

FANS & ANPh- 2016 Conferences Programme

Tuesday 27.09.2016

FANS REGISTRATION **8.00 – 10.00**

Physics Department, room 326

OPENING **10.00 – 10.15**

Physics Department, room 330

FANS Plenary session **10.15 – 11.45**

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

10.15 – 11.00

Quantum Optics Properties of QCD Vacuum

Kuvshinov V.I., Bagashov E.G., Shaporov V.A. (*JIPNR – Sosny, NAS Belarus, Minsk, Belarus*)

11.00 – 11.45

Order from disorder: dynamic self-assembly driven by minimum energy dissipation rate Konstantin V. Tretiakov (Institute of Molecular Physics Polish Academy of Sciences, Poznan, Poland)

Coffee Break **11.45 – 12.00**

FANS plenary session **12.00 – 13.00**

Physics Department, room 330 (Chairman V.I. Kuvshinov)

12.00 – 12.30

Charm production nearby threshold in pA-interactions at 70 GeV

SVD-2 Collaboration Elena Kokoulina (JINR, Dubna, Russia)

12.30 – 13.00

To asymptotical analysis of the spinor particle solutions in Schwarzschild field

E.M. Ovsyuk, O.V. Veko, Yu.A. Rusak, A.V. Chichurin, V.M. Red'kov (B.I. Stepanov Institute of Physics, NAS of Belarus, Minsk, Belarus)

Lunch Break **13.00 – 15.00**

FANS plenary session **15.00 – 17.05**

Physics Department, room 330 (Chairman G.G. Krylov)

15.00 – 15.30

Methods of chaos control in radiation of charged particles moving in non-one-dimensional periodical structures

Svetlana N. Sytova (Belarusian State University, Research Institute for Nuclear Problems, Minsk, Belarus)

15.30 – 16.00

On the dynamics of quasiperiodically driven maps with weak dissipation

A.P.Kuznetsov, M.V. Pozdnyakov, A.V. Savin, D.V. Savin (Saratov State University, Saratov, Russia)

Coffee Break **16.00-16.20**

Physics Department, room 326

FANS session (HEP) **16.20 – 19.05**

Physics Department, room 330 (Chairman L.F. Babichev)

16.20 – 16.40

Form Factor of the Relativistic Two-Particle System in the Relativistic Quasipotential Approach

Yuri Chernichenko (Gomel State Technical University, Gomel, Belarus)

16.40 – 17.00

Tunneling through a smooth parabolic barrier of finite height

Aliaksandr Baran (B.I. Stepanov Institute of Physics, National Academy of Sciences of Belarus, Minsk, Belarus)

17.00 – 17.15

Simulation of ECAL trigger response at incident particles

A.Melnik, Dz.Shoukavy (B.I. Stepanov Institute of Physics, National Academy of Sciences of Belarus, Minsk, Belarus)

17.15 – 17.30

Two-photon production of W bosons pair at modern colliders

A.Yu. Manko, R.G. Shulyakovsky (B.I. Stepanov Institute of Physics, National Academy of Sciences of Belarus, Minsk, Belarus)

17.30 – 17.50

Thomas precession in some Riemannian spacetimes

Alexander Silenko (Belarusian State University, Research Institute for Nuclear Problems, Minsk, Belarus)

17.50 – 18.05

The analytic approach in QCD and hadronic decays of the tau lepton

V.G. Teplyakov, O.P. Solovtsova (Gomel State Technical University, Gomel, Belarus)

18.05 – 18.20

Spin 1 particle with anomalous magnetic moment in the presence of an external uniform electric field

E.M. Ovsyuk, Ya.A. Voynova, V. Kisel, V. Balan, V.M. Red'kov (Mozyr State Pedagogical University named after I.P.Shamyakin, Mozyr, Belarus)

18.20 – 18.40

Flux and spectra of reactor antineutrino

V.V. Gilewsky (*JIPNR – Sosny, NAS Belarus*, Minsk, Belarus)

18.40 – 19.00

Using the EEG-analysing to study the cognitive activity

O.Yu. Panishev, S.A. Demin, S.N. Panisheva, N.Yu. Demina, R.R. Latypov, J. Bhattacharya (Institute of Physics, Kazan Federal University, Kazan, Tatarstan, Russia; Department of Psychology, Goldsmiths College, University of London, London, UK)

Wednesday 28.09.2016

FANS plenary session **10.00 – 11.30**

Physics Department, room 330 (Chairman G. Krylov)

10.00 – 10.45

Coexistence of spiking and mixed-mode oscillations in CO₂ laser with saturable absorber

E.V. Grigorieva (Belarus State Economic University, Minsk, Belarus)

10.45 – 11.30

On the numerical integration of the Heun equation using the Fuzzy Transform

V. Red'kov, V. Balan (Stepanov Institute of Physics, National Academy of Sciences of Belarus, Minsk, Belarus, University Politehnica of Bucharest, Bucharest, Romania)

Coffee Break **11.30 – 11.45**

Physics Department, room 326

FANS plenary session **11.45 – 12.45**

Physics Department, room 330 (Chairman O. Romanov)

11.45 – 12.15

A Monte Carlo Study of Multiplicity Fluctuations in High-Energy Nuclear Collisions

L.F. Babichev (*JIPNR – Sosny, NAS Belarus, Minsk, Belarus*)

12.15 – 12.45

Analysis of the Fields of Vital Functions in Russian Arctic

Nikolay I. Didenko and Djamilya F. Skripnuk (Peter the Great St.Petersburg Polytechnic University, Saint Petersburg, Russia)

12.45 – 13.00

Rotation Number in SU(2)

Dmitry W. Serow (Peter the Great St.Petersburg Polytechnic University, Saint Petersburg, Russia)

Lunch Break **13.00 – 15.00**

FANS plenary session **15.00 – 16.45**

Physics Department, room 330 (Chairman Konstantin Tretiakov)

15.00 – 15.25

Test of the analytic approach in QCD via structure function evolution

A.V. Sidorov, O.P. Solovtsova (Gomel State Technical University, Gomel, Belarus)

15.25 – 15.45

Problem of Model Portfolio Formation for Economic System Development Strategy

A. Afonichkin, Nikolay I. Didenko, and E. Afonichkina (Samara National Research University, Samara, Russia; Peter the Great St.Petersburg Polytechnic University, Saint Petersburg, Russia)

15.45 – 16.05

Exact Foldy-Wouthuysen transformation and a verification of Foldy-Wouthuysen transformation methods.

Alexander Silenko (Belarusian State University, Research Institute for Nuclear Problems, Minsk, Belarus)

Coffee Break **16.05 – 16.20**

Physics Department, room 326

FANS session **15.00 – 16.45**

Physics Department, room 330 (Chairman V. Red'kov)

16.20 – 16.40

The genetic algorithm for image encryption

A.V.Sidorenko, Shishko M.S. (Belarusian State University, Minsk, Belarus)

16.40 – 17.00

Application of the idea of the analytic approach to structure functions in deep-inelastic scattering: the target mass corrections

V.I. Lashkevich, O.P. Solovtsova (Gomel State Technical University, Gomel, Belarus)

17.00 – 17.20

Nonlinear Photofragmentation Dynamics of Diatomic Ions in Coherent Field of Femtosecond Laser Pulses

M. V. Korolkov, N.N. Shereshovets (B.I. Stepanov Institute of Physics, NAS of Belarus, Minsk, Belarus)

17.20 – 17.40

Techniques of projective operators used to construct solutions for a spin 1 particle with anomalous magnetic moment in the external uniform magnetic field

V. Kisel, Ya. Voynova, E. Ovsiyuk, V. Balan, V. Red'kov (B.I. Stepanov Institute of Physics, NAS of Belarus, Minsk, Belarus, University Politehnica of Bucharest, Bucharest, Romania)

17.40 – 17.55

Iterative Fourier Quantitative Mobility Spectrum Analysis of Bismuth-Tin diluted alloys

Alexander S. Fedotov (Belarusian State University, Minsk, Belarus)

Opera & Ballet Theater

19.00 – 21.00

Thursday 29.09.2016

ANPh REGISTRATION **8.00 – 10.00**

Physics Department, room 326

FANS&ANPh joint plenary session **10.00 – 11.30**

Rectorate building, Conference hall (Chairman E. Grigoreva)

10.00 – 10.30

Something of the discrete photonics: the discrete diffraction and the optical flat bands in waveguide arrays.

Andrey I. Maimistov (National Nuclear Research University Moscow Engineering Physics Institute, Moscow, Russia)

10.30 – 11.00

Interactions between solitons and dispersive waves in photonic crystal fibers

A. Kudlinski, A. Mussot and M. Conforti (Lille University, Villeneuve d'Ascq, France)

11.00 – 11.30

Trapping dissipative solitons in a neuromorphic laser system

Bruno Garbin, Julien Javaloyes, Giovanna Tissoni, Stephane Barland (Institut Non Linéaire de Nice - CNRS, Nice, France)

Coffee Break **11.30 – 11.45**

Physics Department, room 326

FANS&ANPh joint plenary session **11.45 – 13.15**

Rectorate building, Conference hall (Chairman O. Fedotova)

11.45 – 12.15

Spatio-temporal Extreme Events in a Laser with a Saturable Absorber

Cristina Rimoldi, Franco Prati, Stephane Barland, Giovanna Tissoni (Universite Cote d'Azur, CNRS, Valbonne, France)

12.15 – 12.35

Superfilamentation with regularized femtosecond laser beam

Dmitry Pushkarev, Darya Uryupina, Danila Shipilo, Nikolai Panov, Anton Bychkov, Alexei Lar'kin, Ekaterina Mitina, Alexander Ushakov, Sergei Degtyarev, Svetlana Khonina, Alexander Shkurinov, Alexander Karabutov, Ihar

Babushkin, Ayhan Demircan, Uwe Morgner, Olga Kosareva, and Andrei Savel'ev (Lomonosov Moscow State University, Moscow, Russia)

12.35 – 12.55

Dynamics of the logistic equation with small diffusion and deviation of spatial variable

Ilya Kashchenko, (Yaroslavl State University, Yaroslavl, Russia)

12.55 - -13.15

Untangling Knots Via Reaction-Diffusion Dynamics of Vortex Strings

F. Maucher, P. Sutcliffe (Durham University, UK)

Lunch Break

13.15 – 15.00

ANPh plenary session

15.00 – 16.35

Physics Department, room 213 (Chairman N. Bulgakova)

15.00 – 15.20

Complex metamaterials: tailoring disorder for novel photonic applications

Juan Sebastian Toterogongora and Andrea Fratallocchi (King Abdullah University of Science and Technology, Thuwal, Saudi Arabia)

15.20 – 15.40

New dissipative nonlinear plasmonic waveguides

Albert Ferrando, Isaac Suarez and Juan P. Martinez-Pastor (Universitat de València, València, Spain)

15.40 – 16.00

Deep nanotrapp lattice and line narrowing in selforganized Raman gas

Anton Husakou (Max Born Institute, Berlin, Germany)

16.00 – 16.20

Sculpted structures for photonic systems

Timothy D. Drysdale (The Open University, Milton Keynes, UK)

16.20 - 16:35

Surface polaritons in graphene-based nonlinear metamaterials

Yu.V. Bludov, D.A. Smirnova, Yu.S. Kivshar, N.M.R. Peres, M.I. Valsilevskiy (Departamento de Física, University of Minho, Portugal)

Coffee Break **16.35 – 16.55**

Physics Department, room 326

FANS plenary session **15.00 – 16.40**

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

15.00 – 15.30

High precision determination of the Z - Z' mixing in gauge boson pair production in lepton and semilepton channels at the CERN LHC

A.A. Pankov, A.V. Tsytrinov, V.A. Bednyakov (Tech. Univ. of Gomel & A. Salam ICTP Aff. Cntr., Gomel, Belarus)

15.30 – 16.00

Eigendata and spectral approximations for the main Finsler-type symmetric tensors associated to the physics of Blodgett-Langmuir monolayers

V. Balan, H. Krylova and N. Krylova (University Politehnica of Bucharest, Bucharest, Romania; Belarusian State University, Minsk, Belarus)

16.00 – 16.20

Single-Walled-Carbon-Nanotube Band Structure in a Model with Charged Carriers Asymmetry

H.V. Grushevskaya, G.G. Krylov, L.I. Gurskii (Belarusian State University, Minsk, Belarus)

16.20 – 16.40

Central nervous system influenced by electromagnetic noise radiation

Sidorenko A.V., Solodukho N.A. (Belarusian State University, Minsk, Belarus)

Coffee Break **16.40 – 16.55**

Physics Department, room 326

ANPh session **16.55 – 19.00**

Physics Department, room 213 (Chairman Carsten Bree)

16.55 – 17.15

Parametric frequency conversion in nanostructured lithium niobate

Frank Setzpfandt (Friedrich-Schiller-Universität Jena, Jena, Germany)

17.15 – 17.35

Autoresonant Three-Wave-Mixing in Non-Uniform Second-Order Nonlinear Bulk Crystals

Anna Mazhorova, Andrey Markov, Oded Yaakobi, Matteo Clerici, Daniele Modotto, Ottavia Jedrkiewicz, Paolo di Trapani, Arkady Major, François Vidal, and Roberto Morandotti (Institut national de la recherche scientifique, Varennes, Canada)

17.35 – 17.55

Atom localization via Zeeman coherences in degenerate two-level system

Jelena Dimitrijević, Dušan Arsenović and Branislav M. Jelenković (Institute of Physics, University of Belgrade, Belgrade, Serbia)

17.55 – 18.10

Stability of CW solutions in one model of semiconductor laser with large delay

Alexandra Kashchenko (Yaroslavl State University, Yaroslavl, Russia)

18.10 – 18.25

Optically Induced Channel Waveguides and Diffraction Gratings in Photorefractive Surface Layers of Lithium Niobate with Light Leakage

A. Bezpaly, A. Verkhoturov, and V. Shandarov (Tomsk State University of Control Systems and Radioelectronics, Tomsk, Russia)

18.25 – 18.40

Second harmonic generation in non-centrosymmetric composite media doped with nanocrystals with large permanent dipole moment

O. Khasanov, O. Fedotova, V. Gayvoronsky, I. Pritula (Scientific-Practical Material Research Centre, NAS Belarus, Minsk, Belarus)

18.40 – 18.55

The output characteristics of mixed transmission holograms in $\text{Bi}_{12}\text{TiO}_{20}$ crystal. Theory and experiment

V.V. Shepelevich, A.V. Makarevich, S.M. Shandarov (Mozyr State Pedagogical University, Mozyr, Belarus)

FANS session

16.55 – 19.00

Physics Department, room 330 (Chairman Vladimir Balan)

16.55 – 17.15

Mathematical modelling of electrocapillarity in compressing monolayers: application of Finsler - Lagrange approach to two-dimensional phase transition of the first order

H.V. Grushevskaya, N.G. Krylova, I.V. Lipnevich (Belarusian State University, Belarus)

17.15 – 17.35

Analysis of multistability of the Mackey-Glass equation

A. Moriakova (Yaroslavl State University, Yaroslavl, Russia)

17.35 – 17.50

Two-dimensional toruses in the generalized Korteweg - de Vries equation

S.A. Kaschenko, M.M. Preobrazhenskaia (Yaroslavl State University, Yaroslavl Russia)

17.50 – 18.05

Modeling of Low-Temperatyre Inertial Flashing Ratchet

Mindarava Y.L., Shapochkina I.V. (Belarusian State University, Minsk, Belarus)

18.05 – 18.25

Crocco Limited Problem in Filtration Theory

Mikhail R. Petrichenko and Dmitry W. Serow (Peter the Great St.Petersburg Polytechnic University, Saint Petersburg, Russia)

FANS Final Discussion & Closing **18.25**

Physics Department, room 326 (Chairman: A. Tolstik)

Banquet **19.00**

Friday 30.09.2016

Excursion

09.00 – 15.00

ANPh session, (section 1)

15.00 – 16.45

Physics Department, room 213 (Chairman V. Chizhevsky)

15.00 – 15.20

Self-Organization of Light in Optical Media with Competing Nonlinearities

F. Maucher, T. Pohl, S. Skupin, and W. Krolikowski (Durham University, UK)

15.20 – 15.40

Incoherent Background Influence on Diffraction Characteristics of Light Beams in Lithium Niobate

A. Pustozarov, V. Ryabchenok, and V. Shandarov (Tomsk State University of Control Systems and Radioelectronics, Tomsk, Russia)

15.40 – 16.00

Laser-induced second order nonlinearity in silver-containing phosphate glass (cancelled)

E.O. Smetanina, B. Chimier, Y. Petit, T. Cardinal, L. Canioni, G. Duchateau (Université Bordeaux, CELIA, TALENCE Cedex, France)

16.00 – 16.15

One of methods of 1D Bessel-like beam formation and its propagation in photorefractive lithium niobate

V.G. Kruglov, A.A. Ereemeeva, V.M. Shandarov (Tomsk State University of Control Systems and Radioelectronics, Tomsk, Russia)

16.15 – 16.30

Changes in optical absorption induced by sequential exposition to short- and long-wavelength radiation in the BTO:Al and Bi₁₂TiO₂₀:Ca crystals

S.M. Shandarov, M.G. Kisteneva V.G. Dyu, A.S. Akrestina, E.S. Khudyakova, S.V. Smirnov, and Yu.F. Kargin (State University of Control System and Radioelectronics, Moscow, Russia; A.A. Baikov Institute of Metallurgy and Material Sciences of the RAS, Tomsk, Russia)

16.30 – 16.45

Phase Demodulation at Two-Beam Interaction on Diffusion Holograms in Cubic Photorefractive Crystals

S. Shandarov, N. Burimov, V. Bykov, A. Zlobin, S. Shmakov, V. Shepelevich, A. Makarevich, K. Shcherbin (Tomsk State University of Control Systems and Radioelectronics)

Coffee Break

16.45 – 17.00

Physics Department, room 326

ANPh session (section 2)

15.00 – 16.40

Physics Department, room 330 (Chairman D. Lorenc)

15.00 – 15.20

Nonlinearly coupled three-dimensional harmonic oscillators. Novel stationary and dynamically persistent modes.

R. Driben, V. V. Konotop, B. A. Malomed, T. Meier (University of Paderborn, Paderborn, Germany)

15.20 – 15.40

Adiabatic Floquet model for the optical response in sub-picosecond optical filamentation

Carsten Bree (Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany)

15.40 – 16.00

Short Laser Pulses Amplification in Plasmas using Brillouin Three-Wave Coupling

M. Chiaramello, L. Lancia, F. Amiranoff, J. Fuchs, M. Grech, J. R. Marques, T. Vinci, S. Weber and C. Riconda (Universite Paris Saclay, France)

16.00 – 16.20

Spectral dynamics of THz radiation produced by two-color femtosecond pulses in air

Alisée Nguyen, Pedro González de Alaiza Martínez and Luc Bergé (CEA-DAM, DIF, Arpajon, France)

16.20 – 16.40

Light Bullets with Orbital Angular Momentum in Transparent Dielectrics

O. Fedotova, T. Smirnova, O. Khasanov, G. Rusetsky, N. Aleksic, E. Gaižauskas
(SPMRS NAS Belarus, Minsk, Belarus)

Coffee Break

16.40 – 17.00

Physics Department, room 326

ANPh session (section 1)

17.00 – 18.50

Physics Department, room 213 (Chairman S. Shandarov)

17.00 – 17.30

Non-linear effects upon propagation of focused ultrashort laser beams in transparent inorganic solids

Nadezhda M. Bulgakova, Vladimir V. Zhukov (Institute of Physics AS CR, Dolni Brezany, Czech Republic)

17.30 – 17.50

Nonlinear resonances on the detuning frequency in a bistable VCSEL with biharmonic near-resonant excitation

V.N. Chizhevsky (B.I. Stepanov Institute of Physics, NAS Belarus, Minsk, Belarus)

17.50 – 18.05

Intrinsic transverse instabilities in class-B broad-area lasers and their suppression by optical injection

A.V. Pakhomov (Samara University, Lebedev Physical Institute, Samara, Russia)

18.05 – 18.20

Photoelectric Response Dynamics of Photorefractive Bismuth Silicon Oxide Crystals Under Pulse Excitation

T. Kornienko, A. Tolstik, S. Shandarov (Belarusian State University, Minsk, Belarus)

18.20 – 18.35

Liquid-Crystal Photonic Structures with the Electrically-Controlled Optical Anisotropy

O.S. Kabanova, E.A. Melnikova, O.G. Romanov, I.A. Goncharenko, A.L. Tolstik
(Belarusian State University, Minsk, Belarus)

18.35 – 18.50

Nematicons Formation and Interaction

Irina Rushnona, Elena Melnikova, Alexei Tolstik (Belarusian State University, Minsk, Belarus)

ANPh session (section 2)

17.00 – 18.50

Physics Department, room 330 (Chairman M. Grech)

17.00 – 17.30

From tunable THz generation in plasma towards THz-FWM in solids

Dusan Lorenc, Martin Koys, Eva Noskovicova, Tadas Balciunas, Stefan Haessler, Andrius Baltuska and Dusan Velic (International Laser Centre, Bratislava, Slovakia)

17.30 – 17.50

Six-wave mixing and third harmonic generation in air and sodium vapour

V. Vaičaitis, E.Gaižauskas, K. Steponkevičius (Vilnius University Laser Research Center)

17.50 – 18.10

Linear and circularly polarized XUV-supercontinuum

N. Zhavoronkov, D. Brambilla, A. Husakov, M. Ivanov (Max-Born-Institute, Berlin, Germany)

18.10 – 18.30

Theory of terahertz emission from femtosecond laser induced microplasmas

I. Thiele (Centre Lasers Intenses et Applications (CELIA), Bordeaux, France)

18.30 – 18.50

Localization of extreme light: relativistic solitons, quasi-solitons and breathers

Evangelos Siminos and Gonzalo Sanchez-Arriaga (Chalmers University of Technology, Göteborg, Sweden)

ANPh Final Discussion & Closing

18.55

Physics Department, room 326 (Chairman: A. Tolstik)
