

October,27

Opening Session (10:30 — 12:30, Big Conference Hall of Presidium of NASB)

Conference Opening

- Claude Fabre Characterizing the quantum properties of a highly multimode quantum frequency comb
Ulrik Andersen Parametrically generated
Controlling a mechanical oscillator by squeezed light
Marc Cheneau Atomic Hong-Ou-Mandel Experiment
Natalia Korolkova Gaussian quantum discord and the entangling power of a beamsplitter

Lunch (12:30-14:00)

Quantum simulations of manybody systems (14:00 - 14:50, Big Conference Hall of Presidium of NASB)

- Daniel Barredo Gonzalez Quantum simulation of spin systems using 2D arrays of single Rydberg atoms
Bruno Peaudecerf Single-atom imaging of fermions in a quantum-gas microscope

Photonic QIP Tools (14:50 - 16:05, Big Conference Hall of Presidium of NASB)

- Clement Sayrin A nanofiber-coupled atomic ensemble for the realization of a nanophotonic optical isolator and a fiber-integrated optical memory
Oliver Barter Photonic Quantum Logic with Atom-Cavity Photons
Celso Villas-Boas Electromagnetically Induced Transparency in Optical Cavities: Classical Analog and Applications in Quantum Information Theory

Photonics with nanostructures (14:00 - 16:05, Small Conference Hall of Presidium of NASB)

- Nika Akopian Quantum optics with quantum dots, nanowires and atomic systems
Igor Bondarev Excitons, Plasmons and Excitonic Complexes in quasi-1D Semiconductors for Nanooptoplasmonics Applications. Theory and Perspectives
Marcelo Pereira de Almeida Solid-state Single-photon Sources for Quantum Technologies
Yury Rakovich Quantum Optics with Hybrid System of Metal Nanoparticles and J-aggregates: Study of Strong Exciton-Plasmon Coupling
Sergey Maksimenko Electromagnetic effects in nanocarbon: modelling and device applications

Light-matter interaction (14:00 - 16:00, Conference Hall of Institute of Physics)

- Carl-Michael Weitzel Photoionization yields in intense fs-laser fields – a systematic investigation of chirp effects
Yury Vainer Spectroscopy of single upconversion NaYF₄ nanoparticles doped by rare-earth lanthanide ions
Maxim Gladush Maxwell-Bloch equations for light emitters in a weakly absorbing dielectric
Ilya Feranchuk Relaxation in the three-level system out of framework of the rotating wave approximation
Alexander Starukhin Photophysical study of Mg, Zn and Pd complexes of porphyrazines: Implication for TAA based fluorescence upconversion
Mikhael Korolkov On the control of product yields in the photofragmentation of deuteriumchlorid ions.

POSTER SESSION & Coffee break, (16:00 - 16:50, Presidium of NASB)

Quantum communications (16:50 - 18:30, Big Conference Hall of Presidium of NASB)

- Alexander Holevo Optimal communication rates of quantum Gaussian channels
Siddarth Joshi Clock Synchronization in Long Distance QKD
Eric Cavalcanti The Two Bell's Theorems of John Bell and Causal Emergence
Ekaterina Moreva Experimental demonstration of dualism in entanglement through the Bell measurements

Quantum motional states in ion traps (16:50 - 18:30 Small Conference Hall of Presidium of NASB)

- Joseba Alonso Fast quantum control and light-matter interactions at the 10,000 quanta level
Dzmitry Matsukevich Phonon down conversion in the linear Paul trap

Qubits in waveguides

Jibo Dai Rabi oscillation in a quantum cavity and nonlinear light transport in 1D waveguides
Maxim Makhonin Spin transfer in integrated quantum optical circuit

WELCOME PARTY

October, 28 (Nesvizh)

Q-measurements (10:00 - 11:15)

Igor Dotsenko Past quantum state of trapped light
Sebastien Gleyzes Quantum Zeno dynamics of a Rydberg atom
Ralf Blattmann Conditioned quantum dynamics on a 1D chain

Coffee-break (11:15 - 11:45)

Weak measurements and entanglement (11:45 — 13:00)

Hagai Eisenberg Knitting entanglement: assembling photonic states with delay lines
Marco Barbieri Weak measurements and the joint estimation of phase and phase diffusion
Ivo Degiovanni Weak values and the measurement of incompatible observables
Barbara Kraus Some aspects of multipartite entanglement

Lunch (12:40-14:00)

NV and other solid-state sources of light (14:00 — 16:50)

Christian von Borczyskowiak Optical Detection Schemes for Single Semiconductor Quantum Dots: From Spectroscopy to High Resolution Microscopy
Alexei Trifonov Sensitivity improvement of quantum phase sensing with a single solid state spin via spin-to-charge state mapping
Dmitry Krimer Non-Markovian Quantum Dynamics in the Strong-Coupling Limit of Cavity QED
Heng Fan Entanglement-enhanced quantum metrology in solid state
Thierry Debuisschert NV centers based Wide-field Magnetic Imager with application to microelectronics and spectral analysis
Ilya Fedotov Fiber-optic neurointerfaces: Quantum technologies for neurophotonics
Junko Ishi-Hayase Spatially selective creation of nitrogen-vacancy centers with preferential orientation in an isotopically-purified diamond thin film
Alexander Nizovtsev Hybrid electron-nuclear spin systems in diamond for spintronics: Ab initio computer simulation and experimental data

Excursion

CONFERENCE DINNER (17:30 - 19:30)

October, 29 (Hotel Belarus)

Dynamical control, adaptive measurements (9:00-10:05)

Tsubasa Ichikawa Composite Pulses in Quantum Information Processing and Nuclear Magnetic Resonance
Aleksei Taichenachev Manipulating single-atom q-bit by composite pulses with applications to quantum metrology
Alexander Mikhalychev Bayesian adaptive data pattern tomography

CQED (10:05 - 11:00)

Yuri Ozhigov Ensembles of two level atoms in optical cavities
Nikolay Larionov Single-emitter laser in the presence of external atom
Elena Yakshina RF-assisted Förster resonances and Jaynes-Cummings dynamics in mesoscopic ensembles of the interacting Rydberg atoms

Coffee-break (11:00-11:25)

Quantum memory (11:25 - 13:00)

Yuri Golubev Manipulations with quantum states on the tripod atomic configuration in on-resonant approximation
 Ivan Sokolov Quantum states control in spatially multimode quantum memories
 Sergey Moiseev Photon/spin echo quantum memory in QED cavity
 Tatiana Golubeva High-speed resonant quantum memory on the base of thermal atomic ensemble

Lunch (13:00-14:00)**Atomic ensembles (14:00 - 16:10)**

Dmitriy Kupriyanov Light emission under conditions of radiation trapping in an inhomogeneous and disordered system of cold atoms
 Alice Sinatra Thermal blurring of a coherent Fermi gas
 Igor Sokolov Light localization in a cold and dense atomic ensemble in a magnetic field
 Clemens Gneiting Incoherent evolution of the ensemble average in the Anderson model
 Denis Ivanov A new algorithm for collective cooling of particles via feedback
 Oxana Mishina Squeezing of a collective atomic motion

Coffee-break (16:10-16:30)**Quantum correlations, stochasticity and thermodynamical analogies (16:30 - 18:05)**

Subhash Chaturvedi Application of phase space methods to quantum heat engines
 Karen Hovhannisyan Extractable work from correlations
 Yuri Vainer On the validity of the standard model of low-temperature glasses: anomalous dynamics in real systems
 Ting Gao Permutationally Invariant Part of a Density Matrix and Nonseparability of N-Qubit States
 Fengli Yan Two local observables are sufficient to characterize maximally entangled states of N qubits

THEATRE (19:00)**October, 30 (Hotel Belarus)****Non-classical states of light (9:00-11:15)**

Konrad Banaszek Restoring quantum enhancement in two-photon interferometry
 Mikhail Fedorov Azimuthal entanglement of noncollinear biphoton states
 Aurelian Isar Generation of quantum correlations in two-mode Gaussian systems in a thermal environment
 Giuseppe Patera Temporal imaging with squeezed light
 Dmitri Horoshko Single-cycle squeezed states of light
 Polina Sharapova Giant twin-beam generation in bright squeezed vacuum states of light in terms of Schmidt modes.
 Konstantin Katamadze Preparation of broadband biphotons in the single spatial mode

Coffee-break (11:15-11:40)**Spectral and temporal manipulations with quantum states of light (11:40 - 12:50)**

Michal Karpinski Active spectral manipulation of non-classical light
 Almut Beige Scattering light through optical cavities and cavity-fiber networks
 Anton Kozubov Theoretical investigation of the correlation between perturbations of linear quantum optical circuit parameters and its performance

Lunch (13:05-14:00)

QKD (14:00 - 16:00)

Vladyslav Usenko	Towards continuous-variable quantum key distribution with macroscopic states of light
Artur Gley	Subcarrier Quantum Key Distribution over a 42 dB Optical Fiber Channel with strong reference protocol
Constantin V. Usenko	Complexity of Measurement as the Basis of Quantum Channel Security
Boris Veklenko	Superluminal Signals in Quantum Optics
Krzysztof Lorek	Ideal clocks - a convenient fiction
Yury Kurochkin	Floating basis quantum cryptography with decoy states

Conference Closing**POSTER SESSION (October, 27):**

Nadezda Borshchevskaia	Three-Photon Generation in Third Order Spontaneous Parametric Down-Conversion
Vyacheslav Chizhevsky	Experimental study of statistical properties of polarization noise in a multimode VCSEL
Rafal Czerwieniec	Absolute and relative measurements of quantum yields of fluorescence for the metallocomplexes of porphyrins at ambient temperature
Dmitry Filimonenko	Manufacture of fiber optic elements using CO2 laser installation
Eugene Garusov	Multimode entanglement of two-level atoms from dissipative non-Markovian dynamics
Aleksei Gorshchev	Zero-phonon line excitation saturation parameters of single terrylene molecules in frozen hexadecane: nanoscale mapping to the structure of the sample
Dmitri Horoshko	Full-response characterization of afterpulsing in single-photon detectors
Ilya Karuseichyk	Analysis of optical states, created by means of small cross-Kerr nonlinearities and probabilistic entanglement enhancement
Mikhael Korolkov	Femtosecond interferometry as a tool for optimal control of DCI+ photofragmentation.
Vladimir Kurochkin	Ultra long distance QKD
Semeni Kuten	Non-flipping ¹³ C nuclear spins in NV diamond: Hyperfine and spatial characteristics from DFT simulation of NV hosting H-terminated cluster C ₅₁₀ [NV]H ₂₅₂
Alexander Nizovtsev	Effective microwave-induced coherent manipulation of C ₁₃ nuclear spin state in hyperfine-coupled NV-C ₁₃ spin systems in diamond
Vladimir Potkin	Structure and spin properties of tetrahedron-shaped fullerene-ferrocene- and fullerene-nickelocene-dicarboxylic acids conjugates: DFT simulation
Aleksei Pozdnyakov	Investigation of the molecular mechanisms of thermal stability of polymer-nanocarbon composites
Alexander Pushkarchuk	Quantum chemical designing of set of cholesterol containing endohedrally doped fullerenols as qubit candidates
Vadim Pushkarchuk	Model for surface "reporter" spin in a single-NV-based magnetometer: DFT simulation of cluster C ₆₄ [NV]H ₆₈ +11H having dangling bond on the (100) surface
Vadim Reut	Representation of quantum states of electromagnetic field using discrete basis of coherent projectors
Anton Sakovich	Periodic coherent pump as nonclassicality protector in the systems with nonlinear coherent loss and linear dissipation
Andrei Soldatov	Fullerene based derivative metallocenes as perspective materials for quantum optics devices
Alexander Starukhin	Fine line structure in the Soret band in spectra of metallocomplexes of porphine
Vladislav Stefanov	Single atom laser: quantum dynamics under continuous measurement
Oleg Zhikol	Neutral oxygen-vacancy color center in diamond for spintronic applications: Simulation of electronic and spin properties