhovtsov[2], M. B. Kosmyna[2], A. A. Prokhorov[3], A. Sedda[4], E. Lähderanta[4]

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[3]Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic
[4]Lappeenranta-Lahti University of Technology, Lappeenranta, Finland

P34 **Low-temperature thermal properties of Dy-doped $Dy_xY_{1-x}(PO_3)_3$ 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]

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[3]University of Pardubice, Pardubice, Czech Republic

QUANTUM LIQUIDS AND QUANTUM CRYSTALS, CRYOCRYSTALS

P35 **Comprehensive analysis of low-temperature thermal conductivity of various epoxy resins and epoxy resin-based composites**
Yu. V. Horbatenko[1], A. I. Krivchikov[1], O. A. Korolyuk[1], V. V. Sagan[1], O. O. Romantsova[1,2]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine*
[2]*Institute of Low Temperatures and Structure Research of PAS, Wroclaw, Poland*

P36 **Thermal conductivity analysis of graphene-containing epoxy composites**
Yu. V. Horbatenko, V. V. Sagan, A. I. Krivchikov
B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

P37 **Comparative analysis of thermal conductivity of polymers under varying temperature and pressure** **1**
V. V. Sagan, V. A. Konstantinov
B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

P38 **Peculiarities of phase diagram for dense superfluid neutron matter with spin-triplet anisotropic pairing in superstrong magnetic fields**
A. N. Tarasov
A.I.Akhiezer Institute for Theoretical Physics, NSC "Kharkov Institute of Physics and Technology" of NASU, Kharkiv, Ukraine

P39 **The conductivity dip-effect of quasi-one-dimensional electrons over superfluid helium**
V. A. Nikolaenko, A. V. Smorodin, S. S. Sokolov
B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

OPTICS, PHOTONICS AND OPTICAL SPECTROSCOPY

P40 **An ordered composite based on dimers of metal nanoshells as a "left-handed" medium**
L. O. Abramenko[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 NASU, Kyiv, Ukraine*

P41 **Optical phenomena in a hybrid system based on a semiconductor quantum dot and prolate spheroidal metallic nanoparticle**
R. Yu. Korolkov, O. Yu. Berezhnyi
National University Zaporizhzhia Politechnic, Zaporizhzhia, Ukraine

P42 **Electromagnetic waves on the surface of a composite with spheroidal nanoshells**
N. I. Pavlyshche[1], A. V. Korotun[1,2], V. I. Reva[1], D. O. Chyslov[1], I. M. Titov[1]
[1]*National University Zaporizhzhia Politechnic, Zaporizhzhia, Ukraine*
[2]*G.V.Kurdyumov Institute for Metal Physics of NASU, Kyiv, Ukraine*

P43 **Multilayer cylindrical invisible cloaks with elliptical cross-section**
V. I. Reva[1], R. Yu. Korolkov[1], A. V. Korotun[1,2], R. V. Fliahin[1]
[1]*National University Zaporizhzhia Politechnic, Zaporizhzhia, Ukraine*
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P44 **Calculation of atomic structure of doubly ionized vanadium**
S. V. Gedeon, V. Yu. Lazur, V. I. Kazakov
Uzhhorod National University, Uzhhorod, Ukraine

P45 **Directivity analysis of microlaser with silver film and DBR reflectors**

S. S. Herasymov
The Institute of Radio Astronomy of NASU, Kharkiv, Ukraine

P46 **Plasmonic enhancement of photoemission in new-generation solar cells**

A. V. Korotun[1,2], S. I. Shylo[1], O. O. Kapliienko
[1]National University Zaporizhzhia Politechnic, Zaporizhzhia, Ukraine
[2]G.V.Kurdyumov Institute for Metal Physics of NASU, Kyiv, Ukraine

P47 **THz properties of rare earth double molybdate $KLu(MoO_4)_2$**

D. Kamenskyi[1,2,3], L. Prodan[3], K. Vasin[3], V. Khrustalyov[4], K. Kutko[4]
[1]Institute of Optical Sensor Systems, German Aerospace Center (DLR), Berlin, Germany
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[3]Center for Electronic Correlations and Magnetism, University of Augsburg, Augsburg, Germany
[4]B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

P48 **Enhancement of local electric fields in the gap between the metallic substrate and the scanning microscope probe**

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

P49 **Optical response of metallic nanotube with the variable thickness**

R. Yu. Korolkov[1], V. I. Reva[1], R. O. Malysh[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 NASU, Kyiv, Ukraine

P50 **Plasmonic phenomena in a chain of toroidal metal 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 of NASU, Kyiv, Ukraine

P51 **Characteristics of laser dye Nile red in a series of solvents**

V. V. Maslov[1], I. M. Pritula[2]
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[2]Institute for Single Crystals of NAS of Ukraine, Kharkiv, Ukraine

P52 **Features of exciton self-trapping in J-aggregates under exciton–plasmon interaction**

P. V. Pisklova[1], I. I. Bespalova[1], S. L. Yefimova[1], O. V. Sorokin[1], S. Wolter[2], J. Schröer[2], T. Korn[2], S. Lochbrunner[2]
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[2]Institute of Physics, University of Rostock, Rostock, Germany

P53 **Study of optical absorption of leukosapphire and ruby irradiated with electrons with an energy of 12.5 MeV**

O. M. Pop, V. T. Maslyuk, I. G. Megela, I. Yu. Roman
Institute of Electron Physics of the NAS of Ukraine, Uzhhorod, Ukraine

P54 **The effect of copper impurity on photochemical transformations in cadmium iodide**

M. M. Rudka
Lviv Polytechnic National University, Lviv, Ukraine

P55 **Absorption and scattering of light in a dimer of the "solid metallic nanocylinder–metallic nanotube" type**

V. I. Reva[1], A. V. Korotun[1,2], O. O. Shyrokopoias[1]
[1]National University Zaporizhzhia Politechnic, Zaporizhzhia, Ukraine
[2]G.V.Kurdyumov Institute for Metal Physics of NASU, Kyiv, Ukraine

P56 **Microwave two-photon threshold detector based on a Josephson photomultiplier**

E. V. Stolyarov[1], R. A. Baskov[2,3]
[1]Bogolyubov Institute for Theoretical Physics of NASU, Kyiv, Ukraine
[2]Department of Physics and Applied Physics, Yale University, New Haven, Connecticut, USA
[3]Yale Quantum Institute, New Haven, Connecticut, USA

P57 **Emission properties of low-temperature plasma based on a helium-methionine mixture**

E. A. Svitlichnyi
Institute of Electron Physics of NASU, Uzhhorod, Ukraine

P58 **Study of the properties of gas discharge plasma in mixtures of inert gases with tellurium vapor**

E. A. Svitlichnyi[1], V. Yu. Loya[1], A. K. Shuaibov[2], A. I. Minya[2], A. A. Malinina[2], R. V. Gritsak[2], A. N. Malinin[2], M. M. Pop[2], M. M. Feldii[2]
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[2]Uzhgorod National University, Uzhgorod, Ukraine

P59 **Transformation of photoluminescence and structure of C60 fullerite under the influence of nitrogen chemical and diffusion sorption**

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

NANOPHYSICS AND NANOTECHNOLOGIES

P60 **Impact of nanocomposite polymer film formulation on the corrosion resistance of cold-rolled steel surfaces**

M. V. Borysenko, B. M. Gorelov, L. I. Borysenko, V. L. Roshchenko
Chuiko Institute of Surface Chemistry of NASU, Kyiv,, Ukraine

P61 **Atomic ordering in M2X-type MXenes: statistical thermodynamics and kinetics**

A. V. Chystota, T. M. Radchenko, V. A. Tatarenko
G.V.Kurdyumov Institute for Metal Physics of NASU, Kyiv, Ukraine

P62 **Surface adsorption of eosin Y on carbonate-intercalated Mg_2Al layered double hydroxide**

E. Dukhopelnikov[1], K. Bereznyak[1], A. Laguta[2], N. Hladkovska[1], Iu. Blyzniuk[1], A. N. Salak[3] **Помилка! Закладку не визначено.**
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[2]V.N.Karazin Kharkiv National University, Kharkiv, Ukraine
[3]DEMaC-CICECO-Aveiro Institute of Materials, University of Aveiro, Aveiro, Portugal

P63 **Structure and morphology of thermally reduced graphene oxide under high temperatures**

D. E. Hurova[1], S. V. Cherednychenko[1], A. G. Bulova[1], A. Yu. Glamazda[1], T. J. Bednarchuk[2], A. I. Krivchikov[1], N. N. Galtsov[1]
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[2]Institute of Low Temperatures and Structure Research of PAS, Wroclaw, Poland

P64 **Features of voltage-driven magnetic anisotropy in tunnel junctions**

A. M. Korostil
V.G.Baryakhtar Institute of Magnetism of the NASU, Kyiv, Ukraine

P65 **Influence of nanoscale effects on the surface of sensors with Au–Ni nanoparticles**

I. Kruglenko, Ju. Burlachenko, S. Kravchenko, Ju. Kyyak, B. Snopok
V.Ye.Lashkaryov Institute of Semiconductor Physics, NAS of Ukraine, Kyiv, Ukraine

P66 **Terahertz metasurface sensor based on multi-walled carbon nanotube aggregates for protein detection**

K. S. Kuznetsova, Z. E. Eremenko
O.Ya.Usikov Institute for Radiophysics and Electronics of NASU, Kharkiv, Ukraine

P67 **Controlled pro-oxidant action of $(Gd,Y)VO_4:Eu^{3+}$ nanocrystals through delayed ROS generation**

O. Ivanov[1], P. Maksimchuk[1], V. Seminko[1], M. Lupan[1], G. Grygorova[1], O. Samoilov[1], A. Onishchenko[2], V. Klochkov[1], S. Yefimova[1]
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[2]Kharkiv National University of Radio Electronics, Kharkiv, Ukraine

P68 **Enhancement of electric fields in the gap between two metal nanoparticles. Dipole approximation**

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

P69 **Simultaneous turn-off and ratiometric detection of HP using redox-active $CeO_{2-x}:Eu^{3+}$ colloidal nanosensors**

Y. Neuhodov[1], P. Maksimchuk[1], A. Onishchenko[2], N. Kavok[1], G. Dudetskaya[1], Y. Kot[3], S. Yefimova[1], V. Seminko[1]
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[2]Kharkiv National University of Radio Electronics, Kharkiv, Ukraine
[3]School of Biology, V.N.Karazin Kharkiv National University, Kharkiv, Ukraine

P70 **Atomic-scale contact mechanics of Al and Cu nanoislands**

M. V. Prodanov, O. V. Khomenko
Sumy State University, Sumy, Ukraine

P71 **Peculiarities of behavior of composite charged particles in the electric field**

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

P72 **Morphology and interfacial forces of Pb nanoparticles**

A. A. Samilyk, O. V. Khomenko, M. V. Prodanov
Sumy State University, Sumy, Ukraine

P73 **Catalytic mechanism of hydrogen peroxide decomposition by redox-active manganese oxide nanocrystals**

O. Samoilov[1], P. Maksimchuk[1], V. Seminko[1], M. Lupan[1], G. Grygorova[1], A. Onishchenko[2], V. Klochkov[1], S. Yefimova[1]
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[2]Kharkiv National University of Radio Electronics, Kharkiv, Ukraine

P74 **Thermal phenomena in the neighborhood of spheroidal metallic nanoparticles under the excitation of plasmon resonances on their surface**

R. Yu. Korolkov[1], V. I. Reva[1], M. A. Shvydkyi[1], E. V. Stegantsev[2]
[1]National University Zaporizhzhia Politechnic, Zaporizhzhia, Ukraine
[2]Zaporizhzhia Institute of Economics and Information Technologies, Zaporizhzhia, Ukraine

P75 **Enhancement of light emission by capped III-V QDs under gamma-irradiation**

G. Yu. Rudko[1,2], O. M. Strilchuk[1,2], E. G. Gule[1], Yu. I. Mazur[3]
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[2]National University of Kyiv-Mohyla Academy, Kyiv, Ukraine
[3]Institute of Nano Science and Engineering, University of Arkansas, Fayetteville, AR, USA

P76 **Benzene on graphene surface: domain and domain boundaries**

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

P77 **Kinetics of electrophysical properties of diluted aqueous colloidal solutions of fullerene $C_{60}@\{H_2O\}_n$**
M. A. Vinnikov, M. T. Pohribnyi, O. V. Dolbyn, R. M. Basnukaeva, L. M. Buravtseva, S. V. Cherednychenko
B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

P78 **Study of early stages of clustering in a supersonic nitrogen jet**
Yu. S. Doronin, A. A. Tkachenko, V. L. Vakula, G. V. Kamarchuk
B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

TUESDAY, 2nd of JUNE 17:30-19:10

LIST OF POSTER SESSION (6, 7, 8, AND 9 SECTIONS)

Chairs *Dr. Diana Hurova, Dr. Oleksii Konotop*

17:30-18:20 **Stage 1 (P79-P112)**

18:20-19:10 **Stage 2 (P113-P145)**

BIOPHYSICS AND PHYSICS OF MACROMOLECULES

P79 **Ions binding to model lipid membranes: obtaining the adsorption value from indirect measurements**
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 the NAS of Ukraine, Kharkiv, Ukraine*

P80 **Virtual screening and molecular dynamics simulation of phytochemicals as potential inhibitors of extended-spectrum beta-lactamases**
N. V. Khmil[1,2], M. O. Kryvobok[2], A. V. Shestopalova[1]
[1]*O.Ya.Usikov Institute for Radiophysics and Electronics of NASU, Kharkiv, Ukraine*
[2]*Kharkiv National University of Radio Electronics, Kharkiv, Ukraine*

P81 **Biomechanical adaptation of Lewis lung carcinoma (LLC) cells to circulation conditions and metabolic stress**
M. V. Olenchuk[1], O. P. Gnatyuk[1], S. V. Romanenko[2], D. L. Kolesnik[3], G. I. Solyanik[3], G. I. Dovbeshko[1]
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[3]*R.E.Kavetsky Institute of Experimental Pathology, Oncology and Radiobiology of the NASU, Kyiv, Ukraine*

P82 **Reconstruction of the real distribution of the relative yields of the clusters of polyisotopic elements sputtered from MoS_2 under laser desorption/ionization**
V. V. Orlov[1], O. A. Boryak[1], V. S. Shelkovsky[1], M. V. Kosevich[1], P. O. Kusema[2]
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[2]*Chuiko Institute of Surface Chemistry of the NASU, Kyiv, Ukraine*

P83 **Infrared and Raman spectra of the MoS_2-adenine and MoS_2-guanine complexes: a DFT/M06-2X study**
T. Piddubnyi[1], S. Stepanian[1], L. Adamowicz[2]
[1]*B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine*
[2]*Department of Chemistry and Biochemistry, University of Arizona, Tucson, AZ, USA*

P84 **Modification of transition metal dichalcogenides by organic compounds, reflected in the composition of laser-desorbed clusters**

V. G. Zobnina[1], V. S. Shelkovsky[1], M. V. Kosevich[1], O. A. Boryak[1], P. O. Kusema[2], V. A. Karachevtsev[1]

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P85 **The effect of temperature and thionine concentration on DNA stability**

E. L. Usenko, A. Yu. Glamazda, V. A. Valeev, V. A. Karachevtsev

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

P86 **"Poor man's" depth profiling: microscopy and laser desorption/ionization mass spectrometry of a thin film of (MoS_2 + PEG + thioglycerol) system**

V. G. Zobnina[1], P. O. Kusema[2], O. A. Boryak[1], V. S. Shelkovsky[1], M. V. Kosevich[1], V. A. Karachevtsev[1]

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P87 **Nanocomposites of two-dimensional transition metal dichalcogenides with anticancer drug 5-fluorouracil: biophysical examination of drug delivery applicability**

V. A. Pashynska[1], S. G. Stepanian[1], M. V. Kosevich[1], O. A. Boryak[1], P. O. Kuzema[2]

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MATERIALS SCIENCE

P88 **Methodological aspects of temperature-programmable desorption in studies of CO_2, CO, and CH_4 storage at cryogenic temperatures**

N. N. Chigambayeva, A. Y. Nurmukan

Al-Farabi Kazakh National University, Almaty, Kazakhstan

P89 **Structure evolution of the 75-μm thick Kapton H-type polyimide film under a long-term environmental exposure: an X-ray study**

V. Geidarov, I. Braude, V. Lototskaya

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

P90 **Effect of a long-term environmental exposure on the structure of the 125-μm thick Kapton H-type polyimide film: an X-ray study**

V. Geidarov, I. Braude, V. Lototskaya

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

P91 **Visualization of a photosensitive area of infrared photodiodes using two-dimension scanning method**

O. G. Golenkov, A. V. Shevchik-Shekera, V. V. Zabudsky, I. O. Lysiuk, Z. F. Tsybrii, A. S. Stanislavskyi, M. V. Vuichyk, S. V. Korinets

V.Ye.Lashkaryov Institute of Semiconductor Physics, NAS of Ukraine, Kyiv, Ukraine

P92 **Dielectric properties of aged and modified by doping glassy selenium**

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

Faculty of Physics, Uzhhorod National University, Uzhhorod, Ukraine

P93 **Chemical composition and alkali doping effects on structural and optoelectronic properties of $Cu(In_{1-x}Ga_x)(Se_{1-y}S_y)_2$ thin films for photovoltaic applications**

M. Ibragimova[1], J. Abdullayev[2]

[1]Urgench State University, Urgench, Uzbekistan
[2]National Research University TIIAME, Tashkent, Uzbekistan

P94 **Modification of electrophysical and mechanical characteristics of $Fe_{40}Mn_{40}Co_{10}Cr_{10}$ alloy under ultrasound influence**

E. V. Karaseva, V. I. Sokolenko, A. V. Mats, E. S. Savchuk, M. A. Tikhonovsky, V. A. Frolov, V. S. Okovit

National Science Center "Kharkiv Institute of Physics and Technology", Kharkiv, Ukraine

P95 **Comprehensive study of electronic, optical, and mechanical properties of the $CuInP_2S_6/MoS_2$ van der Waals heterostructures in the DFT approach**

O. I. Korolov, I. Ya. Babuka, K. E. Glukhov, L. Yu. Kharkhalis, T. Ya. Babuka

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

P96 **Amorphous-to-crystalline transition in $Ge_2Sb_{2-x}Bi_xSe_5$ phase change materials**

V. M. Kryshenik[1], S. M. Hasynets[1], M. J. Filep[2], Y. S. Hasynets[3], O. O. Gomonnai[3], V. Y. Loya[1], A. V. Gomonnai[1]

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[2]*Ferenc Rákóczi II Transcarpathian Hungarian Institute, Berehovo, Ukraine*
[3]*Uzhhorod National University, Uzhhorod, Ukraine*

P97 **Investigating growth mechanisms in ultrathin amorphous Mo_xSi_{1-x} films with atomic force microscopy**

O. O. Leha[1], V. Yu. Lyakhno[1,2], O. V. Zraichenko[1], S. I. Kryvonohov[3], O. G. Turutanov[4], M. Yu. Mikhailov[1]

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[3]*Institute for Single Crystals of NAS of Ukraine, Kharkiv, Ukraine*
[4]*Comenius University, Bratislava, Slovakia*

P98 **Microstructure and low-temperature mechanical properties of carbon-alloyed CoCrFeNi high-entropy alloys: effect of heat treatment temperature**

A. V. Levenets, V. S. Okovit, M. A. Tikhonovsky, O. S. Solopikhina, Yu. S. Lypovska

National Science Center "Kharkiv Institute of Physics and Technology" of NASU, Kharkiv, Ukraine

P99 **Features of noncritical low-temperature and critical high-temperature anomalies of heat capacity in van der Waals $Cu(Ag)InP_2S(Se)_6$ crystals**

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P100 **Experimental study of the palladium behavior during hydrogen saturation in the α-region of the Pd–H system**

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P101 **Influence of sectoral structure on Schottky diode and ohmic contact parameters in HPHT diamond**

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P102 **Fluorophore-containing sensor films for the determination of trace impurities of ammonia and acetone in air medium**

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P103 **The effect of iron doping on the electrophysical properties of $Cd_2P_2S_6$ crystals**

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P104 **Bridging accuracy and simplicity: ML-based models for carrier mobility estimation in silicon**

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P105 **Elastic and inelastic properties of single crystal Ni-35.6wt%W in the temperature range of 51–300 K**

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P106 **Computational analysis of composite thermoelectric materials for energy conversion applications**

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P107 **Multifunctional high-entropy alloy coatings for bioactive and corrosive environments: current research and future perspectives**

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P108 **Dynamics of thermally activated processes in Cu-Mo vacuum condensates**

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P109 **Phonon engineering in graphene oxide: effects of pressure and thermal reduction**

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P110 **Features of the temperature dependence of microhardness in high-entropy alloys $CoCrFeNiMnV_x$ (x = 0–2)**

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P111 **The study of the effect of graphene oxide additive on the thermal conductivity of epoxy composites**

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P112 **Low-temperature mechanical relaxation in commercially pure titanium**

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P113 **Microstructure and low temperature mechanical properties of naturally aged micrograined polycrystals of Al-Li alloy**

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P114 **Dielectric properties and the pressure-temperature phase diagram of layered $CuInP_2S_6$ crystals**

V. S. Shusta, P. P. Guranych, A. G. Slivka, V. Y. Biganych, P. P. Huranych

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P115 **Synergistic effect of the influence of atomic oxygen and ultraviolet radiation on polyimides**

V. A. Shuvalov, Yu. P. Kuchugurnyi, I. M. Chumachenko, S. V. Prannik, N. P. Reznichenko, B. V. Yurkov

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P116 **Correlation morphological analysis of secondary phase inclusions in $Ge_{1-x-y}Sn_xMn_yTe$**

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P117 **Refined 0D–3D dynamic cluster model of magnetic susceptibility in $Ge_{1-x-y}Sn_xMn_yTe$: the role of secondary phase microinclusions**

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P118 **Synthesis and characterization of iron oxide nanostructures for energy storage devices**

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P119 **The role of the Peierls relief in low-temperature plasticity of the Ti-Nb substitutional alpha solid solution**

V. A. Moskalenko, R. V. Smolianets

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P120 **Physical-mechanical properties of high entropy alloy $CrMnFeCoNi_2Cu$ in two structural states in the temperature range of 4.2–350 K**

O. D. Tabachnikova[1], Yu. O. Shapovalov[1], S. M. Smirnov[1], V. F. Gorban[2], M. O. Krapivka[2], and S. O. Firstov[2]

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P121 **Structural peculiarities of cadmium halides and their manifestation in electronic spectrum and opto-luminescent studies: experiment and theoretical justification**

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P122 **Investigation of donor-type localized charge carrier states in CdZnTe crystals**

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P123 **The influence of electromagnetic radiation from a spark discharge on localized charge carrier states in CdZnTe crystals**

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P124 **Modeling charge-state evolution of point defects in YAG0 from growth temperature to room temperature**

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P125 **Diffusion of hydrogen in metals with substitutional defects**

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P126 **p-Si/SiOx(Si)&AlyOz(Al) nanocomposite structure for IR–THz detection with shifted infrared peak sensitivity**

V. V. Zabudsky, N. I. Kukhtaruk, I. O. Lysiuk, Z. F. Tsybrii, O. G. Golenkov, A. V. Shevchik-Shekera, A. Yu. Shekera, O. L. Bratus, K. V. Svezhentsova, M. V. Vuichyk

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P127 **Temperature-dependent dopant ionization and electrostatic behavior in n-β-Ga_2O_3/p-Si heterostructures**

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P128 **Inverse problem of electron scattering on the potential of the multilayer semiconductor resonance-tunneling structure**

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P129 **Multipolar exchange in many-body homonuclear mixture of atoms in different internal states**

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P130 **Domain walls and breathers in metamaterials constructed of magnetic molecules**

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P131 **Electronic structure of GaAs doped with rare-earth elements (La, Ce, Pr and Nd)**

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P132 **Modeling strengthening kinetics in metals under extreme plastic straining**

O. V. Khomenko, A. P. Chopov, K. P. Khomenko, A. Yu. Badalian, I. A. Chelnokov
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P133 **Longitudinal and transverse oscillations of hydrogen bonds in water**

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P134 **The dynamics of vortex pairs in magnetic nanodots**

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P135 **Resonance in a two-level system caused by time-dependent coupling with the phonon bath**

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P136 **Self-induced topological interface and non-Hermitian localization of fluctuations in an asymmetric exclusion process**

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P137 **Implementation and features of nodal points in phonon spectra of crystals of the A15 family**

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P138 **Generalized modeling of incomplete dopant ionization with constant and temperature-dependent activation energy in semiconductors (10–300 K)**

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P139 **Renormalization of electron states by interaction with confined phonons in a wurtzite-type nanostructure**

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P140 **Combined effect of Fermi liquid and spin-orbit interactions on electron transport**

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P141 **Ultrasonic monitoring of ice ball formation in biological tissues under low-temperature exposure**

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P142 **Visualization of a photosensitive area of infrared photodiodes using two-dimension scanning method**

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P143 **Application of ourselves-developed infrared thermal imagers in laboratory experiments**

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P144 **Purification of starting materials as a key element in the technology of synthesis of quantum point-contact sensors**

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P145 **Experimental investigation and mathematical modeling of film thickness in channels of centrifugal sprayer**

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