

Updated: 5.07.23

The scientific program of ISCTP-2023

03.07.23 Monday

- 10⁰⁰– 12⁰⁰ Conference registration in the lobby of the main building hall of the Moscow Institute of Physics and Technology, Institutskiy Pereulok, 9
- 12⁰⁰– 12²⁵ *"Welcome greetings"*
Prof. Dmitry Livanov, rector of Moscow Institute of Physics and Technology
Prof. Alexey Kavokin, Director of the Abrikosov Center for Theoretical Physics, Moscow Institute of Physics and Technologies
Prof. Ivan Shelykh, Program Committee Chair

Plenary Session
Concert hall (building № 3 on the scheme)
Chairman prof. Ivan Shelykh

- 12²⁵– 13¹⁰ *"Coexistence of superconductivity and magnetism"*
Prof. Alexander Buzdin, University of Bordeaux, France
- 13¹⁰– 14⁰⁰ *"Generalized multifractality in the spin quantum Hall symmetry class with interaction"*
Prof. Igor Burmistrov, Landau Institute for Theoretical Physics, Russia
- 14⁰⁰– 15³⁰ **Lunch time**

Plenary Session
Concert hall (building № 3 on the scheme)
Chairman prof. Alexander Melnikov

- 15³⁰– 16¹⁵ *"Quantum electrodynamics at strong and supercritical Coulomb fields"*
Prof. Vladimir Shabaev, St. Petersburg State University & B. P. Konstantinov Petersburg Nuclear Physics Institute, NRC "Kurchatov Institute", Russia
- 16¹⁵– 17⁰⁰ *"Few- and half-cycle electromagnetic pulses"*
Prof. Nikolai Rozanov, Ioffe Institute, Russia
- 17⁰⁰– 17¹⁵ **Coffee break**
- 17¹⁵– 18⁰⁰ *"Vortex particles with orbital angular momentum: recent advances and future prospects"*
Prof. Dmitry Karlovets, ITMO University, Russia
- 18⁰⁰– 18⁴⁵ *"Tests of pairing symmetry in multiterminal superconducting junctions"*
Prof. Alexander Golubov, Moscow Institute of Physics and Technology, Russia
- 18⁴⁵– 19³⁰ *"Peculiarities of the density of states in superconductor/normal-metal junctions"*
Prof. Yakov Fominov, L. D. Landau Institute for Theoretical Physics, Russia

04.07.23 Tuesday

Session A1
Room A
Chairman prof. Ivan Iorsh

- 09⁰⁰– 09⁴⁵ *"Using atoms and molecules to search for "New Physics" "*
Prof. Mikhail Kozlov, NRC "Kurchatov Institute", Russia
- 09⁴⁵– 10³⁰ *"Optical whispering gallery mode microresonators based on special glasses"*
Dr. Elena Anashkina, Institute of Applied Physics of the Russian Academy of Sciences (IAP RAS), Russia
- 10³⁰– 10⁵⁰ **Coffee break**
- 10⁵⁰– 11³⁵ *"Interaction of XUV and X-ray photons with atoms: scattering and nonlinear ionization"*
Prof. Andrey Volotka, ITMO University, Russia
- 11³⁵– 12²⁰ *"Precise study of parity conserving and non-conserving nucleus properties using molecules"*
Dr. Leonid Skripnikov, B.P. Konstantinov Petersburg Nuclear Physics Institute of NRC "Kurchatov Institute" and St. Petersburg State University, Russia
- 12²⁰– 13⁵⁰ **Lunch time**

Session A1(continuation)
Room A
Chairman prof. Alexey Yulin

- 13⁵⁰– 14³⁵ *"Functional Renormalisation Group: Theory and applications"*
Dr. Boris Krippa, London School of Economics, United Kingdom
- 14³⁵– 15²⁰ *"Generalizations of adiabatic theorems for the harmonic oscillator and a charged particle in a magnetic field"*
Prof. Victor Dodonov, Institute of Physics, University of Brasilia, Brazil
- 15²⁰– 15⁴⁰ **Coffee break**

Session A1.1
Room A
Chairman prof. Dmitry Karlovets

- 15⁴⁰– 16⁰⁵ *"HfF⁺ spin-rotational Hamiltonian for eEDM search"*
Prof. Alexander Petrov, NRC "Kurchatov Institute", Russia
- 16⁰⁵– 16³⁰ *"Electron-loop corrections of order $\alpha^5 m \mu$ to the Lamb shift in light muonic atoms"*
Dr. Evgeny Korzinin, D.I.Mendeleyev Institute for Metrology (VNIIM), Russia
- 16³⁰– 16⁵⁵ *"Radiative corrections to the bound electron g-factor and level width in the presence of a magnetic field combined with blackbody radiation"*
Dr. Dmitry Solovye, Saint Petersburg State University, Russia
- 16⁵⁵– 17¹⁵ *"g factor of the ground and excited states of highly charged ions"*
Mr. Dmitrii Zinenko, Saint Petersburg State University, Russia
- 17¹⁵– 17³⁵ *"Multielectronic QED effects in the g-factor of multicharged ions"*
Ms. Elizaveta Tryapitsyna, Saint Petersburg State University, Russia

Session A1.2
Room B
Chairman prof. Alexey Yulin

- 15⁴⁰– 16⁰⁵ *"Superferromagnetic sensors"*
 Prof. Vladimir Kondratyev, Joint Institute for Nuclear Research, Russia
- 16⁰⁵– 16³⁰ *"Bound-in-the-continuum exciton-polaritons: elementary excitations of a dark anisotropic Bose condensate"*
 Dr. Nina Voronova, National Research Nuclear University MEPhI, Russian Quantum Center, Russia
- 16³⁰– 16⁵⁰ *"Nonlinear thermo-optical effects in a system of coupled optical microresonators"*
 Ms. Maria Marisova, A.V. Gaponov-Grekhov Institute of Applied Physics of the Russian Academy of Sciences, Russia
- 16⁵⁰– 17¹⁰ *"Space-group approach to the Ginzburg-Landau phase in topological superconductors and 4 quantum numbers of a Cooper pair"*
 Mr. Egor Teplyakov, Moscow Institute of Physics and Technology, Russia
- 17¹⁰– 17³⁰ *"On out-of-equilibrium phenomena in pseudogap phase of complex SYK+U model"*
 Mr. Artem Alexandrov, Moscow Institute of Physics and Technology, Russia

Session A1.3

Room C

Chairman prof. Vadim Kovalev

- 15⁴⁰– 16⁰⁵ *"Excitons and trions with negative effective masses in 2D semiconductors"*
 Dr. Marina Semina, Ioffe Institute, Russia
- 16⁰⁵– 16³⁰ *"Helical Aharonov-Bohm Interferometers: Shot Noise and Conductance"*
 Dr. Ramil Niyazov, NRC "Kurchatov Institute", Russia
- 16³⁰– 16⁵⁰ *"Dynamics of skyrmions in Moiré magnetic materials"*
 Ms. Polina Shaban, ITMO University, Russia
- 16⁵⁰– 17¹⁰ *"Propagation of wave packets along large-scale background waves"*
 Mr. Dmitriy Shaykin, Moscow Institute of Physics and Technology, Russia
- 17¹⁰– 17³⁰ *"Transport regimes for exciton-polaritons in disordered microcavities"*
 Mr. Alexey Osipov, ITMO University, Russia
- 17³⁰– 17⁵⁰ *"Universality of the spectra of multiterminal SNS-junctions"*
 Mr. Artem Posadskii, P.N.Lebedev Physical Institute, Russia

Session A2, Attestation of Abrikosov Center employees

Room D

- 14⁰⁰– 16³⁰ Alexander Melnikov
 Ivan Shelykh
 Ivan Iorsh
 Zaur Alisultanov
 Zhanna Devizorova
 Andrey Kudlis
 Anton Nalitov
 Vanik Shahnazaryan

05.07.23 Wednesday

Session B

Room A
Chairman prof. Dmitry Glazov

- 09⁰⁰– 09⁴⁵ *"Nonlinear XUV-optics with IR-dressed atoms: theoretical challenge"*
Prof. Mikhail Frolov, Voronezh State University, Russia
- 09⁴⁵– 10³⁰ *"Precision Physics and the Nonrelativistic QED"*
Prof. Vladimir Korobov, Joint Institute for Nuclear Research, Russia
- 10³⁰– 11¹⁵ *"Topological edge states and quantum computations"*
Prof. Yuriy Makhlin, Condensed-matter physics Lab HSE, Landau Institute for theoretical physics, Russia
- 11¹⁵– 11³⁵ **Coffee break**
- 11³⁵– 12²⁰ *"New effects in open quantum optical systems with strong coupling"*
Dr. Evgeny Andrianov, Moscow Institute of Physics and Technology, Russia
- 12²⁰– 13⁰⁵ *"Parabolic accelerating relativistic jets from active galactic nuclei"*
Dr. Elena Nokhrina, Moscow Institute of Physics and Technology, Russia
- 13⁰⁵– 13⁴⁰ **Lunch time**
- 13⁴⁰– ... **Excursion to the Panorama Museum "Battle of Borodino"**
Meeting point: Main Building Hall entrance
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06.07.23 Thursday

Session C1
Room A
Chairman Dr. Anton Nalitov

- 09⁰⁰– 09⁴⁵ *"Attosecond atomic optics: a new probe for ultrafast quantum dynamics"*
Prof. Sergei Popruzhenko, Institute of General Physics A.M. Prokhorova Russian Academy of Sciences, Russia
- 09⁴⁵– 10³⁰ *"Casimir effect"*
Prof. Denis Baranov, Moscow Institute of Physics and Technology, Russia
- 10³⁰– 10⁵⁰ **Coffee break**
- 10⁵⁰– 11³⁵ *"Modern problems of the relativistic quantum theory of molecules and materials containing elements of the lower half of the Periodic Table"*
Prof. Anatoly Titov, Petersburg Institute of Nuclear Physics. B.P. Konstantinov, NRC "Kurchatov Institute", Russia
- 11³⁵– 12²⁰ *"Non-Hermitian phase transitions in open systems"*
Prof. Alexander Zyablovsky, Moscow Institute of Physics and Technology, Russia
- 12²⁰– 13⁵⁰ **Lunch time**

Session C1(continuation)
Room A
Chairman Dr. Zaur Alisultanov

- 13⁵⁰– 14³⁵ *"Diffusion in Bose-Fermi mixtures"*
Prof. Mikhail Glazov, Ioffe Institute, Russia

14³⁵– 15²⁰ *"Wurtzite GaAs and InAs quantum dots in direct band gap AlGaAs wurtzite nanowires"*
Prof. Daniele Baretin, Università Niccolò Cusano, Italy

15²⁰– 15⁴⁰ **Coffee break**

Session C1.1

Room A

Chairman prof. Mikhail Kozlov

15⁴⁰– 16⁰⁵ *"Combined two-loop self-energy corrections at finite and zero temperatures"*
Dr. Timur Zaliutdinov, Saint Petersburg State University, Russia

16⁰⁵– 16³⁰ *"Time-depending screening effects in relativistic evaluations of electronic quantum dynamics in ion-atom collisions"*
Dr. Yury Kozhedub, Saint Petersburg State University, Russia

16³⁰– 16⁵⁵ *"Schwinger mechanism of pair production in rapidly-varying electric fields"*
Dr. Ivan Aleksandrov, Saint Petersburg State University, Russia

16⁵⁵– 17¹⁵ *"Two-photon $2s \rightarrow 1s$ decay in one-electron and one-muon ions"*
Ms. Victoria Knyazeva, Saint Petersburg State University, Russia

Session C1.2

Room B

Chairman Dr. Andrey Kudlis

15⁴⁰– 16⁰⁵ *"Influence of active medium vibronic degrees of freedom on operating lasers regimes"*
Mr. Evgenii Tereshchenkov, Moscow Institute of Physics and Technology, Russia

16⁰⁵– 16²⁵ *"Renormalization group analysis of the Kardar-Parisi-Zhang model in turbulent environment"*
Mr. Mikhail Reiter, Saint Petersburg State University, Russia

16²⁵– 16⁴⁵ *"Exceptional point phase transition in Hermitian systems"*
Mr. Timofey Sergeev, Moscow Institute of Physics and Technology, Russia

16⁴⁵– 17⁰⁵ *"Universal relations for Bose gases with power-law interaction at $T = 0$ "*
Ms. Elena Skirdova, National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Russia

Session C1.3

Room C

Chairman Dr. Zhanna Devizorova

15⁴⁰– 16⁰⁵ *"Metastable states in the J_1 - J_2 Ising model"*
Prof. Veniamin Abalmasov, Institute of Automation and Electrometry, Russia

16⁰⁵– 16³⁰ *"Mathematical models for predicting volt-ampere characteristics and heat release in high-temperature superconductors at alternating currents"*
Dr. Konstantin Osipov, Central Institute of Aviation Motors named after P.I. Baranov, Russia

16³⁰– 16⁵⁰ *"Inertial dynamics and relaxation of the magnetization of ferromagnetic nanoparticles in a strong magnetic field"*
Mr. Anton Titov, Moscow Institute of Physics and Technology, Russia

16⁵⁰– 17¹⁰ *"Diffusive modes in a two-dimensional fermionic gas with number conserving dissipative dynamics"*
Ms. Anastasia Lyublinskaya, Moscow Institute of Physics and Technology, Russia

Poster session

17¹⁰– 18⁰⁰ *Poster session at the hall of the MIPT building "Digital Technology Center" or "Cifra".*

The Poster List

1. *"Tailoring effective axion response via time-modulated metamaterials"*
Mr. Leon Shaposhnikov, ITMO University, Russia
2. *"Theoretical prerequisites for the upcoming generation of precision spectroscopic experiments"*
Dr. Dmitry Solovyev, Saint Petersburg State University, Russia
3. *"Optical spin Hall effect in a rigidly rotating system of exciton-polaritons"*
Mr. Fedor Shabunin, National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Russia
4. *"Superconductor-polariton non-dissipative drag in optical microcavity"*
Mr. Azat Aminov, National Research University Higher School of Economics, Russia
5. *"Plasmons in stripe with anisotropic two-dimensional electron gas fully screened by metal gate"*
Mr. Danil Rodionov, Moscow Institute of Physics and Technology, Russia
6. *"Geometric phase for nonlinear oscillators from perturbative renormalization group"*
Ms. Mariia Kryvoruchko, Moscow Institute of Physics and Technology, Russia
7. *"Ultracold rotating molecules inside the Rydberg atom"*
Mr. Grigor Adamyan, Moscow Institute of Physics and Technology, Russia
8. *"Accurate relativistic calculation of the one-electron energy spectra for H_2^+ , He_2^{3+} and $He^+ - p$ quasimolecules as a function of inter-nuclear distance"*
Dr. Dmitry Solovyev, Saint Petersburg State University, Russia
9. *"Dirac Problem for Heavy Highly Charged Quasimolecules: Finite-Basis-Set Approach"*
Dr. Dmitry Glazov, Saint Petersburg State University, ITMO University Russia
10. *"The magnetic exchange coupling to the skyrmion crystal on the electronic states of topological insulator"*
Ms. Gulnaz Rakhmanova, ITMO University, Russia
11. *"Transmission of vortex electrons through a solenoid"*
Mr. Dmitry Grosman, ITMO University, Russia
12. *"Creation of a photocell based on titanium dioxide scrolls"*
Mr. Vladislav Samyshkin, Vladimir State University, Russia
13. *"Fractal geometry methods by improving image quality in atomic force microscopy"*
Ms. Anastasia Lelekova, Vladimir State University, Russia
14. *"Current-induced valley polarization in transition metal dichalcogenide monolayers"*
Mr. Daniil Eskoskin, Moscow Institute for Physics and Technology, Russia
15. *"Nonlinear dissipative exciton-polariton"*
Mr. Maxim Posazhenkov, Russian Quantum Center, Russia

18⁰⁰–

Round table (discussion). Local fruits, soft drinks and snacks available

07.07.23 Friday

Session D1

Room A

Chairman prof. Alexey Kavokin

- 09³⁰– 10¹⁵ *"Locality of topological dynamics in Chern insulators"*
Prof. Alexey Rubtsov, Russian Quantum Center, Russia
- 10¹⁵– 11⁰⁰ *"Metamaterials: conceptual highlights and recent trends"*
Prof. Mikhail Lapine, ITMO University, Russia
- 11⁰⁰– 11²⁰ **Coffee break**
- 11²⁰– 12⁰⁵ *"Dissipation induced rotation of polariton condensates"*
Prof. Alexey Yulin, ITMO University, Russia
- 12⁰⁵– 12⁵⁰ *"Electronic properties of bilayer graphene"*
prof. Alexander Rakhmanov, Institute for Theoretical and Applied Electromagnetics,
Russian Academy of Sciences, Russia
- 12⁵⁰– 14²⁰ **Lunch time**

Session D1 (continuation)

Room A

Chairman prof. Mikhail Lapin

- 14²⁰– 15⁰⁵ *"Oblique solitons in Bose-Einstein condensates"*
Prof. Anatoly Kamchatnov, Institute of Spectroscopy RAS, Russia
- 15⁰⁵– 15⁵⁰ *"Self-organization of charged particles in lateral potentials with a high symmetry"*
Prof. Rashid Nazmitdinov, Joint Institute for Nuclear Research, Russia
- 15⁵⁰– 16¹⁰ **Coffee break**

Session D1.1

Room A

Chairman prof. Andrey Volotka

- 16¹⁰– 16³⁵ *"Time-reversal and spatial parity violation in atomic systems"*
Dr. Dmitry Chubukov, ITMO University, Russia
- 16³⁵– 16⁵⁵ *"Analytical formulas for nuclear polarization and nuclear deformation"*
Mr. Dmitry Akulov, ITMO University, Russia
- 16⁵⁵– 17¹⁵ *"Electromagnetic-field-phase effect on charge transfer and ionization in laser-assisted collisions of protons with hydrogen atoms"*
Mr. Dmitry Krapivin, Saint Petersburg State University, Russia
- 17¹⁵– 17³⁵ *"Electromagnetically Induced Transparency in Cells of Finite Longitudinal Sizes with Antirelaxation Wall Coating"*
Mr. Gavriil Voloshin, Peter the Great St.Petersburg Polytechnic University, Russia

- 17³⁵– 17⁵⁵ *"High-order harmonic generation by H₂⁺ molecular ion in time-delayed bichromatic few-cycle counter-rotating laser fields"*
Mr. Nikolay Knyazev, NRC "Kurchatov Institute", Russia

Session D1.2

Room B

Chairman Dr. Vanik Shahnazaryan

- 16¹⁰– 16³⁵ *"Ginzburg-Landau approximation for the Hubbard model in the external magnetic field in 2D semiconductors"*
Prof. Leonid Dubovskii, NRC "Kurchatov Institute", Russia
- 16³⁵– 16⁵⁵ *"Mean field study of 2D quasiparticle condensate formation in presence of strong decay"*
Mr. Norayr Asriyan, Federal State Unitary Enterprise Dukhov Automatics Research Institute (VNIIA), Russia
- 16⁵⁵– 17¹⁵ *"Radiative properties of nanoscale systems with photobleaching"*
Mr. Iliya Doronin, Federal State Unitary Enterprise Dukhov Automatics Research Institute (VNIIA), Russia
- 17¹⁵– 17³⁵ *"Simulation of Two-Phase Flow in Porous Media using a Two-Dimensional Network Model"*
Mr. Kafi Ul Shabbir, Moscow Institute of Physics and Technology, Russia
- 17³⁵– 17⁵⁵ *"Decay of Flexural Phonons in 2D Membrane"*
Mr. Artem Kokovin, L. D. Landau Institute for Theoretical Physics, Russia

Session D1.3

Room C

Chairman Dr. Anton Nalitov

- 16¹⁰– 16³⁵ *"Coaxial and eccentric states of coupled vortex and skyrmion in superconductor-ferromagnetic heterostructures"*
Dr. Stanislav Apostoloff, L. D. Landau Institute for Theoretical Physics, Russia
- 16³⁵– 16⁵⁵ *"Partial-secular approximation for the description of the dissipation in strongly coupled systems"*
Mr. Ivan Vovcenko, Moscow Institute of Physics and Technology, Russia
- 16⁵⁵– 17¹⁵ *"Deep strong light-matter coupling with artificial metallic nanostructures"*
Mr. Evgeny Ryabkov, Moscow Institute of Physics and Technology, Russia
- 17¹⁵– 17³⁵ *"Double layer in asymmetric ionic liquids: molecular scale roughness effect"*
Ms. Irina Nesterova, Moscow Institute of Physics and Technology, Russia
- 17³⁵– 17⁵⁵ *"High-quality Resonances in Spherical Nanoparticles with Radial Anisotropy"*
Mr. Amir Eghbali, Moscow Institute of Physics and Technology, Russia

Closing ceremony
