



# PROGRAM

International Student Conference  
“Science and Progress-2016”  
October, 17-21  
Saint-Petersburg – Peterhof

## October, 17 (Monday)

10.00 – 10.45 Registration (Faculty of Physics, hall of the 1<sup>st</sup> floor)

10.45 – 11.00 Opening Ceremony, aud. B-04

11.00 – 12.00 Lecture I, aud. B-04

**“Making sense of the mess: Reconstructing the morphology of noncrystalline solids from NMR of noncovalent interactions”**

Dr.Sc. Ilya Shenderovich, University of Regensburg

12.00 – 12.30 Coffee-break (hall nearly aud. B-02)

12.30 – 13.30 Lecture II, aud. B-04

**“Ultrafast photochemistry of bromoform: chemical reaction from the inside”**

Dr. Andrey Mereshchenko, Institute of Chemistry, Saint-Petersburg State University

13.30 – 15.00 Lunch

15.00 – 16.30 **Oral sections**

**C – Mathematics and Mechanics**, part I, aud. 227

**D – Solid States Physics**, part I, aud. B-04

**F – Optics and Spectroscopy**, aud. 225

**I – Resonance Phenomena in Condensed Matter**, part I, aud. 229

16.30 – 16.50 Coffee-break (hall nearly aud. B-02)

16.50 – 18.00 **Oral sections**

**C – Mathematics and Mechanics**, part II, aud. 227

**D – Solid States Physics**, part II, aud. B-04

16.50 – 17.30 **I – Resonance Phenomena in Condensed Matter**, part II, aud. 229

16.50 – 18.00 **Poster sections, 2nd floor hall**

**D – Solid States Physics** (after oral section)

**F – Optics and Spectroscopy**,

17.30 – 18.30 **Poster sections, 2nd floor hall**

**I – Resonance Phenomena in Condensed Matter**

18.00 – 19.00 Dinner

## October, 18 (Tuesday)

09.30 – 14.00 Excursion to the Kunstkamera: Great Gottorp Globe, First Astronomical Observatory of the Academy of Sciences (bus starts from Faculty of Physics)

14.00 – 15.00 Lunch

15.00 – 16.00 Lecture III, aud. B-04

**“Label-Free Spectromicroscopy as a Probe for Dermal Drug Delivery”**

Prof. Eckart Ruehl, Free University of Berlin, Department of Physical Chemistry

16.00 – 17.00 Lecture IV, aud. B-04

**“Experimental and numerical methods for cavitation erosion prediction in hydraulic components”**

Dr. Iben Uwe, Head of Research and Technology Office, GmbH “Robert Bosch”

17.00 – 18.00 Dinner

### October, 19 (Wednesday)

10.30 – 12.00 **Oral sections**

**B – Geo- and Astrophysics**, part I, aud. 210

**H – Biophysics**, aud. 225

12.00 – 12.30 Coffee-break

12.30 – 14.00 **Oral sections**

**B – Geo- and Astrophysics**, part II, aud. 210

**Poster sections, 2nd floor hall**

**H – Biophysics**

14.00 – 15.00 Lunch

15.00 – 17.00 **Poster sections, 2nd floor hall**

**B – Geo- and Astrophysics**

17.00 – 18.00 Dinner

### October, 20 (Thursday)

10.30 – 12.00 **Oral sections**

**A – Chemistry**, part I, auds. 210, 225, 227

**G – Theoretical, Mathematical and Computational Physics**, part I, aud. 229

12.00 – 12.30 Coffee-break

12.30 – 14.00 **Oral sections**

**A – Chemistry**, part II, auds. 210, 225, 227

**G – Theoretical, Mathematical and Computational Physics**, part II, aud. 229

14.00 – 15.00 Lunch

14.00 – 17.00 **S – First Steps in Science (for secondary school students)**, aud. B-04

14.00 – 15.00 Lecture by Prof. Dr. Sergey Manida “Education in Physics and Mathematics as an element of the universal human culture” (in Russian), Saint Petersburg State University, Faculty of Physics

15.00 – 15.30 Coffee-break

15.30 – 17.00 Oral section S, auds. B-02, B-04

17.00 – 17.30 Coffee-break

17.30 – 18.00 Ceremony of awarding the winners “The best school student’s presentation”

15.00 – 17.00 **Poster sections, 2nd floor hall**

**A – Chemistry,**

15.00 – 16.30 **G – Theoretical, Mathematical and Computational Physics, part III**

15.00 – 17.00 **ANNUAL MEETING of G-RISC “RESULTS-2016”, aud. 210**

15.00 – 15.10 Welcome speeches, Representative of SPbSU

15.10 – 15.20 Representative of DAAD (Ms. Beate Kolberg)

15.20 – 15.30 Representative Freie University Berlin (Mr. Studemann)

15.30 – 15.40 Representative G-RISC Prof. Dr. Eckart Rühl

15.40 – 15.50 Representative G-RISC Administrative Committee Natalia Kolanovska

15.50 – 16.50 Reports by the Winners of Award “The Best reports 2015”

16.50 – 17.00 Ceremony of the winners awarding

16.30 – 18.00 **Poster sections, 2nd floor hall**

**G – Theoretical, Mathematical and Computational Physics**

17.30 – 19.30 **SECOND G-RISC’S ALUMNI MEETEING (Student Canteen)**

17.30 – 17.35 Welcome speeches (Prof. Dr. A. Shikin, Prof. Dr. E. Ruehl)

17.35 – 17.45 Speech by Prof. Dr. C. Laubschat

17.45 – 17.55 Presentation from G-RISC Offices (Mrs. N. Kolanovska, J. Egorova)

17.55 – 18.05 Medvedev Oleg (SPbSU)

18.05 – 18.15 SedovMaxim (SPbSU)

18.15 – 18.25 Lopushenko Ivan (MSU)

18.25 – 18.35 Lyashenko Konstantin (SPbSU)

18.35 – 18.45 Ceremony of honor for the best conference talk

18.35 – 19.30 Welcome-drinks

## **October, 21 (Friday)**

11.00 – 12.00 **Lecture V**, aud. B-02

**“Magnetism of the heavy lanthanides: equilibrium vs. non-equilibrium phase transitions”**

Ms. Andres Beatrice, Free University Berlin, Department of Physics

12.00 – 13.00 Lunch

13.00 – 18.00 Excursion to the Gatchina Palace

18.00 – 19.00 Dinner

## Section A – Chemistry

### October, 20 (Thursday)

Oral sections 10.30 – 12.00 and 12.30 – 14.00

**Aud. 210, Leader – Dr. Alina Manshina**

Drozdov Andrey (ITMO University, Saint-Petersburg)

*“Bioactive Magnetic Composite Nanomaterials”*

Haschke Sandra (Friedrich-Alexander University Erlangen-Nürnberg, Germany)

*“Engineering Nanoporous Iron(III) Oxide into an Effective Water Oxidation Electrode”*

Eremeeva Elena (ITMO University, Saint-Petersburg)

*“Synthesis of High Refractive UV-Hardening Polymers”*

Furasova Aleksandra (ITMO University, Saint-Petersburg)

*“Hafnia Based Injectable Luminescent Nanocollods”*

Kaiumov Mikhail (Saint-Petersburg State University)

*“Photoactivity and Catalytic Properties of Electrodes Modified by Metal Complexes with Schiff-Base Ligands”*

Khramenkova Elena (ITMO University, Saint-Petersburg)

*“A Complementary Theoretical and Experimental Approach to the Development of Metal-Organic Frameworks as a Novel Platform for Targeted Drug Delivery”*

Mingabudinova Leila (ITMO University, Saint-Petersburg)

*“Second Harmonic Generation in 2d Coordination Polymer”*

Oleneva Polina (Saint-Petersburg State University)

*“Synthesis of Colloidal CdSe Quantum Dots: Safer, Cheaper and Faster”*

Razumtcev Alexandr (Saint-Petersburg State University)

*“Optical Properties of Er<sup>3+</sup> Doped Sulfide Glasses”*

Simagina Anna (ITMO University, Saint-Petersburg)

*“Computations-Aided Design of Novel Drug Delivery Approaches: Tailoring Stability of Covalent Organic Frameworks as Nanocontainers with a Selective Response to Glucose”*

Slabov Vladislav (ITMO University, Saint-Petersburg)

*“Heat-Conductive Paste”*

**Aud. 225, Leader – Dr. Elena Grachova**

Chernysheva Anna (Saint-Petersburg State University)

*“Synthesis of Complex Amidoboranes  $M[M'(NH_2BH_3)_4]$  ( $M = \text{alkali metal}, M' = \text{Ga, Al}$ ) by Metathesis”*

Dekina Daria (Saint-Petersburg State University)

*“Design of an Optical Sensing Platform for Determination of Physiological Cations in Microliter-Size Biological Samples”*

Doinikov Dmitry (Saint-Petersburg State University)

*“Automatic Static Tensimeter for Studying Equilibrium and non-Equilibrium Processes”*

Frosiniuc Ana (Saint-Petersburg State University)

*“Effect of Ionic Association in the Response of Ion-Selective Polymeric Optochemical Sensors”*

Gozdanker Yuliya (Saint-Petersburg State University)

*“Platinum(II)-Mediated Addition of Thiazol-2-Amines to Isocyanides”*

Ivashkov Oleg (Moscow State University)

*“Kinetics of Fluorescein Release from Microgel-Liposome Complexes upon Temperature-Induced Collapse of Microgel”*

Papina Natalya (Saint-Petersburg State University)

*“Synthesis and Characterization of the First Example of Cyclometalated Palladium(II) Complex with ADC-Ligand”*

Shakirova Julia (Saint-Petersburg State University)

*“Polynuclear Cage-Like Au(I) Phosphane Complexes Based on S<sub>2</sub>- Template; Observation of Multiple Luminescence in Coordinated Polyaromatic Systems”*

Shelyganov Pavel (Saint-Petersburg State University)

*“Solid State Structure of Complex of Ammonia Borane with Tetraglyme”*

Strelnikov Artem (Saint-Petersburg State University)

*“Synthesis of Covalent Porphyrin-Fullerene Dyads with “Face-to-Edge” Orientation of the Chromophores Fixed by N-phenylpyrrolidine Linker”*

Kononov Alexander (Saint-Petersburg State University)

*“Comparison of Different Sample Preparation Procedures for the Determination Microelements in Tobacco by Arc Emission Spectral Analysis”*

**Aud. 227, Leader – Dr. Dmitry Kirsanov**

Baranauskaite Valeria (Saint-Petersburg State University)

*“Study of the Structural-Dynamic Characteristics of the Ternary System CsCl-LiCl-D<sub>2</sub>O with NMR Spectroscopy in the Interval from 25° C to the Freezing Temperature”*

Davletbaeva Polina (Saint-Petersburg State University)

*“Determination of Synthetic Water-Soluble Colorants in Cough-Cold Formulations by Sequential Injection Chromatography”*

Fedortsov Andrei (Saint-Petersburg State University)

*“Interatomic Interactions and the State of the Iron Atoms in Lanthanum Gallate Doped with Strontium and Magnesium”*

Iavid Elizaveta (Saint-Petersburg State University)

*“A Gas Chromatographic-Mass Spectrometric Analysis of the Metabolite Composition of Potamogeton perfoliatus L”*

Ivanov Mikhail (Saint-Petersburg State University)

*“Molecular Simulation Study of Structure-Diffusivity Relationships in Ytria-Stabilized Zirconia”*

Kiskina Aleksandra (Saint-Petersburg State University)

*“Radiocarbon Dating of the Bronze Age Sites of the North-Western Caucasus”*

Pokhvishcheva Nadezhda (Saint-Petersburg State University)

*“Towards Optical Sensing of Individual Ion Activity: the Role of Organic Salts in Polymeric Ion-Selective Optodes”*

Rostovtseva Valeriia (Saint-Petersburg State University)

*“Gas Separation Performance of Novel Mixed Matrix Membranes Based on Star-Shaped Macromolecule”*

Samokhvalova Svetlana (Saint-Petersburg State University)

*“The Effect of Background Salts on Copolymers of Diallyldimethylammonium Chloride and 2-(diallyl(methyl)ammonio)acetate in Solution”*

Stelmashuk Tatyana (Saint-Petersburg State University)

*“Oxygen Reduction Catalysts Based on Platinum Nanoparticles Deposited in Transition Metals Polymer Complexes Matrix”*

Zverkov Nikolai (Saint-Petersburg State University)

*“Arc Atomic Emission Spectral Analysis of Viscous Organic Liquids”*

### Poster section 15.00 – 17.00

- A-01. Abdrashidov Georgy (Saint-Petersburg State University)  
*“Catalytic Activity of Copper Nanostructures Produced by on-Line LCLD Method”*
- A-02. Agafonova Anastasiya (Saint-Petersburg State University)  
*“Synthesis of Apoptosis-Inducing 2,3-Dihydroazetes”*
- A-03. Baranauskaite Valeria (Saint-Petersburg State University)  
*“Laser Induced Liquid-Phase Molybdenum Oxide Deposition”*
- A-04. Bykova Anna (Saint-Petersburg State University)  
*“Langmuir-Blodgett Films Based on Nickel Stearate as New Metal Affinity Sorbents”*
- A-05. Dmitriev Victor (Saint-Petersburg State University)  
*“Modeling of Co-Distribution of Sodium Asparaginate and Isoleucine in Aqueous Solution of Ionic Liquid Surfactant”*
- A-06. Dolbich Vladimir (Saint-Petersburg State University)  
*“Arc Atomic Emission Spectral Analysis of Potato without Sample Mineralization”*
- A-07. Eremina Anzhelika (Saint-Petersburg State University)  
*“Synthesis and Photophysical Properties of Isocyanide Iridium(III) Complexes”*
- A-08. Gitlina Anastasia (Saint-Petersburg State University)  
*“Synthesis of Novel Alkynyl-Phosphine Cluster Complexes with {Ag<sub>6</sub>Cu<sub>x</sub>} Metal Core (x = 1, 4)”*
- A-09. Golikova Alexandra, Trofimova Maya (Saint-Petersburg State University)  
*“Experimental Investigation of Chemical Equilibrium in the System with Reaction of Ethyl acetate Synthesis under Polythermal Conditions”*
- A-10. Gugin Nikita (Saint-Petersburg State University)  
*“Complexes of AlBr<sub>3</sub> with Bifunctional N-donors: New Structural Type for 1:1 Composition”*
- A-11. Hüppe Henrika (Aachen University, Germany)  
*“Antenna Effect” of {Au} Acetylene Complexes towards Ln(III) Ions”*
- A-12. Ilyasova Julia (Saint-Petersburg State University)  
*“Solution Properties of Hyperbranched Poly(Methyl Methacrylates)”*
- A-13. Ivanova Elena (Saint-Petersburg State University)  
*“Molecular Simulation of Gas Adsorption in CMK-5 in the Presence of Acetonitrile”*
- A-14. Katernuk Yuliya (Saint-Petersburg State University)

- “Synthesis and Characterization of Alginate Nanogels as a Drug Delivery System”*  
A-15. Khairullina Evgeniia (Saint-Petersburg State University)  
*“Non-Enzymatic Electrochemical Sensors Based on Metal Microwires Produced by Laser-Induced Ddeposition”*
- A-16. Khistyayeva Viktoriia (Saint-Petersburg State University)  
*“Synthesis and Luminescent Properties of Lanthanide Complexes on the Base of N4-Heterocyclic Politopic Ligand”*
- A-17. Kisel Kristina (Saint-Petersburg State University)  
*“A New Generation of Polynuclear Homo- and Heterometallic Re-Based Species”*
- A-18. Koronotov Aleksandr (Saint-Petersburg State University)  
*“An Effective Two-Step Synthesis of 1,2-dihydropyrimidine-2-carboxylates from azirine-2-carbaldehydes and Diazo Carbonyl Compounds”*
- A-19. Kotelnikova Sofya (Saint-Petersburg State University)  
*“Synthesis and Catalytic Properties of Individual and HAP-Supported Ni Nanoparticles”*
- A-20. Krivoshey Ilya (Saint-Petersburg State University)  
*“Synthesis and Structure of Hypervalent Antimony Trichloride Complexes with Pyridine”*
- A-21. Krylova Mariia (Saint-Petersburg State University)  
*“Formation of Hydrogel Supermacroporous Matrices for Biomedical Application”*
- A-22. Kuzmenko Peter (Saint-Petersburg State University)  
*“Peculiarities of Biodiesel Synthesis on the Base of the Model System: Oleic Acid – Ethanol/Methanol- Ethyl Oleate/Methyl Oleate - Water”*
- A-23. Mezenov Yury (Saint-Petersburg State University)  
*“Influence of Two Type of Nucleating Agents on Morphology and Optical Properties of Vanadium Dioxide Nanoparticles”*
- A-24. Mikhailova Aleksandra (Saint-Petersburg State University)  
*“Synthesis of Amphiphilic Block-Copolymers with Terminal Fluorescent Labels”*
- A-25. Minich Iana (Saint-Petersburg State University)  
*“A Study of the Protonation and Hydration of Layered Perovskite Bismuth Titanates”*
- A-26. Mitrofanov Andrey (Saint-Petersburg State University)  
*“Application of Green Chemical Principles to the Synthesis of CdSe Quantum Dots”*
- A-27. Mosiagin Ivan (Saint-Petersburg State University)  
*“From Easily Available Hetarylpyrroles to Novel Heterocyclic Frameworks”*



- A-28. Nechaeva Darya (Saint-Petersburg State University)  
*“Automated Electrochemical Determination of Hydrogen Sulfide, Methanethiol and Ethanethiol in Crude Oil and Biodiesel with On-Line Chromato-Membrane Extraction”*
- A-29. Nevskaya Alisa (Peoples’ Friendship University of Russia, Moscow)  
*“Development of a Conjugate for 5-hydroxy-8H-chromeno[2,3`4,5]imidazo[2,1-a]isoquinoline”*
- A-30. Nikitina Anna (Saint-Petersburg State University)  
*“Preparation and Properties Investigation of Flow-through Heterogeneous Biocatalysts based on Macroporous Monolithic Materials”*
- A-31. Orekhov Jevgeni (Saint-Petersburg State University)  
*“Preparation of Titanium Oxide and Calcium Phosphate Based Coatings by Sol-Gel Method and Investigation of their Structural Characteristics”*
- A-32. Osipova Olga (Saint-Petersburg State University)  
*“The Influence of Different Stabilizers on the Formation of Alginate Nanoparticles”*
- A-33. Petukhova Yulia (Saint-Petersburg State University)  
*“Organic Acids as Morphology and Functional Properties Regulation Agents for VO<sub>2</sub> Nanoparticles”*
- A-34. Prokudina Yana (Saint-Petersburg State University)  
*“Synthesis and Structure of Complexes of Antimony Tribromide with Pyridine”*
- A-35. Razzhivin Alexander (Saint-Petersburg State University)  
*“Atomic Emission Spectral Determination of Micro- and Macro Elements in Commercial Fruit Juices”*
- A-36. Ruvinskaya Julia (Saint-Petersburg State University)  
*“Rh(II)-Catalyzed Reactions of 1-Sulfonyl-1,2,3-Triazoles with 5-Alkoxyisoxazoles”*
- A-37. Sadaeva Anna. (Saint-Petersburg State University)  
*“Simultaneous Phase and Chemical Equilibrium in Systems with Liquid Phase Splitting under Polythermal Conditions”*
- A-38. Shabanova Emiliya (ITMO University, Saint-Petersburg)  
*“Magnetic Proteolytic Nanocomposite”*
- A-39. Shvets Nataliya (Saint-Petersburg State University)  
*“Surface Modification, Characterization and in vitro and in vivo MRI Studies of Fe<sub>3</sub>O<sub>4</sub> Nanoparticles”*

- A-40. Solomatina Anastasia (Saint-Petersburg State University)  
*“Selective Protein Labeling with Cyclometallated Platinum(II) Complex via Histidine Imidazole Function”*
- A-41. Solovyev Igor (Saint-Petersburg State University)  
*“Mononuclear Au(I) Complexes as Potential Sensitizer for Lanthanide Luminescence”*
- A-42. Solovyeva Natalia (Tver State University)  
*“The Research of the Qualitative Composition and Antioxidant Activity of Yarrow Phenolic Compounds in Conditions of Industrial Pollution”*
- A-43. Strashkov Daniil (Saint-Petersburg State University)  
*“Synthesis of Pyrrolo[1,2-C][1,3]Oxazine Derivatives via Rhodium Carbenoid Induced Annulation of 2-Aroylpyrroles”*
- A-44. Svirskiy Gleb (Saint-Petersburg State University)  
*“Partial Oxidation of Propylene by Ozone in a gas Phase Reaction”*
- A-45. Trofimova Dariya (Saint-Petersburg State University)  
*“Peculiarities of Critical Phenomena in the System with n-butyl Propionate Synthesis Reaction”*
- A-46. Vasileva Anna (Saint-Petersburg State University)  
*“Novel Liquid Electrolytes with High Ionic Conductivity”*
- A-47. Vernadskaya Victoria (Saint-Petersburg State University)  
*“Critical Phenomena for the Quaternary System Acetic Acid – Ethanol – Ethyl Acetate – Water at 333.15 K”*
- A-48. Vlasova Anna (Saint-Petersburg State University)  
*“Synthesis of Fe<sub>3</sub>O<sub>4</sub>@Cu Nanoparticles and their Functional Properties”*
- A-49. Zavgorodnii Artem (Saint-Petersburg State University)  
*“Thermal Decomposition of Gaseous Borazine: Diffusion-Controlled Reaction on the Surface”*
- A-50. Zhukovskaya Margarita (Saint-Petersburg State University)  
*“Synthesis and Photophysical Properties of a New Dinuclear Platinum(II) Complex That Features Unusual Low-Energy Emission”*

## **Section B – Geo- and Astrophysics October, 19(Wednesday)**

**Oral sections 10.30 – 12.00 and 12.30 – 14.00**

**Aud. 210, Leader – Prof. Dr. Vladimir Troyan**

Arabadzian Dina, Foka Stefani (Saint-Petersburg State University)

*“Nocturnal Emission of CO<sub>2</sub> and CH<sub>4</sub> in Boundary Layer at the Peterhof Station for 2014 and 2015”*

Burmakina Tatiana (Saint-Petersburg State University)

*“Implementation of the IRI Model into the Software for HF Radio-Paths Simulation”*

Ivanova Olga (Saint-Petersburg State University)

*“The Study of Cloud Condensation Nuclei Properties of Background and Anthropogenic Aerosol Particles for Season 2014”*

Karagodin Arseniy (Saint-Petersburg State University)

*“Impact of Solar Proton Events on Dynamics of Chemical Composition of the Polar Atmosphere”*

Krivoshein Sergey (Saint-Petersburg State University)

*“Kinematic Calibration of Distance Scales for Planetary Nebulae”*

Medvedev Sergei (Saint-Petersburg State University)

*“Influence of a Starting Model on the Travel-Time Tomography Solution”*

Shablovinskaya Elena (Saint-Petersburg State University)

*“Photometric Interpretation of Blazar AO 0235+164 Behaviour”*

Smirnov-Pinchukov Grigorii (Moscow State University)

*“Interstellar Medium and HII Bubbles in Dwarf Galaxies: Observations”*

Sultangaleev Ruslan (Saint-Petersburg State University)

*“Velocity Determination of Seismic Waves by Fenetic Algorithm”*

**Poster section 15.00 – 17.00**

- B-01. Biriukov Egor (Saint-Petersburg State University)  
*“The Analysis of Temporal Variations and Distributions of Cloud Liquid Water Path Based on Satellite and Ground-Based Measurements near Peterhof”*
- B-02. Boronina Sophia (Saint-Petersburg State University)  
*“The Investigation of the space Distribution of Magnetic Stars”*
- B-03. Egorova Nataliia (Saint-Petersburg State University)  
*“Application of Seismoacoustic Profiling for Study Geological Structure of the Upper Part of Lake Ladoga Section”*
- B-04. Iiudina Sofia (Saint-Petersburg State University)  
*“Properties of Inhomogeneous Viscous Waves”*
- B-05. Kalinin Iliia (Saint-Petersburg State University)  
*“Own Rotation of Single Dust Particle in Complex Plasma”*
- B-06. Kolmakova Natalia (Saint-Petersburg State University)  
*“Analysis of Local and Remote Measurements of Ozone”*
- B-07. Kondakova Veronika (Saint-Petersburg State University)  
*“Assess of Pit Slope Sability in Case of Changes of Mechanical Properties of Rocks due to Field Development in Permafrost”*
- B-08. Smirnova-Pinchukova Irina (Moscow State University)  
*“Spectra Analysis of Galaxies with Known Super Massive Black Hole Masses”*
- B-09. Tlatova Kseniya (Saint-Petersburg State University)  
*“Comparative Properties Prominences in the 16th Cycle of Activity”*
- B-10. Volkova Kristina (Saint-Petersburg State University)  
*“Analysis of Abnormal Aerosol Optical Depth near Saint-Petersburg in February 2014”*

## **Section C – Mathematics and Mechanics** **October, 17 (Monday)**

**Oral sections 15.00 – 16.30 and 16.50 – 18.00**

**Aud. 227, Leader – Prof. Dr. Volker Reitmann**

Anikushin Mikhail (Saint-Petersburg State University)

*“Badly Approximable Numbers and the Growth Rate of the Inclusion Length of an almost Periodic Function”*

Gayshun Artem (Saint-Petersburg State University)

*“The Use of Differential Inclusions in the Investigation of an Elasto-Plastic Oscillator”*

Golubenets Vyacheslav (Yaroslavl State University)

*“Nonlocal Analysis of Equation with State-Dependent Delay”*

Gorbushin Nikolai (Aberystwyth University, United Kingdom)

*“Steady-State Crack Propagation in a Brittle Periodic Structure under a Moving Load”*

Ivanovsky Leonid (Yaroslavl State University)

*“Stable Regimes and Toruses of One Class of Impulsive Systems”*

Izvarina Natalia (Peoples’ Friendship University of Russia, Moscow)

*“On the Symbol of Nonlocal Operators Associated with Actions of Discrete Groups of Diffeomorphisms”*

Kuksenok Ilya (Yaroslavl State University)

*“Divergence of the Wing in the Supersonic Gas Flow Non-zero Equilibrium State and Local Dynamics”*

Maltseva Anastasia (Saint-Petersburg State University)

*“Existence and Structure of Global B-pullback Attractors for Discrete-Time Cocycles Generated by a Class of Nonautonomous Control Systems with”*

Ragimov Andrey (Yaroslavl State University)

*“Applying Machine Learning for DDoS Attacks Filtering. Analysis of CSIC 2010 Dataset”*

Reitmann Stefan (Dresden University of Technology)

*“Pattern Recognition and Prediction of Multivariate Time Series with Long Short-Term Memory (LSTM)”*

Voynov Dmitriy (Saint-Petersburg State University)

*“The Nonholonomic Bicycle Model as a Differential Inclusion”*

Satko Daria (Saint-Petersburg State University)

*“Generation and Removing of Apparent Singularities in Linear Ordinary Differential Equations with Polynomial Coefficients”*

## **Section D – Solid State Physics October, 17 (Monday)**

**Oral sections 15.00 – 16.30 and 16.50 – 18.00**

**Aud. B-04, Leader – Prof. Dr. Alexander Baraban**

Barinov Dmitrii (Saint-Petersburg State University)

*“Photoinduced Adsorbo-Luminescence of Cr-doped  $MgAl_2O_4$  Spinel”*

Estyunin Dmitry (Saint-Petersburg State University)

*“Intercalation of Pb Atoms under Graphene on Ir(111) Monocrystal and Thin Ir (111) Film”*

Grebenyuk Georgy (Ioffe Institute, Saint-Petersburg)

*“Formation and Magnetic Properties of Graphene-Capped Iron Silicide”*

Grishina Anastasiia (Saint-Petersburg State University)

*“Photoinduced Hydrophilic Behavior of Hydrated Surfaces of Composite Films based on  $TiO_2$  and  $ZnO$ ”*

Jelken Joachim (Potsdam University, Germany)

*“Near Field Induced Structuring of Photosensitive Polymer Films: SNOM and AFM Measurements”*

Khabibrakhmanov Ruslan (Saint-Petersburg State University)

*“Synthesis, Characterization and Upconversion Properties of  $ZrO_2$  Doped with Rare Earth Ions”*

Komissarov Artem (Saint-Petersburg State University)

*“Optical Properties of CdSe Quantum Dots Coated with Layer of ZnS”*

Oparicheva Uliana (Saint-Petersburg State University)

*“Photo-Induced Alteration of Hydroxyl-Hydrate Layer on  $TiO_2$  and  $ZnO$  Surfaces”*

Safiulina Irina (Saint-Petersburg State University)

*“XMCD-Study of Shiral Magnets”*

Sakhonenkov Sergei (Saint-Petersburg State University)

*“Study of Chemical Phase Composition of Multilayered Structures Si/TiN/(Al<sub>2</sub>O<sub>3</sub>)TiO<sub>2</sub>/HfO<sub>2</sub> Using Hard X-ray Photoelectron Spectroscopy”*  
Samoilenko Dmitrii (Saint-Petersburg State University)  
*“Local Electronic Structure and Nanolevel Hierarchical Organization of Bone Tissue”*

Sboev Mikhail (Saint-Petersburg State University)  
*“Ab initio Insight into O<sub>2</sub> Adsorption on TiO<sub>2</sub> Surface under Dark and UV Irradiation Conditions”*

Vanina Polina (Saint-Petersburg Polytechnic University)  
*“Evolution of Diffuse Scattering of Single Crystals Sr<sub>0.6</sub>Ba<sub>0.4</sub>Nb<sub>2</sub>O<sub>6</sub>”*

Zharovov Dmitrii (Saint-Petersburg State University)  
*“Spectral Investigation of Fluorine-Doped TiO<sub>2</sub>”*

#### **Poster section (after oral)**

D-01. Bdoyan Karina (Southern Federal University, Rostov-on-Don)  
*“Local Atomic Structure of Copper Sites in Cu-MOR Synthesized by Solid-State Ion Exchange”*

D-02. Bulat Natalia (Southern Federal University, Rostov-on-Don)  
*“Structural Changes of Carbon-Supported Bimetallic PtCu Nanoparticles After Thermal Treatment by Means of SAXS and ASAXS”*

D-03. Danshin Sergei (Saint-Petersburg State University)  
*“Excitons in Low-Q Microcavities with Quantum Wells”*

D-04. Dolgakov Ivan (Saint-Petersburg Polytechnic University)  
*“An Analysis of the High-Temperature Phase Structure of Multiferroic Solid Solutions of the PFW–PT”*

D-05. Dolgova Maria (Saint-Petersburg State University)  
*“Vortex Dynamics in Nanocomposites with Embedded Superconducting BiSn Particles”*

D-06. Drozd Arsenii (Saint-Petersburg State University)  
*“Conductivity of ZnO Nanolayers Grown by ALD in MCP”*

D-07. Galdina Kristina, Egorova Yulia (Saint-Petersburg State University)  
*“NEXAFS Study of Cathode Material for Li-Ion Batteries During Charge and Discharge Processes”*

D-08. Evdokimov Artem (Saint-Petersburg State University)  
*“Magneto-Optical Faraday Effect in Microcavities”*

D-09. Kasatnikov Sergey (Saint-Petersburg State University)

- “Effect of Non-Stoichiometry of the Ta<sub>2</sub>O<sub>5</sub> on the Band Gap and Oxygen Vacancies Formation”*
- D-10. Samoilenko Dmitrii (Saint-Petersburg State University)  
*“Local Electronic Structure and Hierarchical Organization of Bone Tissue: Theory and NEXAFS Study”*
- D-11. Shapiro Dmitrii (Saint-Petersburg State University)  
*“Search for a New Short-Range Interaction by Neutron Scattering Technique”*
- D-12. Shemet Darya (Southern Federal University, Rostov-on-Don)  
*“EXAFS Study of Atomic Structure of Bimetallic Nanoparticles in PtCu/C Electrocatalysts before and after Thermal Treatment”*
- D-13. Spitsyn Valerii (Saint-Petersburg State University)  
*“Application of the Method of Hydrogen Permeability to Determine the Terminal Solid Solubility of Hydrogen in Ti-Alloys”*
- D-14. Stulin Victor (Saint-Petersburg State University)  
*“A Change of the Charge State of the MIM Structures Due to Resistive Switching”*
- D-15. Svirskiy Gleb (Saint-Petersburg State University)  
*“Comparative Study of NEXAFS Spectra of NiTPP and CoTPP Complexes: Role of Exchange 3d-3d Electron Interaction”*
- D-16. Varlamov Artem (Saint-Petersburg State University)  
*“Combined Investigations of Optical and Electrical Properties of Regular Dislocation Networks in Silicon”*
- D-17. Varygin Georgii (Saint-Petersburg State University)  
*“Electrical Characterization of Semiconducting Nanowires”*
- D-18. Alekseeva Olga (Saint-Petersburg Polytechnic University)  
*“Dielectric and Crystal Structure Study of the Ferroelectric Composites (1-x)NaNO<sub>2</sub>+(x)BaTiO<sub>3</sub>”*
- D-19. Anikeva Anastasiya (Saint-Petersburg State University)  
*“Secondary Electron Emission from Si<sub>3</sub>N<sub>4</sub> and PMMA in Helium Ion Microscope”*
- D-20. Bakiev Tair (Saint-Petersburg State University)  
*“Plasmon-Induced Electrochemical Properties of Titanium Dioxide”*



## Section F – Optics and Spectroscopy October, 17 (Monday)

Oral sections 10.30 – 12.00 and 12.30 – 14.00

**Aud. 225, Leader – Prof. Dr. Nikolay Timofeev**

Koshevarnikov Aleksei (Saint-Petersburg State University)

*“Quantum-Mechanical Calculations of the Formaldehyde Dimer and its Complex with Hydrogen Fluoride”*

Loebner Sarah (Potsdam University, Germany)

*“New Insights in Photosensitive Materials”*

Mingaleva Alena (Komi Science Center, Syktyvkar)

*“Modeling of Thickness Effect in NEXAFS C1s- Spectra of C60”*

Pestsov Oleg (Saint-Petersburg State University)

*“Infrared Study of RDD Interaction between Coadsorbed Molecules”*

Petrova Olga (Komi Science Center, Syktyvkar)

*“NEXAFS Study of Antarctic Ice Fishes Bones and Mineralized Formation”*

Song Mingzhao (ITMO University, Saint-Petersburg)

*“Wireless Power Transfer System Based on Dielectric Resonators”*

Zograf Georgii (ITMO University, Saint-Petersburg)

*“Resonant Optical Heating of Silicon Nanoparticles”*

**Poster section 16.50 – 18.00**

F-01. Andreeva Julia (ITMO University, Saint-Petersburg)

*“Magnetite Spherical Nanoballs: towards Magnetic Photonic Crystals”*

F-02. Elmurzaev Ruslan (Saint-Petersburg State University)

*“Excited Xenon Clusters and their Relaxation Processes”*

F-03. Glukhov Vladimir (Saint-Petersburg State University)

*“Methane Spectrum Interference Filter Based on the Fresnel Lens”*

F-04 Ivanov Danila (Saint-Petersburg State University)

*“Effect of Visible-Spectrum Light on the Breakdown in a Long Discharge Tube”*

F-05. Kapustyan Mikhail (Saint-Petersburg State University)

*“Pump-probe Reflection Spectroscopy of Excitons in Single GaAs/AlGaAs Quantum Well”*

F-06. Kataeva Tatyana (Saint-Petersburg State University)

*“Manifestation of the Resonance Dipole-Dipole Interaction in IR Spectra of A-Crystalline C<sub>2</sub>F<sub>6</sub> Thin Films in Spectral Regions of the N<sub>5</sub> and N<sub>10</sub> Vibration Modes”*

F-07. Kiselev Fedor (Saint-Petersburg State University)

*“Parametric Nonadiabatic Excitation of Collective Resonances in a Dense resonant Extended Medium”*

F-08. Lanchuk Yulia (Saint-Petersburg State University)

*“SERS Study of Methyl Groups Rotation: 2,9-dimethyl-1,10-Phenanthroline Adsorbed on a Silver Electrode Surface”*

F-09. Latypova Nazilya (Saint-Petersburg State University)

*“Influence of Active Electrode Shape on Streamers”*

F-10. Lepeshov Sergey (ITMO University, Saint-Petersburg)

*“Precise Tuning of Fano Resonance in Hybrid Oligomers via Femtosecond Laser Melting of Plasmonic Nanoparticles”*

F-11. Li Sergei (ITMO University, Saint-Petersburg)

*“Chiral Near-Field Formation with All-Dielectric Nanoantennas”*

F-12. Marin Aleksandr (Saint-Petersburg State University)

*“Simulations of Glow-to-Arc Transition in Noble Gases”*

F-13. Mironova Irina (Saint-Petersburg State University)

*“Modification of Polymer Particles in the Complex Plasma”*

F-14. Olevskaia Victoria (Saint-Petersburg State University)

*“Trajectories of Charged Particles in Dusty Plasmas”*

F-15. Platunov Dmitriy (Saint-Petersburg State University)

*“Comparison of Electron Beam and Photolithography Methods”*

F-16. Signevich Anton (Saint-Petersburg State University)

*“Automated Investigation Method of Polymer Solutions and Mesogen Melts Electrooptical Properties in Strong Electric Fields”*

F-17. Terekhov Pavel (ITMO University, Saint-Petersburg)

*“Destructive Mode Interference in TiO<sub>2</sub> Cylinders with Coaxial Void”*

F-18. Trofimov Igor (Saint-Petersburg State University)

*“Investigation of the Parameters of Microplasma Detectors PLES in Helium Using Diagnostic Scheme Plasma Probe Analyzer”*

## **Section G – Theoretical, Mathematical and Computational Physics**

**October, 20 (Tuesday)**

**Oral sections 10.30 – 12.00, 12.30 – 14.00 and 15.00 – 16.30**

**Aud. 229, Leader – Prof. Dr. Yuri Pismak**

Belokurova Svetlana (Saint-Petersburg State University)

*“Correlation Coefficients in The Model with String Fusion on Transverse Lattice”*

Dyakova Oksana (Saint-Petersburg State University)

*“The Rainbow Tables to Invert Cryptographic Hash Functions”*

Ievlev Evgenii (Saint-Petersburg State University)

*“Confinement and Abrikosov Strings”*

Ivanov Aleksandr (Saint-Petersburg State University)

*“Specifics of Renormalization for the Quantum Yang – Mills Theory in the Four Dimensional Space – Time”*

Kharuk Natalia (Saint-Petersburg State University)

*“Description of Gravity in the Model with Independent Nonsymmetric Connection”*

Kosmakov Maxim (Saint-Petersburg State University)

*“Functional Determinant beyond the One-Loop Approximation”*

Kravtsov Pavel (Saint-Petersburg State University)

*“Two-Particle Correlations Arising in Decay of a Single String”*

Kuznetsova Anna (Yaroslavl State University)

*“Rare Annihilation Semileptonic B-Meson Decays”*

Lebedev Nikita (Saint-Petersburg State University)

*“Critical Behavior of  $U(n)$ - $\chi^4$ -Model with Antisymmetric Tensor Order Parameter Coupled with Magnetic Field”*

Lopushenko Ivan (Moscow State University)

*“Substrate Influence on the Scattering Properties of Metal Nanoparticles Accounting for the Non-local Effect”*

Meshkova Yulia (Saint-Petersburg State University)

*“Homogenization of Elliptic and Parabolic Dirichlet Problems in a Bounded Domain”*

Nelson Aleksandra (Saint-Petersburg State University)

*“Normal Casimir Forces for 2d Gratings”*

Oskirko Anton (Saint-Petersburg State University)

*“The Influence of Flexoelectric Effect on the Fréedericksz Transition in Twisted Nematic”*

Popov Roman (Saint-Petersburg State University)

*“Calculations of Probabilities of Electron-Positron Pair Creation in Collisions of Highly Charged Ions”*

Reznikova Marina (Saint-Petersburg State University)

*“Experimental Verification of the Modified Phase Function Method for Calculating the Electrocoalescence Processes in Electrical Dehydrators”*

Rusov Alexander (Yaroslavl State University)

*“Semi-Inclusive Eta- and Eta-prime Meson Production in Bottomonium Decays”*

Satko Daria (Saint-Petersburg State University)

*“Semiclassical Theory of the Landau-Teller Model”*

Timoshenko Vladimir (Saint-Petersburg State University)

*“Quantum Few-Body Problem”*

Varentsova Anastasiia (ITMO University, Saint-Petersburg)

*“Linear and Nonlinear Contributions to the Zeeman Splitting in Highly Charged Ions”*

### **Poster section 17.50 – 18.00**

G-01. Boyko Oksana (Saint-Petersburg State University)

*“Influence of Ion-Dipole Interactions between Polyaspartatic Acid and Calcium Ions on Organo-Mineral Complex Formation”*

G-02. Boytsov Alexander (Saint-Petersburg State University)

*“Primary and Secondary Vertices Reconstruction in the BM@N Experiment”*

G-03. Dmitrenko Daniil (Saint-Petersburg State University)

*“Molecular Dynamics Simulation Study of Polylactide and Polyhydroxybutyrate”*

G-04. Dobrovskiy Aleksey (Saint-Petersburg State University)

*“Investigation of Relaxation Processes of Thermoplastic Polyimides”*

G-05. Izmailov Sergei (Saint-Petersburg State University)

*“MD Modeling of Disulfide Bond Formation in Peptides and Proteins”*

G-06. Kostenko Mariia (Saint-Petersburg State University)

*“Statistical Restoration of Broken Symmetry in Fully Developed Turbulence”*

G-07. Matviyuk Aleksandr (Saint-Petersburg State University)

*“Vibration of a Droplet in Alternating Electric Field”*

G-08. Satko Daria (Saint-Petersburg State University)

*“Dielectric Permittivities of Gold and Silicon. Calculation of Casimir energy”*

G-09. Shakhova Vera (Saint-Petersburg State University)

*“Modeling and Analysis of the Electronic Structure of Ytterbium Fluoride”*

G-10. Tenishchev Semen (ITMO University, Saint-Petersburg)

*“Non-Diagonal Green Functions for Disordered Systems”*

G-11. Vasileva Daria (Saint-Petersburg State University)

*“Nonperturbative Treatment of the Zeeman Effect in Highly Charged Ions with Nonzero Nuclear Spin”*

G-12. Volchkova Anna (Saint-Petersburg State Uni)

*“Nonperturbative Treatment of the Zeeman Effect in Highly Charged Ions with Nonzero Nuclear Spin”*

## **Section H – Biophysics October, 19 (Wednesday)**

**Oral sections 10.30 – 12.00**

**Aud. 225, Leader – Prof. Dr. Nikolay Tsvetkov**

Kazakov Alexander (Saint-Petersburg State University)

*“Coil-to-Flower Transition in a Linear Polymer Chain Inserted into a Brush Made of Starlike Macromolecules”*

Kitaeva Alina (Saint-Petersburg State University)

*“Electro-Optics of Comb-Like Polymers in Organic Solvent”*

Prokacheva Varvara (Saint-Petersburg State University)

*“Theoretical Study Polymer Brushes Structure Made of Arm-Grafted Polyelectrolyte Stars”*

Tankovskaya Svetlana (Saint-Petersburg State University)

*“Secondary Structure of Proteins Revealed by FTIR Spectroscopy”*

Unksov Ivan (Saint-Petersburg State University)

*“Small interfering RNA and DNA Interaction with Azobenzene Containing Surfactant”*

### Poster section 12.30 – 14.00

- H-01. Anufriev Ilia (Saint-Petersburg State University)  
*“Conformational and Optical Properties of Novel Linear Cationic Polymers”*
- H-02. Lezova Irina (Saint-Petersburg State University)  
*“Electro-Optical Properties of Metallomesogen Complexes”*
- H-03. Batalova Anastasia (Saint-Petersburg State University)  
*“Molecular Dynamics Simulation of the Structural Properties of P3HT Chain in a Helical Conformation”*
- H-04. Batalova Anastasia (Saint-Petersburg State University)  
*“IR-spectroscopy of DNA with cis- and trans- DDP”*
- H-05. Markizov Leonid (Saint-Petersburg State University)  
*“Study of DNA Interaction with Short Peptides AEDG and EDR by Spectral Methods”*
- H-06. Osolodkov Mikhail (Saint-Petersburg State University)  
*“DNA Complexes with Silver Compound Containing Phenanthroline”*
- H-07. Senchukova Anna (Saint-Petersburg State University)  
*“Study of the Hydrodynamic Properties of Cross-Linked Polymers Based on Polyn-Acrylic-11- Amidoundecanoic Acid”*
- H-08. Slyusarenko Maria (Saint-Petersburg State University)  
*“Poly (methacrylamido-D-glucose) Copolymer Modified by Cyclodextrin”*

## Section I – Resonance Phenomena in Condensed Matter October, 17 (Monday)

### Oral sections 15.00 – 16.30 and 16.50 – 17.30

#### **Aud. 210, Leader – Prof. Dr. Vladimir Chizhik**

Bogdanov Ivan (Saint-Petersburg State University)  
*“Visualizing of Acoustic Standing Waves by Cavitation”*

Bystrov Sergei (Saint-Petersburg State University)  
*“Molecular Dynamics of Ionic Liquid (Methyl-Octyl Imidazolium Chloride) in Mixture  
“Water – Glycerol”*

Giba John (Saint-Petersburg State University)  
*“Hydrogen Bonding Between Phosphinic Acids and Pyridines: Theoretical Study of CSA  
Tensor Dependence on Proton Position”*

Kargin Timofey (Saint-Petersburg State University)  
*“Charged Particles Identification by Time of Flight in the BM@N Experiment”*

Kazarinov Aleksey (Saint-Petersburg State University)  
*“Research of the Structure of Micelles in Ionic Liquid Aqua Solution”*

Luzhetckaia Nadezhda (Saint-Petersburg State University)  
*“Magnetic Resonance Measurements of Self-Diffusion Tensor in Ultra-Low Magnetic Field”*

Potekhin Roman (Saint-Petersburg State University)  
*“Interferometric Detection of the Electron g-Factor in Semiconductors”*

Rabdano Sevastyan (Saint-Petersburg State University)  
*“Implications of the Oxidative Stress for Structure and Stability of Second RNA-Recognition Motif of TDP-43 protein”*

Shaban Ali (Saint-Petersburg State University)  
*“Autocorrelation Analysis of <sup>1</sup>H NMR Spectra of RRM2 Domain of TDP-43 Protein Undergoing Temperature Denaturation”*

Sokratilin Sergey (Saint-Petersburg State University)  
*“Relaxation Efficiency of Gd and Fe Paramagnetic Ions in Aqueous Solutions of Fullerenols”*

### **Poster section 17.30 – 18.30**

I-01. Adelson Veronika (Saint-Petersburg State University)  
*“Magnetic Resonance Susceptibility Weighted Imaging”*

I-02. Bogdanov Dmitriy (Saint-Petersburg State University)  
*“Effect of Preparation Method on Local Structure of Copper-Exchanged Mordenites: <sup>1</sup>H, <sup>27</sup>Al, <sup>29</sup>Si MAS NMR Study”*

I-03. Efimova Alexandra (Saint-Petersburg State University)  
*“Quantum-Chemical Calculations of Substituted Ethylenes as CH Proton Donors in Hydrogen-bonded Complexes”*

I-04. Gilmiyarov Marat (Saint-Petersburg State University)  
*“Indexing Layered Perovskite-Like Structures”*

I-05. Ievleva Svetlana (Saint-Petersburg State University)  
*“Diffusion Weighted Imaging in Ultra-Low Magnetic Field”*

I-06. Khasanov Magomed (Saint-Petersburg State University)

*“Development of Software for Operate of the Sample Temperature Control Unit”*

I-07. Kostin Mikhail (Saint-Petersburg State University)

*“<sup>31</sup>P NMR Study of Self-Association of Phosphinic Acids in Polar Aprotic Solvents”*

I-08. Lysenko Roman, Reveguk Zakhar (Saint-Petersburg State University)

*“Excitation Energy Transfer between DNA and Ag Clusters”*

I-09. Nesterova Olga (Saint-Petersburg State University)

*“Molecular Dynamics Simulation Study of the Microstructure of Ethylammonium Nitrate. The Effect of the Model Nitrate-Anion Geometry”*

I-10. Rabdano Sevastyan (Saint-Petersburg State University)

*“Loss of Protein Stability due to Formation of Intermolecular Disulfide Bonds under the Effect of Oxidative Stress: Case Study of the RRM2 Domain from Neuropathological Protein TDP-43”*

I-11. Salikov Vladislav (Saint-Petersburg State University)

*“Interpretation of <sup>1</sup>H and <sup>13</sup>C NMR Spectra of Alizarin”*

I-12. Shvyrykov Zhenya (Saint-Petersburg State University)

*“Molecular Mobility of Ionic Liquid [BMIM]BF<sub>4</sub> in Silica Dispersions by Nuclear Magnetic Resonance”*

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