



23th International Conference
Foundations & Advances in Nonlinear Science
21.09-25.09 2026
 and
 8nd International Symposium
Advances in Nonlinear Photonics
21.09-25.09 2026
Minsk, Belarus

FANS & ANPh Conferences Programme

Monday 21.09.2026

FANS & ANPh REGISTRATION **9.00 – 10.00**

Physics Department, room 326

OPENING **10.00 – 10.05**

Physics Department, room 330

Foreword by Chairman Prof. Alexey Tolstik

Plenary Session **10.05 – 12.00**

Physics Department, room 330 (Chairman A. Tolstik)

10.05 – 10.35

Mixed Dynamics in the Reversible Systems with Symmetry Breaking

A.Zh. Rahmanova, Alexey Savin (Saratov State University, Saratov, Russia)

10.35 – 11.05

Generalized Uncertainty Principle and Some Its Implications for Primordial Black Holes and Cosmological Parameters in Different Epochs

Alexander Shalyt-Margolin (Institute for Nuclear Problems, Belarusian State University, Minsk, Belarus)

11.05 – 11.35

Some Mathematical Methods Used in the Analytical Calculation of Contributions to the Lepton Anomaly

V.I. Lashkevich, Leonid Kaptari (Gomel State Technical University, Gomel, Belarus ; Joint Institute for Nuclear Research, Dubna, Russia)

Coffee Break 11.35 – 11.50

Physics Department, room 326

Theoretical physics 11.50 – 12.50

Physics Department, room 330 (Chairman G. Krylov)

11.50 – 12.10

Generalized equation for a spin 3/2 and three characteristics in external electromagnetic and gravitational fields

V.V.Kisel, A.V. Bury, A.M.Kuzmich, E.M. Ovsiyuk, V.M. Red'kov
(B.I. Stepanov Institute of Physics, NAS of Belarus (Minsk, Belarus))

12.10 – 12.30

Geometrical structure of the field created by a uniformly accelerated charge in Rindler and bispherical coordinates.

A.V. Baran (B.I. Stepanov Institute of Physics, NAS of Belarus, Minsk, Belarus)

12.30 – 12.50

Hadron Fluctuations Taking into Account the Gluon Squeezed States in QCD Jet Ring

Valery Shaparau (JIPNR-Sosny, NAS of Belarus, Minsk, Belarus)

Lunch Break 12.50 – 14.30

FANS: Nonlinear dynamics and data analysis 14.30 – 16.30

Physics Department, room 330 (Chairman A.V. Savin)

14.30 – 15.00

The quantum blockchain with algorithm consensus

A. V. Sidorenko, I. A. Prihodko (Belarusian State University, Minsk, Belarus)

15.00 – 15.25

Feedback-Induced Dynamical States and Stabilization in Nonlinear Systems of Binary-State Elements

N.E. Savitskaya, T.A. Fedorova (Petersburg Nuclear Physics Institute named by B.P.Konstantinov of NRC "Kurchatov Institute")

15.25 – 15.50

Coexistence of attractors of low period for some families of one-dimensional maps

Gunnar Söderbacka (Turku University , Finland)

15.50 – 16.10

Symbolic Anatomy of the Birkhoff Curve I: the Knaster Continuum Internal Dynamics

Dmitry W. Serow (M. Budyonny Military Academy of the Signal Corps,, St. Petersburg, Russia)

16.10 – 16.30

A novel type of wavemeter based on microresonator clusters enabled by machine learning

Elina Tcherniavskaia, Ivan Saetchnikov, Anton Saetchnikov (Belarusian State University, Minsk, Belarus)

Coffee Break

16.30 – 16.50

Physics Department, room 326

ANPh: Media & Sensorics

16.50 – 18.20

Physics Department, room 330 (Chairman E. Melnikova)

16.50 – 17.15

Peculiarities of laser beam propagation in biosuspensions

O.M. Fedotova, A.S. Fedotov, O.K. Khasanov, G.A. Rusetsky, T.V.Smirnova, K.V.Pistsova, A.N. Bugay (Russian State Social University, Minsk Branch, Belarus)

17.15 – 17.40

Electrically tunable liquid crystal zone-plate-based optical element for real-time control of optical vortex topological charge

A. Paddubskaya, K. Pantsialeyeva, V. Osipava, A. Novitsky, E. Melnikova (Institute for Nuclear Problems, Belarusian State University, Minsk, Belarus)

17.40 – 18.00

Canonically Conjugate Relation for the Standard Deviations of a Focusable Laser Beam

V.V. Kabanov, A.O. Nehryienka (B.I. Stepanov Institute of Physics, NAS of Belarus, Minsk, Belarus)

18.00 – 18.20

Electrically restructuring nematic liquid crystal twist polarization grating based on profiled geometric phase

K. Pantsialeveva, E. Melnikova, A. Tolstik, Al. Muravsky, An. Murauski (Belarusian State University. Institute of Chemistry of New Materials, NAS of Belarus, Minsk, Belarus)

18.20 – 18.40

Volume and Thin Polymer Holographic Elements for Optical Vortex Generation

D. Shtyrev, E. Melnikova, V. Mogilny, A. Tolstik (Belarusian State University, Minsk, Belarus)

Tuesday 22.09.2026

Plenary Session

10.00 – 11.35

Physics Department, room 330 (Chairman F.M. Trukhachev)

10.00 – 10.35

Optical Vortex. Formation, Diagnostics, and Practical Application

A. Tolstik, E. A. Melnikova (Belarusian State University, Minsk, Belarus)

10.35 – 11.05

Linear Diffraction of Light Waves on Regular Domain Structures in KTiOPO₄ crystal

S. Shandarov, K. Melnik, A. Zlobin, E. Savchenkov, K. Melnik, A. Tik, Yu. Kuleshov, V. Dy, N. Burimov, A. Bayankina, D. Shivarova, M. Chuvakova, A. Akhmatkhanov, V. Shur (Tomsk State University of Control Systems and Radioelectronics, Tomsk, Russia)

11.05 – 11.35

Combined Thermomechanical and Physicochemical Treatment of Structural Materials: Self-Organization and Heredity, Phase Transitions and Multifractals, Finite and Cellular Automata

M.L. Kheifetz (Institute of Applied Physics, NAS, Minsk, Belarus)

Coffee Break

11.35 – 11.50

Physics Department, room 326

Plenary session

11.50 – 13.30

Physics Department, room 330 (Chairman S. Shandarov)

11.50 – 12.20

Wave transport of matter: fundamental significance and possible applications

F.M. Trukhachev, N.V. Gerasimenko, M.M. Vasiliev, O.F. Petrov (Belarusian-Russian University, Joint Institute for High Temperatures of the Russian Academy of Sciences, Belarus)

12.20 – 12.45

Multiparticle production in electron-positron annihilation

Elena Kokoulina (Joint Institute for Nuclear Research, Dubna, Russia; Gomel State Technical University)

12.45 – 13.05

Application of Weak Approximations to Density Approximation Problems

Anatoly Zherelo (Belarusian State University, Minsk, Belarus)

13.05 – 13.30

Physical Principles and Computer Support for Chromatographic Methods for Determining the Component Composition of Different Objects Using a Modernized Internal Standard Method

S. Sytova, A.Kovalenko, E.Kovalenko, S.Charapitsa (Institute for Nuclear Problems, Belarusian State University, Minsk, Belarus)

Lunch Break

13.00 – 14.30

FANS: High Energy Physics

14.30 – 16.00

Physics Department, room 330 (Chairman Olga Solovtsova)

15.00 – 15.20

Features of a segmented electromagnetic calorimeter based on LYSO crystals located in a uniform magnetic field

E. Velicheva, V. Kalinnikov (Joint Institute for Nuclear Research, Dubna, Russia)

15.20 – 15.40

Electromagnetic Form Factors of Kaons

E.Z.Avakyan, S.L.Avakyan (Gomel State Technical University, Gomel, Belarus)

15.40 – 16.00

Electromagnetic Form Factors of Pseudoscalar Mesons

E.Z.Avakyan, S.L.Avakyan (Gomel State Technical University, Gomel, Belarus)

Coffee Break **16.00 – 16.15**

Physics Department, room 326

FANS: Particle and Fields **16.15 – 17.00**

Physics Department, room 330 (Chairman H.V. Grushevskaya)

16.15 – 16.35

Pauli Approximation in the Theory of a Spin 2 Particle with Anomalous Magnetic Moment, in the Curved Space-Time Background

A.V. Ivashkevich, V.M. Red'kov (B.I. Stepanov Institute of Physics, NAS of Belarus, Minsk, Belarus B.I. Stepanov Institute of Physics, NAS of Belarus, Minsk, Belarus)

16.35 – 17.00

Sensitivity of the Future Muon Collider to a Heavy Z' Boson in the $U(1)_{L_\mu-L_\tau}$

Model with Longitudinal Beam Polarization

D.V. Sinegribov, V.V. Andreev, I.A. Serenkova (Gomel State University; Gomel State Technical University, Gomel, Belarus)

The cultural program **18.00**

Wednesday 23.09.2026

Plenary Session **10.00 – 12.05**

Physics Department, room 330 (Chairman G. Krylov)

10.00 – 10.40

Preasymptotic behavior of high-order corrections to the anomalous magnetic moments of leptons due to vacuum polarization by lepton loops

O.P. Solovtsova, V.I. Lashkevich, L.P. Kaptari (Gomel State Technical University, Gomel, 246746, Belarus; Joint Institute for Nuclear Research, Dubna, Russia)

10.40 – 11.10

New heavy gauge bosons decaying to pair of electroweak bosons at RUN 3, RUN 2 and HL-LHC with ATLAS and CMS at the LHC

Inna Serenkova (Gomel State Technical University, Gomel, 246746, Belarus)

11.10 – 11.40

Mechanisms for optimizing the temperature sensitivity of contactless nanosensors based on yttrium orthovanadate and sodium tetrafluoroyttrium nanocrystals doped with rare earth elements

O.Kh. Khasanov, O.M. Fedotova, G.R. Rusetsky, A.P. Saiko, V.G. Nikiforov, D.K. Zharkov, A.G. Shmelev, A.V. Leontyev and E.O. Mityushkin (Scientific-Practical Materials Research Centre of the NAS of Belarus, Minsk, Belarus)

11.40 – 12.00

Maxwell equations in Kerr-Newman-Unti-Tamburino spacetime

N.G. Krylova, V.M. Red'kov (B.I. Stepanov Institute of Physics, NAS of Belarus, Minsk, Belarus)

Technical Break

12.00 – 12.10

Online Session

12.10 – 13.50

Physics Department, room 330, <http://eduphys.bsu.by> (Chairman I. Timoschenko)

12.10– 12.30

Numerical Investigation of Primary and Secondary Resonances in an AM-Forced Parametric Duffing Oscillator Numerical Investigation of Primary and Secondary Resonances in an AM-Forced Parametric Duffing Oscillator

M.Anisha Nashrin, K.Suddalai Kannan, S.M.Abdul Kader, A.Zeenath Bazeera, V.Chinnathambi (Sadakathullah Appa College (Affiliated to Manonmaniam Sundaranar University), India)

12.30 – 12.50

Perturbation Theory in Direct and Inverse Expansion Parameters Beyond Perturbative QCD

D. A. Volkova, O. V. Teryaev and O. P. Solovtsova (Dubna State University; Joint Institute for Nuclear Research, Dubna, Russia; Gomel State Technical University)

12.50 – 13.10

Nonlinear Vibrational Dynamics of a Damped Morse Oscillator under Multi-Frequency Excitation

Siva Sakthi Pitchammal, Kairon Mubina M.S., S.M. Abdul Kader, Asweel Ahmed A Jaleel, and V. Chinnathambi (Department of Physics, Sadakathullah Appa College, Tamilnadu, India.)

13.10 – 13.30

A model-based research on function merging at large and small variable values

O.R. Avdeev, O.V. Teryaev, O.P. Solovtsova , D.A. Volkova_(Dubna State University; Joint Institute for Nuclear Research, Dubna, Russia; Gomel State Technical University; Dubna State University)

13.30 – 13.50

New Solutions for RG Equations

D. M. Tolkachev, D. I. Kazakov, A. I. Mukhaeva, R. M. Iakhibbaev (Joint Institute for Nuclear Research, Dubna, Russia)

13.50 – 14.10

Pion off-shell form factors

S.G. Bondarenko, M.K. Slautin (Joint Institute for Nuclear Research Dubna, Russia)

Lunch Break

14.10 – 15.00

Plenary Session

15.00 – 17.05

Physics Department, room 330 (Chairman George Krylov)

15.00 – 15.25

Majorana-like-type couple of electrically confined pn-graphene junctions as an artificial molecule

H. V. Grushevskaya and G. G. Krylov (Belarusian State University, Minsk, Belarus)

15.25 – 15.45

Effects of cross-relaxation on decay dynamics of up-conversion luminescence

M. V. Korolkov, D. S. Mogilevtsev (B.I. Stepanov Institute of Physics, NAS of Belarus, Minsk, Belarus)

15.45 – 16.05

Ab Initio Analysis of Shape-Dependent Observables in Superelliptic Tight-Binding Quantum Dots

A. V. Larkin, A. A. Alvinskiy (Belarusian State University, Minsk, Belarus)

16.05 – 16.25

Fast selective nuclear spin control in diamond via self-consistently frequency-modulated RF pulses

M.Yu. Galkovskii, A.B. Mikhalychev (B.I. Stepanov Institute of Physics, NAS of Belarus, Minsk, Belarus)

16.25 – 16.45

Assessing Different Quark–Gluon Plasma Formation Criteria in Heavy-Ion Collisions Using Transport, Hydrodynamic, and Hybrid Models

Y. A. Rusak, L. F. Babichev (JIPNR-Sosny, NAS of Belarus, Minsk, Belarus)

16.25 – 16.45

Assessment of the dependence of neutrino flux on reactor power

I. Rudziankou, L. F. Babichev (JIPNR-Sosny, NAS of Belarus, Minsk, Belarus)

16.45 – 17.05

The effects of laser pulse propagation in double negative metamaterials

O.G. Romanov (Belarusian State University, Minsk, Belarus)

The cultural program

18.00

Thursday 24.09.2026

Excursion

10.00 – 18.00

Friday 25.09.2026

Plenary Session

9.00 – 18.00

Physics Department, room 330 (Chairman A.L. Tolstik)

9.00 – 9.25

Majorana–Oppenheimer matrix approach for Maxwell equations in Minkowski space: separation of the variables in curvilinear coordinate systems

E.M. Ovsiyuk, P.O. Sachenok, A.M. Kuzmich, A.V. Ivashkevich, V.M. Red'kov (B.I. Stepanov Institute of Physics, NAS of Belarus, Minsk, Belarus; Mozyr State University, Mozyr, Belarus)

9.25 – 9.50

A geometrodynamics model of double-helix DNA melting

H. V. Grushevskaya, N. G. Krylova (Belarusian State University, Minsk, Belarus; B.I. Stepanov Institute of Physics, NAS of Belarus, Minsk, Belarus)

9.50 – 10.15

Polycrystalline diamond films for terahertz photonic applications

A. Paddubskaya, M. Rusanau, D. Gorodetskiy, O. Sedelnikova, A. Melnikova, A. Okotrub (Institute for Nuclear Problems, Belarusian State University, Minsk, Belarus; Nikolaev Institute of Inorganic Chemistry SB RAS, Novosibirsk, Russia; Belarusian State University, Minsk, Belarus)

10.15 – 10.35

Spectral and polarization properties of photonic-crystal structure with a defect based on cholesteric liquid crystal doped with β -carotene

E.R. Bukhanov, L.E. Tyryshkina, Yu.V. Navesova, M.N. Krakhalev, I.V. Timofeev (Kirensky Institute of Physics, Krasnoyarsk Scientific Center, Siberian Branch, Russian Academy of Sciences)

10.35 – 10.50

A Model of Electron Dynamics in a Crystal of the Sillenite Family under Optical Excitation by a Spatially Periodic Field

I. G. Dadziankou, A. L. Tolstik (Belarusian State University Minsk, Belarus)

10.50 – 11.05

Classification of Biochemical Solutions using Intelligent Optical Microresonator Imaging Sensor

Elina Tcherniavskaia, Ivan Saetchnikov, Anton Saetchnikov (Belarusian State University Minsk, Belarus)

11.05 – 11.20

Diagnostics of the Phase Topology of Singular Light Beams Using a Photorefractive Holographic Lens

H. P. Aleinikava, I. G. Dadenkov, E. P. Panteleeva, E. A. Melnikova, Tolstik A. L. (Belarusian State University, Minsk, Belarus)

11.20 – 11.40

Electromagnetic field of a charged loop carrying a current in the vicinity of Kerr black hole

S.O. Komarov, A.K. Gorbatsievich, A.O. Shaplov, A.S. Garkun, and G.V. Vereshchagin (Belarusian State University (Minsk, Belarus)

11.40 – 12.00

Double-Pulse LIBS for Depth Profiling of Gallium-Based Functional Coatings: Optimization and Nonlinear Ablation Effects

K.F. Ermalitskaia, U.K. Scherba, E.S. Voropay (Belarusian State University, Minsk, Belarus)

12.00 – 12.20

Masses of pseudoscalar and vector $c\bar{c}$ -systems in relativistic quark model

Dr. Vadzim Haurysh, V. V. Andreev (Gomel State University, Gomel, Belarus)

12.20 – 12.40

Emergence of topological defects in graphene under an action of an electromagnetic field

Halina Grushevskaya, George Krylov (Belarusian State University, Minsk, Belarus)

Coffee Break and Final Discussions

12.40-13.10