

CONFERENCE PROGRAM

MONDAY, 7 JUNE

8:00-9:00

Registration

9:00-9:10

OPENING CEREMONY

CONFERENCE HALL

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Nataliia Mysko-Krutik*

9:10-9:50

Theoretical prediction and subsequent observation of the dynamical Casimir effect in a superconducting circuit

F. Nori

RIKEN, Saitama, Japan; and the University of Michigan, Ann Arbor, USA

9:50-10:30

Dynamical Casimir Effect in Optomechanical systems: Fully Quantum and Non-Perturbative Description

S. Savasta

Dipartimento MIFT, Università degli Studi di Messina, Messina, Italy

10:30-11:00

General Photo and Coffee Break

CONFERENCE HALL

OPTICS, PHOTONICS AND OPTICAL SPECTROSCOPY

Chair *Dr. Sergii Poperezhai*

11:00-12:30

Optical Response of Airplanes with Novel Coatings

L. Illyashenko

Kharkiv National University of Radio Electronics, Kharkiv, Ukraine

Simulation of elliptically polarized light propagation in turbid tissue-like scattering media with Monte Carlo method

I.V. Lopushenko¹, M. Borovkova¹, A. Bykov¹, I. Meglinski^{1,2}

¹OPEM, ITEE, University of Oulu, Oulu, Finland

²College of Engineering and Physical Sciences, Aston University, Birmingham, UK

Correlation Picture in Dicke Superradiance

S. Lyagushyn

O. Honchar Dnipro National University, Dnipro, Ukraine

Transverse Anderson Localization Versus Evanescent Waves ConfinementS.S. Melnyk¹, O.V. Usatenko¹, V.A. Yampol'skii^{1,2}¹A.Ya.Usikov Institute for Radiophysics and Electronics of NAS of Ukraine, Kharkiv, Ukraine²V.N. Karazin Kharkov National University, Kharkiv, Ukraine**Scattering of Surface Plasmon-Polaritons by a Segment of Metal-Dielectric Boundary with Randomly Fluctuating Impedance**Yu. Tarasov¹, O. Stadnyk^{1,2}¹O. Ya. Usikov Institute for Radiophysics and Electronics of NAS of Ukraine, Kharkiv, Ukraine²Kharkiv National University of Radio Electronics, Kharkiv, Ukraine**Surface Plasmon-Polaritons at Two-Dimensional Resonant Anisotropic Systems**O. Yermakov^{1,2}¹Department of Computer Physics, V. N. Karazin Kharkiv National University, Kharkiv, Ukraine²Department of Physics and Engineering, ITMO University, St. Petersburg, Russia**Spectral properties of thiocarbocyanine J-aggregates depending on formation conditions**P. Pisklova, I. Ropakova, A. Sorokin, S. Yefimova

Institute for Scintillation Materials of NAS of Ukraine, Kharkiv, Ukraine

Photoelectric properties of heterostructures with GeSn thin filmsS. Derenko, S. Kondratenko

Taras Shevchenko National University of Kyiv, 64 Volodymyrs'ka St. 01601, Kyiv, Ukraine

12:30-12:50***LAB TOUR*****12:50-13:30*****Time for Lunch*****13:30-14:30****POSTER SESSION I (SECTIONS #1,2,3,4,5,9)*****CONFERENCE HALL******MATERIALS SCIENCE****Chair* *Dr. Yevhen Petrenko***14:30-16:20****Lattice softening at the electric field and pressure-induced Mott insulator to metal transitions**D. Babich, L. Cario, B. Corraze, C. Adda, J. Tranchant, M.- P. Besland, J.-Y. Mévellec, P. Bertoncini, B. Humbert, E. Janod

Institut des Matériaux Jean Rouxel, Université de Nantes – CNRS, Nantes, France

Nanostructures on the (001) surface of strontium titanate

V.O. Hamalii, N.V. Krainyukova

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

Optical response of novel structures to detect approaching vehicles

L. Ilyashenko

Kharkiv National University of Radio Electronics, 14 Nauky Ave., Kharkiv, Ukraine

Stability of $Y_2Ti_2O_7$ in ODS steels under swift heavy ions irradiation

E.A. Korneeva¹, A. Ibrayeva², J. O'Connell³, A.S. Sohatsky¹, V.A. Skuratov¹

¹Joint Institute for Nuclear Research, Dubna, Russia

²Nur-Sultan Branch of Institute of Nuclear Physics, Nur-Sultan, Kazakhstan

³Centre for HRTEM, Nelson Mandela University, University Way, Summerstrand, Port Elizabeth, South Africa

The obtaining of $Zn_xMg_{1-x}WO_4$ nanopowders for composite scintillators

V. Tinkova, I. Tupitsyna, A. Yakubovskaya, P. Maksimchuk

Institute for scintillations materials of NAS of Ukraine, Kharkiv, Ukraine

Cryogenic scintillator based on Li_2MoO_4 single crystal

A.G. Yakubovskaya¹, I.A. Tupitsyna¹, A.M. Dubovik¹, Yu.A. Hizhnyi²

¹Institute for Scintillation Materials NAS of Ukraine, Kharkiv, Ukraine

²Taras Shevchenko National University of Kyiv, Kyiv, Ukraine

Influence of extreme factors (low temperatures, corpuscular and electromagnetic radiation) on the mechanical properties of polyimide Kapton H films of different thicknesses

V.A. Lototskaya¹, L.F. Yakovenko¹, E.N. Aleksenko¹, N.I. Velichko¹, G.I. Saltevskiy¹, I.P. Zaritskiy¹, Yu.S. Doronin¹, A.A. Tkachenko¹, V.V. Abraimov², W.Z. Shao²

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

²Harbin Institute of Technology, Harbin, the People's Republic of China

Hemispherical microwave X-band Fabry-Perot resonator for determining in wide band of dielectric parameters of solid materials

A. Breslavets¹, Z. Eremenko¹, O. Voitovich¹, G. Rudnev¹, Zhu Gang², Li Rong²

¹O.Ya. Usikov Institute for Radiophysics and Electronics of NAS of Ukraine, Kharkiv, Ukraine

²Anhui Huadong Photoelectric Technology Institute, Ltd Wuhu, China

CONFERENCE HALL

PLENARY LECTURES OF INVITED SPEAKERS

Chair Dr. Yevhen Petrenko

16:20-17:00

Study of the magnetoelectric effect in multiferroic ferrite-perovskite composite ceramics

V.V. Shvartsman

Institute for Materials Science, University of Duisburg-Essen, Essen, Germany

CONFERENCE HALL

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Valentin Koverya*

17:00-17:40

Ultra-fast vortex dynamics in nanoengineered superconductors

O.V. Dobrovolskiy

Faculty of Physics, University of Vienna, Vienna, Austria

17:40-18:20

High-pressure stabilized oxide perovskite structures

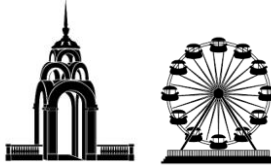
A.N. Salak¹, D.D. Khalyavin², E.L. Fertman³, D. Delmonte⁴, E. Gilioli⁴

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

²ISIS Facility, Rutherford Appleton Laboratory, Chilton, Didcot, UK

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

⁴Institute of Materials for Electronics and Magnetism, Parma, Italy



18:30-...

KHARKIV-CITY WALKING TOUR

TUESDAY, 8 JUNE

**INTERNATIONAL ADVANCED RESEARCH WORKSHOP
“THERMAL CONDUCTIVITY OF SOLID STATES AT LOW TEMPERATURE”
CONFERENCE HALL & LIVE STREAM**

- Co-chairs:** Dr. Razet Basnukaeva & Dr. Maksym Barabashko
- 9:00 -9:15** **Opening ceremony**
- 9:15 -9:45** **Keynote talk: Heat transfer in molecular crystals and their solutions above or of the order of Debye temperature**
Prof. Viacheslav Konstantinov
B.Verkin Institute for Low Temperature Physics and Engineering of NAS of Ukraine,47 Nauky Ave., Kharkiv, 61103, Ukraine
- 9:45-10:00** **Thermal activation heat transfer in dynamically disordered phases of molecular crystals. Ethane series freons**
Dr. Anna Karachevtseva
B.Verkin Institute for Low Temperature Physics and Engineering of NAS of Ukraine,47 Nauky Ave., Kharkiv, 61103, Ukraine
- 10:00-10:15** **Features of transport processes in an electroconsolidated FeNi composite**
Dr. Maksim Kislitsa
V.N. Karazin Kharkiv National University, Kharkiv 61022, Ukraine
- 10:15-10:45** **Keynote talk: Thermal Conductivity of Organic Charge Transfer Complexes with Strong Correlation in 2D π -Electrons Layers**
Ukraine time
UTC/GMT +3
(16:15 -16:45)
Japan time
UTC/GMT +9
Prof. Yasuhiro Nakazawa
Dept. of Chemistry, Graduate School of Science, Osaka University, Machikaneyama 1-1, Toyonaka, Osaka 560-0043, Japan
- 10:45-11:00** **Thermophysical and electrophysical characterization of exfoliated graphite - carbon nanotube composites**
Prof. Galyna Dovbeshko
Institute of Physics, NAS of Ukraine, 46 Nauky Ave., 03028 Kyiv, Ukraine
- 11:00-11:15** **Calculations of thermal gradients in hydroxyapatite composite with the additives of multi-walled carbon nanotubes**
Ukraine time
UTC/GMT +3
(15:00-15:15)
Tomsk, RF
UTC/GMT +7
Ms. Anastasiya Rezvanova
Institute of Strength Physics and Materials Science of SB RAS, 2/4 Akademichesky Ave., Tomsk, 634055, Russia
- 11:15-11:45** **Keynote talk: The influence of diffusive phonon boundary scattering on the thermal conductivity of a two-dimensional sample**
Prof. Konstantin Nemchenko
V.N.Karazin Kharkiv National University, 61022, Kharkiv, Ukraine
- 11:45-12:00** **Disorder-induced localized low-energy tunneling states in the carbon nanomaterials**
Ukraine time
UTC/GMT +3
(15:45-16:00)
Tomsk, RF
UTC/GMT +7
Dr.Alexander Ponomarev
Institute of Strength Physics and Materials Science of SB RAS, Tomsk, 34055, Russia

- 12:00-12:15** **Resonance levels in electron and phonon spectra of graphene nanostructures: formation, decay, possibility of HTS appearance**
 Prof. Sergey Feodosyev
B.Verkin Institute for Low Temperature Physics and Engineering of NAS of Ukraine, 47 Nauky Ave., Kharkiv, 61103, Ukraine
- 12:15-12:30** **Thermally activated conductivity of molybdenum disulfide MoS₂ nanopowder**
 Dr. Roman Rudenko
Institute of Physics, NAS of Ukraine, 46 Nauky ave., 03680, Kyiv, Ukraine
- 12:30-13:00** **Coffee-break/Lunch Time**
- 13:00-13:30** **Keynote talk: Thermal conductivity of solid state laser materials: ceramics of YbAG and GAGG**
 Ukraine time
 UTC/GMT +3
 (12:00-12:30)
 (Wroclaw, Poland time
 UTC/GMT +2)
 Dr. Daria Szewczyk
Institute of Low Temperature and Structure Research PAS, Division of Low Temperature and Superconductivity, Okólna 2, 50-422 Wrocław, Poland
- 13:30-13:45** **Temperature Dependence of the Thermal Conductivity in SiO₂ with Disorder Due to Embedded Ge Nanoparticles**
 Mr. Volodymyr Shmid
Taras Shevchenko National University of Kyiv, 64/13 Volodymyrska Street, 01601 Kyiv, Ukraine
- 13:45-14:00** **Electronic thermal conductivity of single and bilayer graphene with disorder**
 Ukraine time
 UTC/GMT +3
 (17:45-18:00)
 Tomsk, RF
 UTC/GMT +7
 Dr. Nadezhda Bobenko
Institute of Strength Physics and Materials Science of SB RAS, 2/4 Akademichesky Avenue, Tomsk 634021, Russia
- 14:00-14:30** **Keynote talk: Low Thermal Conductivity and the Evidence of the Glassy Behavior in (Pb_{0.7}Sn_{0.25}Ge_{0.05})₂P₂S₆ and (Pb_{0.7}Sn_{0.25}Ge_{0.05})₂P₂Se₆ Mixed Crystals**
 Prof. Yulian Vysochanskii
Institute for Solid State Physics and Chemistry, Uzhhorod University, Pidgirna Str. 46, Uzhhorod, 88000, Ukraine
- 14:30-14:45** **Influence of Chemical Substitution on the Thermal Transport Properties in 2D layered M¹⁺M³⁺P₂X₆ (M¹⁺ = Cu, Ag; M³⁺ = In, Bi; X = Se, S) Compounds**
 Dr. Vitalii Liubachko
Institute for Solid State Physics and Chemistry, Uzhhorod University, Pidgirna Str. 46, 88000 Uzhhorod, Ukraine
- 14:45-15:00** **Analysis of thermal conductivity for clathrate thermoelectrics**
 Dr. Yuliia Horbatenko
B.Verkin Institute for Low Temperature Physics and Engineering of NAS of Ukraine, 47 Nauky Ave, Kharkiv 61103, Ukraine

- 15:00-15:30** **Keynote talk: Thermal anomalies in ordered and disordered phases**
Ukraine time
UTC/GMT +3
(14:00-14:30)
Barcelona, Spain time
UTC/GMT +2
Prof. Josep Lluís Tamarit
Grup de Caracterizació
, Barcelona 08019, Catalonia
- 15:30-15:45** **Electrophysical properties of aqueous colloidal solutions of C₆₀**
Mr. Sergey, Cherednychenko
B.Verkin Institute for Low Temperature Physics and Engineering of NAS of Ukraine, 47 Nauky Ave., Kharkiv, 61103, Ukraine
- 15:45-16:00** **Heat capacity and thermal expansion for ordered and disordered crystal materials**
Dr. Maksym Barabashko
B.Verkin Institute for Low Temperature Physics and Engineering of NAS of Ukraine, 47 Nauky Ave., Kharkiv, 61103, Ukraine
- 16:00-16:30** **Generalized analysis of thermal conductivity for molecular solids**
Prof. Alexander Krivchikov
B.Verkin Institute for Low Temperature Physics and Engineering of NAS of Ukraine, 47 Nauky Ave., Kharkiv 61103, Ukraine

CONFERENCE HALL

BIOPHYSICS AND PHYSICS OF MACROMOLECULES

Chair Prof. Kosevich Marina

16:30-17:00

Melatonin determination in the human organism by a breath test

D.O. Harbuz¹, A.P. Pospelov², V.I. Belan¹, V.A. Gudimenko¹, V.L. Vakula¹,
L.V. Kamarchuk³, Y.V. Volkova³, and G.V. Kamarchuk¹

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

The limitations of DFT tight-binding approximation and their role in conformational analysis of DNA constituents

O.S. Husak, T.Yu. Nikolaienko

Faculty of Physics of Taras Shevchenko National University of Kyiv, Kyiv, Ukraine

Permittivity characterization of aqueous solutions of biological active substances

K.S. Kuznetsova¹, V.A. Pashynska^{1,2}, Z.E. Eremenko¹, O.I. Shubniy¹, A.V. Martunov³

¹O. Usikov Institute for Radiophysics and Electronics of NASU, Kharkiv, Ukraine

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

³Mechnikov Institute of Microbiology and Immunology National Academy of Medical Sciences of Ukraine, Kharkiv, Ukraine

CONFERENCE HALL

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Prof. Kosevich Marina*

17:00-17:40

Optical choppers with disks, with an insight in biomedical applications

V.-F. Duma

3OM Optomechatronics Group, “Aurel Vlaicu” University of Arad, Arad, Romania

Doctoral School, Polytechnic University of Timisoara, Timisoara, Romania

17:40-18:20

Magneto-chiral effect of phonons

S. Zherlitsyn

Hochfeld-Magnetlabor Dresden, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany



20:00-23:30

WELCOME PARTY

WEDNESDAY, 9 JUNE



09:00-21:00

MAIN EXCURSION PROGRAM AND PICNIC

THURSDAY, 10 JUNE

CONFERENCE HALL

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Sergii Poperezhai*

9:00-09:20

Implementation of a simultaneous message-passing protocol using optical vortices

M. Szatkowski¹, J. Koechlin², J. Masajada¹, D. Lopez-Mago³

¹Wrocław University of Science and Technology, Dept. of Optics and Photonics, Wrocław, Poland

²University of Basel, Department of Physics, Basel, Switzerland

³TECNOLOGICO DE MONTERREY, ESCUELA DE INGENIERIA Y CIENCIAS, MONTERREY, MEXICO

09:20-10:00

Nonlinear and chiral response of topological semimetals and other chiral media

F. Büscher¹, V. Gnezdilov^{1,2}, D. Wulferding^{1,3}, S. Müllner¹, Yu. G. Pashkevich⁴, C. Felser⁵, Ch. Shekhar⁵, K. Manna⁶, P. Lemmens¹

¹IPKM and LENA, TU-BS, Braunschweig, Germany

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

³IBS, Center for Correlated Electron Systems, Seoul Nat. Univ, Seoul, Korea

⁴Donetsk IPE O.O. Galkin NAS, Kyiv, Ukraine

⁵MPI Dresden, Germany

⁶Quantum Materials Magneto-Transport Laboratory, IIT, New Delhi, India

CONFERENCE HALL

NANOPHYSICS AND NANOTECHNOLOGIES

Chair *Dr. Maksym Barabashko*

10:00-11:10

Structural Models for the Diffraction Analysis of Various Carbon Honeycombs

D.G. Diachenko, N.V. Krainyukova

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

Research of impact of presence of vitamins B2, B3, and C on calcium oxalate monohydrate crystallization processes in simulated body fluid

M. Dryhailo¹, Yu. Taranets²

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

²Institute for Single Crystals of the National Academy of Sciences of Ukraine, Kharkiv, Ukraine

Phonon models of thermal conductivity of nanosized structures

T.V. Medintseva, K.E. Nemchenko T.G. Vikhtinskaya

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

Fundamental description of Wannier qubits in semiconductor

K. Pomorski^{1,2}

¹Cracow University of Technology, Faculty of Computer Science and Telecommunications, Krakow, Poland

²Quantum Hardware Systems, Lodz, Poland

**A New Method for Real-Time Selective Detection in Complex Gas Mixtures
Using Yanson Point Contacts**

V. Vakula¹, A. Pospelov², V. Belan¹, D. Harbuz^{1,2}, L. Kamarchuk³, Yu. Volkova³, G. Kamarchuk¹

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

²National Technical University “Kharkiv Polytechnic Institute”, Kharkiv, Ukraine

³SI “Institute for Children and Adolescents Health Care” of NAMS of Ukraine, Kharkiv, Ukraine

11:10-11:25

SPIE Special Coffee Break

CONFERENCE HALL

NANOPHYSICS AND NANOTECHNOLOGIES

Chair *Dr. Maksym Barabashko*

11:25-11:45

Base Pressure Effect on Electrical Properties of Chromium Nanofilms

S.L. Udachan¹, N.H. Ayachit¹, L.A Udachan², S. Siddanna³, S.S. Kolkundi⁴, S. Ramya⁵

¹Dept of Physics, Rani Channamma University, Belagavi, Karnataka, India

²S.S. Tegnoor Degree College, Kalaburagi, Karnataka, India

³Dept of PG Studies & Research in Physics, Kuvempu University Jnanasahyadri, Shankaraghatta, Shimoga, Karnataka, India

⁴Government First Grade College, Shahapur, Yadgir, Karnataka, India

⁵Shree Sangam Vidya Mandir, Kalaburagi, Karnataka, India

On the problem of charge transfer and phototransfer in nonregular condensed media

G.D. Tatishvili, T.A. Marsagishvili, M.N. Matchavariani

Iv. Javakhishvili Tbilisi State University, R. Agladze Institute of Inorganic Chemistry and Electrochemistry, Tbilisi, Georgia

CONFERENCE HALL

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Maksym Barabashko*

11:45-12:25

The strain impact on ferromagnetic/graphene/ferroelectric nanostructures

M.V. Strikha^{1,2}, E.A. Eliseev³, A.N. Morozovska⁴

¹Taras Shevchenko National University of Kyiv, Faculty of Radiophysics, Electronics and Computer Systems, Kyiv, Ukraine,

²V.Lashkariyov Institute of Semiconductor Physics NASU, Kyiv, Ukraine

³Institute for Problems of Materials Science NASU, Kyiv, Ukraine

⁴Institute of Physics NASU, Kyiv, Ukraine

CONFERENCE HALL**PLENARY LECTURES OF INVITED SPEAKERS**

Chair *Dr. Marina Kolodyazhnaya*

12:25-13:05

Pressure-tuned magnetic interactions in a triangular-lattice quantum antiferromagnet

S. Zvyagin

Dresden High Magnetic Field Laboratory, Helmholtz-Zentrum Dresden Rossendorf, Dresden, Germany

13:05-14:00

Time for Lunch

CONFERENCE HALL & ZOOM**CERN-CMS INTERNATIONAL MASTERCLASSES**

Chair *Dr. Maksym Barabashko*

14:00-14:10

Welcome¶

Pedro Abreu

LIP Laboratorio de Instrumentacao e Fisica Experimental de Part,

Steven Goldfarb

University of Melbourne (AU)

14:10-14:30

Warm-up activity¶

14:30-15:30

Introduction to Standard Model, LHC, and CMS¶

Leonid G. Levchuk

National Academy of Sciences of Ukraine (UA)

15:30-15:45

Coffee Break

15:45-16:30

Introduction to CMS Masterclass measurement (Zoom Online)¶

16:30-17:30

Masterclass measurement(Zoom Online)¶

17:30-18:00

Discussion of Results (Zoom Online)¶

CONFERENCE HALL**PLENARY LECTURES OF INVITED SPEAKERS**

Chair *Dr. Marina Kolodyazhnaya*

18:00-18:20

Massive magnetostriction of the $\text{KEr}(\text{MoO}_4)_2$

D. Kamenskyi^{1,2}, B. Bernath³, S. Khmelevskiy⁴, L.V. Pourovskii⁵, S. Poperezhai⁶, K. Kutko⁶

¹Experimental Physics V, Institute of Physics, University of Augsburg, Augsburg, Germany

²Molecular Photoscience Research Center, Kobe University, Kobe, Japan

³High Field Magnet Laboratory (HFML-EMFL), Radboud~University, Nijmegen, Netherlands

⁴Research Center for Materials Science and Engineering, Vienna University of Technology, Vienna, Austria

⁵CPHT, CNRS, Ecole Polytechnique, Institut Polytechnique de Paris, Palaiseau, France

⁶B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine

18:20-18:40

Nonlinear exciton drift in piezoelectric two-dimensional materials

V. Shahnazaryan¹, H. Rostami²

¹Department of Physics, ITMO University, St. Petersburg, Russia

²Nordita, KTH Royal Institute of Technology and Stockholm University, Stockholm, Sweden



19:00-20:00

CONCERT OF CLASSICAL MUSIC

FRIDAY, 11 JUNE

CONFERENCE HALL

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Sergii Poperezhai*

09:00-09:40

Features of the exciton self-trapping in molecular aggregates

A.V. Sorokin, I.I. Grankina, I.Yu. Ropakova, S.L. Yefimova

Institute for Scintillation Materials of NAS of Ukraine, Kharkiv, Ukraine

09:40-10:20

Latest Advances in Theory of Logarithmic Fluids: Polycrystalline Metals and Superfluid Stars

K.G. Zloshchastiev

Institute of Systems Science, Durban University of Technology, Durban, South Africa

10:20-10:30

Coffee Break

CONFERENCE HALL

QUANTUM LIQUIDS AND

QUANTUM CRYSTALS, CRYOCRYSTALS

Chair *Dr. Nataliia Mysko-Krutik*

10:30-11:50

Second sound resonances in superfluid ^3He - ^4He mixtures

T.G. Vikhtinskaya, N.O. Herashchenko, K.E. Nemchenko

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

Magnetoelectric Properties of Quantized Vortices and Vortex Rings

A.M. Konstantinov, S.I. Shevchenko

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

NMR investigation phases of ^3He adsorbed on MCM-41 one-dimensional nanotubes

N.P. Mikhin, S.S. Sokolov

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

Desorption of excited H^* atoms from free clusters Ar/CH_4 and solid Ar doped with CH_4

Yu.S. Doronin, V.L. Vakula, G.V. Kamarchuk, A.A. Tkachenko, I.V. Khyzhniy, S.A.

Uyutnov, M.A. Bludov, E.V. Savchenko

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

Radiolysis of Pyridine-Water-Ices by swift IonsP. Ada Bibang¹, A.N. Agnihotri^{1,2}, P. Boduch¹, A. Domaracka¹, Z. Kanuchova³, H.Rothard¹¹Centre de Recherche sur les Ions, les Matériaux et la Photonique, Normandie Univ, Caen, France²Indian Institute of Technology Delhi, India³Astronomical Institute of the Slovak Academy of Science, Tatranska Lomnica, Slovak Republic

CONFERENCE HALL**TECHNOLOGIES AND INSTRUMENTATION****FOR PHYSICAL EXPERIMENTS**

*Chair Ms. Anna Herus***11:50-13:05****Development of universal experimental cell for Yanson point-contact spectroscopy and sensor research**P.O. Dmitriyev¹, A.V. Savytskyi¹, A.P. Pospelov², E. Faulques³, G.V. Kamarchuk¹¹B. Verkin Institute for Low Temperature Physics & Engineering, Kharkiv, Ukraine²National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine³MIOPS, Jean Rouxel Institute of Materials, Nantes, France**Investigation of the Voltage Sensitivity of Selectively Doped Microwave Diodes on "Hot" Electrons in a Wide Temperature Range**V. Derkach¹, R. Golovashchenko¹, Y. Ostryzhnyi¹, J. Gradauskas^{2,3}, A. Sužiedėlis²,M. Anbinderis^{2,3}¹O. Ya. Usikov Institute for Radiophysics and Electronics of NAS of Ukraine, Kharkiv, Ukraine²Center for Physical Sciences and Technology, Vilnius, Lithuania³Vilnius Gediminas Technical University, Vilnius, Lithuania**Phase-Resolved Visualization of Radio Frequency Standing Waves in Superconducting Spiral Resonator for Metamaterial Applications**A.P. Zhuravel¹, A. Karpov², A.V. Lukashenko³, A.A. Leha¹, A.V. Ustinov^{2,3}¹B.Verkin Institute for Low Temperature Physics and Engineering of NASU, Kharkiv, Ukraine²National University of Science and Technology(MISiS), Moscow, Russia³Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany**Strain modulated ferromagnetic resonance technique as a powerful tool for investigating of thin films magnetoelastic properties**O.M. Chumak¹, A. Nabiałek¹, V.V. Chabanenko², T. Seki^{3,4}, K. Takanashi^{3,4,5}, L.T.Baczewski¹, H. Szymczak¹¹Institute of Physics, Polish Academy of Sciences, Warsaw, Poland²O.Galkin Donetsk Institute for Physics and Engineering NASU, Kyiv, Ukraine³Institute for Materials Research, Tohoku University, Sendai, Japan⁴Center for Spintronics Research Network, Tohoku University, Sendai, Japan⁵Center for Science and Innovation in Spintronics, Core Research Cluster, Tohoku University, Sendai, Japan

13:05-13:25

LAB TOUR

13:25-14:00

Time for Lunch

14:00-15:00

POSTER SESSION II (SECTIONS #6,7,8)

CONFERENCE HALL

THEORY OF CONDENSED MATTER PHYSICS

Chair *Dr. Denis Laptev*

15:00-17:00

Schrödinger-cat states generation via mechanical vibrations entangled with a charge qubit

O.M. Bahrova¹, L.Y. Gorelik², S.I. Kulinich¹

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

²Department of Physics, Chalmers University of Technology, Göteborg, Sweden

Resonant modes in cavity layered microwave resonator with axial symmetry

Z.E. Eremenko, I.N. Volovichev, A.A. Breslavets

O.Ya. Usikov Institute for Radiophysics and Electronics NASU, Kharkiv, Ukraine

Nonlinear thermoelectric properties of a magnetic single-electron shuttle

O.A. Ilinskaya¹, I.V. Krive, R.I. Shekhter²

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

²Department of Physics, University of Gothenburg, Göteborg, Sweden

Studying the magnetic peculiarities of the frustrated spin chain using the effective model without frustration

O.O. Kryvchikov

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

Thermal Coulomb drag between quantum wires hosting 1D Wigner crystals

M.V. Mazanov¹, S.S. Apostolov^{1,2}

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

²A.Ya. Usikov Institute for Radiophysics and Electronics NASU, Kharkov, Ukraine

Propagation and intensity-dependent focusing of THz laser radiation in layered superconductors

H.V. Ovcharenko¹, Z.A. Maizelis^{1,2}, S.S. Apostolov^{1,2}

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

²O.Ya. Usikov Institute for Radiophysics and Electronics NASU, Kharkiv, Ukraine

Ideal Bose gas in steep traps

A. Rovenchak, Yu. Krynytskyi

Department for Theoretical Physics, Ivan Franko National University of Lviv, Lviv, Ukraine

Thermoelectric and vibronic effects in tunneling of spin-polarized electrons in a molecular transistor

A.D. Shkop

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

Approximately isospectral isomers for antiferromagnetic Heisenberg model

V.V. Tokariev

V.N. Karazin Kharkiv National University, School of Chemistry, Kharkiv, Ukraine

CONFERENCE HALL

PLENARY LECTURES OF INVITED SPEAKERS

*Chair Ms. Anna Herus***17:00-17:40****Thermodynamic properties of coexisting phases of carbon tetrachloride on sublimation and melting lines**

L.N. Yakub, O.S. Bodiul

Thermophysics Dept., Odessa National Academy of Food Technologies, Odessa, Ukraine

17:40-18:00**GHz-THz Nonlinearities in Semiconductor Superlattices**

M.F. Pereira

Department of Physics, Khalifa University of Science and Technology, Abu Dhabi, UAE

CONFERENCE HALL

PLENARY LECTURES OF INVITED SPEAKERS

*Chair Dr. Anastasiya Lyogenkaya***18:00-18:40****Peculiarities of dipolar ordering in mixed cation halide perovskites**J. Banys¹, S. Balciunas¹, M. Simenas¹, S. Svirskas¹, M. Kinka¹, V. Samulionis¹, R. Grigalaitis¹, A. Garbaras², A. Gagor³, M. Maczka³, A. Sieradzki³¹Faculty of Physics, Vilnius University, Vilnius, Lithuania²Mass Spectrometry Laboratory, Center for Physical Sciences and Technology, Vilnius, Lithuania.³Institute of Low Temperature and Structure Research, Polish Academy of Sciences, Wroclaw, Poland

STUDENT CLUB (2, KYRPYCHOVA STR.)

OSA YSW

Chair Ms. Anna Herus

20:00-21:00 **ILTPE OSA (The Optical Society) Student Chapter is organizing Young Scientists Workshop (YSW) devoted to the failfares in scientific career development.**

Prof. C. López-Mariscal, OSA Travelling Lecturer
Department of Physics and Astronomy, Appalachian State University, Boone, NC, USA, and Underwater Photonics, Cozumel, Mexico
“Why Science Communication matters”

Dr. Nataliia Mysko-Krutik
ILTPE NASU, Kharkiv, Ukraine
“Writing a motivation letter for students”

Ms. Diana Hurova, President of ILTPE OSA SC

Ms. Anna Herus, President of IRE SPIE SC

SATURDAY, 12 JUNE

CONFERENCE HALL

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Yevhen Petrenko*

09:00-09:40

Optical Horn Effect via Plasmonic Hour-Glass Nano-Aperture

S.S. Choi

Research Center for Nano-Bio Science, SunMoon University, Ahsan, South Korea

CONFERENCE HALL

MATERIALS SCIENCE

Chair *Dr. Yevhen Petrenko*

09:40-11:40

Hydrogen storage properties, structural analysis, elastic and electronic properties of K_2PdH_4

S. Al¹, C. Kurkcu²

¹Department of Environmental Protection Technologies, Vocational School, Izmir Democracy University, Izmir, Turkey

²Department of Electronics and Automation, Kirsehir Ahi Evran University, Kirsehir, Turkey

Phase transitions, elastic and electronic properties of hydrogen storage Na_2PdH_4

S. Al¹, C. Kurkcu²

¹Department of Environmental Protection Technologies, Vocational School, Izmir Democracy University, Izmir, Turkey

²Department of Electronics and Automation, Kirsehir Ahi Evran University, Kirsehir, Turkey

Synchrotron diffraction study of the high-pressure behaviour of the multiferroic $BiFe_{0.5}Sc_{0.5}O_3$ perovskite

J.P. Cardoso¹, D.D. Khalyavin², D. Delmonte³, E. Gilioli³, A. Barbier⁴, M.R. Soares¹, J.M. Vieira¹, A.N. Salak¹

¹Department of Materials and Ceramics Engineering and CICECO - Aveiro Institute of Materials, Aveiro, Portugal

²ISIS Facility, Rutherford Appleton Laboratory, Chilton, Didcot, UK

³Institute of Materials for Electronics and Magnetism, Parma, Italy

⁴SPEC, CEA, CNRS, Université Paris-Saclay, CEA-Saclay, Gif-sur-Yvette Cedex, France

Influence of aluminum ion substitution on EPR spectra of lithium ferrites

L. Kaykan¹, J. Mazurenko², N.V. Ostapovych², I.R. Pavliuk²

¹G.V. Kurdyumov Institute for Metal Physics, NAS. of Ukraine, Kyiv, Ukraine

²Ivano-Frankivsk National Medical University, Ivano-Frankivsk, Ukraine

CH₄ trapping ability of double vacancy graphene Cu-embedded surface: A DFT study

H. Küçük

Gazi University, Department of Physics, Emniyet Mahallesi, Teknikokullar, Ankara, Turkey

Comparative study of Tl-1223 superconductors prepared by the sol-gel route and solid-state reaction

I.R. Metskhvarishvili^{1,2}, T.E. Lobzhanidze³, G.N. Dgebuadze¹, B.G. Bendeliani¹,
M.R. Metskhvarishvili², M.Sh. Rusia³, G.R. Giorganashvili¹, V.M. Gabunia^{1,4}

¹Ilia Vekua Sukhumi Institute of Physics and Technology, Laboratory of Cryogenic Technique and Technologies, Tbilisi, Georgia

²Georgian Technical University, Faculty of Informatics and Control Systems, Department of Microprocessor and Measurement Systems, Tbilisi, Georgia

³Ivane Javakhishvili Tbilisi State University, Faculty of Exact and Natural Sciences, Department of Chemistry, Tbilisi, Georgia

⁴Petre Melikishvili Institute of Physical and Organic Chemistry of the Iv. Javakhishvili Tbilisi State University, Tbilisi, Georgia

2-D multifunctional nanostructures of layered double hydroxides assembled in magnetic field

D.E.L. Vieira¹, E.L. Fertman², A.V. Fedorchenko², R.Yu. Babkin³, Y.G. Pashkevich³,
C.M.A. Brett⁴, J.M. Vieira¹, A.N. Salak¹

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

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

³O.Galkin Donetsk Institute for Physics and Engineering, NASU, Kyiv, Ukraine

⁴Department of Chemistry, CEMMPRE, Faculty of Sciences and Technology, University of Coimbra, Coimbra, Portugal

Low thermal conductivity and the evidence of the glassy behavior in

(Pb_{0.7}Sn_{0.25}Ge_{0.05})₂P₂S₆ and (Pb_{0.7}Sn_{0.25}Ge_{0.05})₂P₂Se₆ mixed crystals

I. Zamaraitė¹, V. Liubachko^{2,3}, R. Yevych², A. Oleaga³, A. Salazar³, A. Dziaugys¹,
J. Banys¹, Yu. Vysochanskii²

¹Faculty of Physics, Vilnius University, Vilnius, Lithuania

²Institute for Solid State Physics and Chemistry, Uzhhorod University, Uzhhorod, Ukraine

³Departamento de Física Aplicada I, Escuela de Ingeniería de Bilbao, Universidad del País Vasco UPV/EHU, Bilbao, Spain

11:40-11:50

Special Coffee Break

CONFERENCE HALL

PLENARY LECTURES OF INVITED SPEAKERS

Chair

Dr. Maksym Barabashko

11:50-12:30**Influence of pressure and stoichiometry on the Ginzburg-Landau parameter in superconducting YB₆**S. Gabáni¹, K. Flachbart¹, E. Gažo¹, J. Kačmarčík¹, M. Marcin¹, T. Mori², M. Orendáč¹, Z. Pribulová¹, G. Pristáš¹, P. Samuely¹, N. Shitsevalova³, N. Sluchanko⁴¹Institute of Experimental Physics, SAS, Košice, Slovakia²National Institute for Materials Science, ICMN & CFSN, Tsukuba, Japan³Frantsevich Institute for Problems of Materials Science, NASU, Kyiv, Ukraine⁴Prokhorov General Physics Institute, RAS, Moscow, Russia

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

*Chair Dr. Valentin Koverya***12:30-13:10****Fractal analysis of the critical state of the NbTi superconductor**O.M. Chumak^{1,2}, V.V. Chabanenko¹, V.F. Rusakov³, O.I. Kuchuk¹, I. Abaloszewa², O. Abaloszew², A. Nabiałek², R. Puźniak²¹O.Galkin Donetsk Institute for Physics and Engineering NASU, Kyiv, Ukraine²Institute of Physics, Polish Academy of Sciences, Warsaw, Poland³Vasyl' Stus Donetsk National University, Vinnytsia, Ukraine**Shift of the electronic bands in Fe(Se,Te) in the vicinity of the superconducting transition**Yu.V. Pustovit^{1,2}, D.P. Menesenko¹, A.A. Kordyuk²¹T.Shevchenko National University of Kyiv, Kyiv, Ukraine²Kyiv Academic University, Kyiv, Ukraine**Possibility for the anisotropic acoustic plasmons in LaH₁₀ and their role in enhancement of the critical temperature of superconducting transition**

E.A. Pashitskii, V.I. Pentegov, A.V. Semenov

Institute of Physics NASU, Kyiv, Ukraine

The unusual microwave response of chalcogenide FeSe_{1-x}Te_x film compared to other superconductorsY. Wu¹, A.A. Barannik², L. Sun¹, Y-S. He¹, N.T. Cherpak²¹Institute of Physics of Chinese Academy of Sciences, National Laboratory for Superconductivity, Beijing, China²O. Usikov Institute for Radiophysics and Electronics NASU, Kharkiv, Ukraine**13:10-14:00***Time for Lunch*

CONFERENCE HALL**THEORY OF CONDENSED MATTER PHYSICS**

Chair Dr. Denis Laptev

14:00-15:15

Depending on the angle of the functionalization of twisted graphene

A.A. Belosludtseva, Y.A. Chymakov, N.G. Bobenko

Institute of Strength Physics and Materials Science of Siberian Branch of Russian Academy of Sciences (ISPMS SB RAS), Tomsk, Russia

Strong drag force fluctuations in disordered ensembles of scatterers and effects of nonlinear dynamical screening

O.V. Kliushnichenko, S.P. Lukyanets

Institute of Physics NASU, Kyiv, Ukraine

Landau-Zener-Stückelberg-Majorana quantum logic gates

A. I. Ryzhov¹, O. V. Ivakhnenko¹, S. N. Shevchenko^{1,2}, Franco Nori^{3,4}

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

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

³Theoretical Quantum Physics Laboratory, RIKEN Cluster for Pioneering Research, Wakoshi, Saitama, Japan

⁴Physics Department, University of Michigan, USA

Low-temperature phases of SU(4)-symmetric fermionic mixtures in optical lattices

V.I. Unukovych¹, A.G. Sotnikov^{1,2}

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

²Akhiezer Institute for Theoretical Physics, NSC «Kharkov Institute of Physics and Technology», Kharkiv, Ukraine

CONFERENCE HALL

MAGNETISM AND MAGNETIC MATERIALS

Chair *Dr. Marina Kolodyazhnaya*

15:15-15:45

Magnetic frustration in insulating Jahn-Teller manganite crystals

L. Gonchar^{1,2}

¹Ural State University of Railway Transport, Yekaterinburg, Russia

²Ural Federal University named after First President of Russia B.N.Yeltsin, Yekaterinburg, Russia

Effect of Kink Scattering on their Confinement in Quasi One-Dimensional Magnetically ordered quantum spin systems

S.B. Rutkevich

Bergische Universität Wuppertal, Wuppertal, Germany

CONFERENCE HALL

PLENARY LECTURES OF INVITED SPEAKERS

Chair *Dr. Marina Kolodyazhnaya*

15:45-16:25

Goos-Haenchen Effect and Brillouin Light Scattering

I. Lyubchanskii

O. Galkin Donetsk Institute for Physics and Engineering of NASU, Kyiv, Ukraine

CONFERENCE HALL**SPIE YSW**

Chair *Dr. Nataliia Mysko-Krutik***16:25-16:45 IRE SPIE (The International Society for Optics and Photonics) Student Chapter is organizing Young Scientists Workshop (YSW) devoted to the failfares in scientific career development.****Dr. M. Szatkowski**, SPIE Visiting Lecturer*Wroclaw University of Science and Technology, Dept. of Optics and Photonics,
Wroclaw, Poland*

“Name”

16:45-17:00**CLOSING CEREMONY**