

## Scientific Program of VI International Conference “Atmosphere, Ionosphere, Safety” (AIS-2018)

### Section E «Elementary processes in the upper atmosphere and ionosphere»

*Chair Golubkov G.V.*

*Reports on the dynamics of elementary processes with participation of the electronically excited and charged particles including ionization, recombination, quenching of excited states, and the recharging and exchange reactions will be presented in the section. The modern quantum chemical methods of the potential energy surface calculations of the interacting atmospheric particles are also included. The dynamic of collisional and radiative processes in the lower ionosphere caused by the flux of the electrons from the ionosphere during periods of solar activity and under action of radiation entering to the Earth’s atmosphere will be discussed. The spectral profiles of the additional background radiation of the collective Rydberg states in the ionospheric D and E layers in the decimeter and terahertz ranges will be discussed. The elementary processes in a field of intense laser radiation will be discussed also. We will discuss the processes of microwave radiation that actively affects on living organisms.*

Type of Presentation	Author	Title of the Report
<i>Plenary Lecture</i>	<i>Gooshchin Anatoly</i>	<i>Multi-Polarization Antenna System</i>
<i>Plenary Lecture</i>	<i>Morozov Igor Illiodorovich</i>	<i>Laboratory experiments in atmospheric chemistry</i>
<i>Sectional Report</i>	<i>Osman Özcan</i>	<i>Effects of ionospheric E-layer dynamo current on the daily geomagnetic field variations</i>
<i>Sectional Report</i>	<i>Vasiliev Roman Valerievich</i>	<i>Some features of the upper atmosphere wind and temperatures observed by Fabry-Perot interferometer</i>
<i>Sectional Report</i>	<i>Adamson Sergey Olegovich</i>	<i>Ab Initio Study of Singlet and Triplet Valence-Rydberg Electronic States of N<sub>2</sub> Molecule</i>
<i>Sectional Report</i>	<i>Ozerov Georgy Konstantinovich</i>	<i>Dissociative recombination of N<sub>2</sub><sup>+</sup> ions with slow electrons</i>
<i>Sectional Report</i>	<i>Golubkov Gennady Valentinovich</i>	<i>Fundamentals of Quantum Theory of Distortion and Delay of GPS Signals</i>
<i>Sectional Report</i>	<i>Klyucharev Andrey Nikolaevich</i>	<i>Manifestation of stochastic dynamics in a single atom-atom collision</i>
<i>Sectional Report</i>	<i>Kuverova Veronika Vladimirovna</i>	<i>Low-temperature exchange reactions involving O, N, O<sub>2</sub>, N<sub>2</sub> and Rydberg particles in orbitally degenerate states</i>
<i>Sectional Report</i>	<i>Golubkov Maxim Gennadievich</i>	<i>Role of elastic collisions in the dissociative recombination reactions occurring in the D and E layers of ionosphere</i>
<i>Sectional Report</i>	<i>Vasytinskii Oleg S.</i>	<i>On the way to complete experiment in the photodissociation dynamics</i>
<i>Sectional Report</i>	<i>Kokoouline V.</i>	<i>Importance of Jahn-Teller coupling in the dissociative recombination of H<sub>3</sub><sup>+</sup> by</i>

		<i>low energy electrons</i>
<i>Sectional Report</i>	<i>Petsalakis I.D.</i>	<i>Multichannel quantum defect and complex coordinate calculations on based atmospheric molecules</i>
<i>Poster</i>	<i>Ardelyan Nikolai V</i>	<i>To Determination of Electron Temperature of Air Plasmas at 90-100 km</i>
<i>Poster</i>	<i>Arifullin Marcel Ravshanovich</i>	<i>Kinetics of state selective processes</i>
<i>Poster</i>	<i>Dolin Sergey Petrovich</i>	<i>Comparative quantum chemical analysis of oxidation by free and coordinated dioxygen</i>
<i>Poster</i>	<i>Letuta Alexander Sergeevich</i>	<i>Spin dependent processes in radical triads and quantum dots</i>
<i>Poster</i>	<i>Nabiyev Shavkat Sharifovich</i>	<i>Features of intermolecular interactions of xenon and krypton fluorides in nonaqueous hydrogen fluoride</i>
<i>Poster</i>	<i>Bessarab Fedor Semenovich</i>	<i>Noncogerent IR radiation of the Rydberg complexes in the D and E layers of ionosphere</i>
<i>Poster</i>	<i>Ozerov Georgy Konstantinovich</i>	<i>Quantum justification of the diffusion approach in low-temperature associative ionization reactions</i>
<i>Poster</i>	<i>Yurova Inna Yurevna</i>	<i>The manifestation of dynamic "quantum chaos" in the rovibronic states of orbitally degenerate Rydberg complexes</i>
<i>Poster</i>	<i>Rebentrost Frank</i>	<i>Optical collisions: a detailed look on the collision dynamics</i>

**Section D «Atmospheric-ionospheric relations»**

***Chair Karpov I.V.***

*Reports on the following directions of researches will be presented in this section: (I) formation of perturbation sources in the atmosphere and the ionosphere related to disasters phenomena (earthquakes, typhoons, volcanic eruptions, technogenic catastrophes, etc.); (II) ionosphere response to influences of various origins (electric currents, acoustic waves, radioactivity, etc.); (III) generation and propagation of the electromagnetic and plasma perturbations in the ionosphere; (IV) meteorological effects in the ionosphere, wave-like disturbances in the atmosphere-ionosphere system, nonlinear wave-wave interactions, tidal and planetary wave-type oscillations in the atmosphere and ionosphere.*

Type of Presentation	Author	Title of the Report
<i>Plenary Lecture</i>	<i>Chum Jaroslav</i>	<i>Coupling between neutral and ionized atmosphere and transient changes of electron densities in the upper atmosphere</i>

<i>Plenary Lecture</i>	<i>Bakhmet'eva Nataliya Vladimirovna</i>	<i>Results of investigations of the Earth's lower ionosphere by the methods of scattering of radiowaves by natural and artificial ionospheric plasma inhomogeneities</i>
<i>Plenary Lecture</i>	<i>Grach Savely Maksimovich</i>	<i>Stimulated Electromagnetic Emissions of the Ionosphere: Main Properties and Diagnostic Possibilities</i>
<i>Plenary Lecture</i>	<i>Krivolutskii Alexey Alexandrovich</i>	<i>3D numerical simulations of ionized and neutral atmospheric chemical composition up to 90 km from the ground with global photochemical model CHARM-I</i>
<i>Sectional Report</i>	<i>Atici Ramazan</i>	<i>The Effect on Ionospheric Electron Density of Polarized Modes of Lightning Induced EM Waves</i>
<i>Sectional Report</i>	<i>Selçuk Sagir</i>	<i>Comparison of F10.7 solar flux and QBO effects on the neutral temperature of lower ionosphere</i>
<i>Sectional Report</i>	<i>Sukhodolov Timofei</i>	<i>First results of the Entire Atmosphere Global Model (EAGLE)</i>
<i>Sectional Report</i>	<i>Vivian Otugo</i>	<i>The influence of Cosmic ray on Climate Change hi</i>
<i>Sectional Report</i>	<i>Bakhmet'eva Nataliya Vladimirovna</i>	<i>Layering of the D region according to observations at the SURA stand</i>
<i>Sectional Report</i>	<i>Vasilyev Pavel Anatolyevich</i>	<i>Modeling of ionospheric disturbances caused by meteorological storms</i>
<i>Sectional Report</i>	<i>Globa Maria</i>	<i>Airglow observation during ionospheric scintillations of different intensity</i>
<i>Sectional Report</i>	<i>Denisenko Valery Vasilyevich</i>	<i>Influence of relief and oceans on the Global Electric Circuit</i>
<i>Sectional Report</i>	<i>Kandyeva Kanykei Kubanychevna</i>	<i>Influence of the Madden-Julian oscillation on extratropical atmosphere circulation</i>
<i>Sectional Report</i>	<i>Kozlovtseva Ekaterina</i>	<i>Ionospheric effects of Sudden Stratospheric Warmings and Geomagnetic Storms observed with the signals of geostationary navigational satellites</i>
<i>Sectional Report</i>	<i>Kulyamin Dmitry Vyacheslavovich</i>	<i>Modeling of energetic particles impact on ozone layer and atmospheric circulation</i>
<i>Sectional Report</i>	<i>Kshevetsky Sergey Petrovich</i>	<i>Numerical modeling of vertical</i>

		<i>propagation of acoustic-gravity waves from surface sources</i>
<i>Sectional Report</i>	<i>Leble Sergey Borisovich</i>	<i>To the problem of estimating accuracy of atmosphere perturbations diagnostics by projection operators method</i>
<i>Sectional Report</i>	<i>Nosikova Natalia Sergeevna</i>	<i>ELF electromagnetic signals in the Upper Ionosphere and local thunderstorm activity</i>
<i>Sectional Report</i>	<i>Radievsky Alexander Viktorovich</i>	<i>Spatial-temporal correlation functions in the global ionospheric model in comparison with experiment</i>
<i>Sectional Report</i>	<i>Surkov Vadim Vadimovich</i>	<i>Ionization of the lower ionosphere caused by gigantic jet discharged</i>
<i>Sectional Report</i>	<i>Shevchuk Nikita Olegovich</i>	<i>Propagation of stationary planetary waves to thermosphere at different levels of solar activity</i>
<i>Sectional Report</i>	<i>Yasyukevich Anna Sergeevna</i>	<i>Changes in the middle and upper atmosphere parameters in January 2013 at mid-latitude region</i>
<i>Poster</i>	<i>Borchevkina Olga Pavlovna</i>	<i>Investigation of variations in tropospheric and ionospheric parameters under meteorological disturbances in 2016</i>
<i>Poster</i>	<i>Vereshchagin Sergey Dmitrievich</i>	<i>To the problem of estimating accuracy of atmosphere perturbations diagnostics by projection operators method</i>
<i>Poster</i>	<i>Didenko Ksenia Andreevna</i>	<i>Nonlinear interaction of wave processes in the middle and upper atmosphere</i>
<i>Poster</i>	<i>Drobashkevskaya Ekaterina Alexandrovna</i>	<i>ENSO influence on the polar temperature and ozone mixing ratio in the spring-time stratosphere</i>
<i>Poster</i>	<i>Koval Andrey Vladislavovich</i>	<i>Numerical simulation of sensitivity of meridional circulation to impacts of orographic gravity waves and QBO phases in the middle and upper atmosphere</i>
<i>Poster</i>	<i>Manghelii Mikhail Ivanovich</i>	<i>The Problems of Calibration in Remote Sensing</i>
<i>Poster</i>	<i>Orlova Ekaterina Valeryevna</i>	<i>Generation of the electromagnetic ion cyclotron waves by the artificial ionospheric source</i>
<i>Poster</i>	<i>Petrova Inna Romanovna</i>	<i>Comparison of global ionospheric maps with data obtained using vertical</i>

		<i>sounding of the ionosphere</i>
<i>Poster</i>	<i>Smolina Vera Pavlovna</i>	<i>Dependence of the stimulated electromagnetic emission intensity on relative location of the ionosphere HF — pumped volume and groundbased receiving sites — on the base 2011 experiments at HAARP</i>
<i>Poster</i>	<i>Shagimuratov Irk Ibrahimovic</i>	<i>The effect of total solar eclipse of August 21, 2017 in the total electron content over America</i>
<i>Poster</i>	<i>Shagimuratov Irk Ibrahimovic</i>	<i>The effect of the solar flare on september 2017</i>
<i>Poster</i>	<i>Shagimuratov Irk Ibrahimovic</i>	<i>Influence of the ionosphere to GLONASS/GPS positioning during geomagnetic storms</i>

**Section F «Ionospheric-magnetospheric relations»**

***Chair Klimenko M.V.***

*The section will present reports on the results of research in the following scientific areas: (I) the effect of solar activity on the state of the ionosphere; (II) the effect of perturbations of solar and geomagnetic activity on global and local ionospheric parameter distributions.*

Type of Presentation	Author	Title of the Report
<i>Plenary Lecture</i>	<i>De Nardin Clezio Marcos</i>	<i>Review on some Aspects of the Solar-Terrestrial Coupled Systems</i>
<i>Plenary Lecture</i>	<i>Rozanov Eugene</i>	<i>The evolution of the ozone layer under influence of the natural and anthropogenic factors</i>
<i>Plenary Lecture</i>	<i>Wojciech Miloch</i>	<i>Ionospheric plasma irregularities studied by satellites, and their impact on GNSS signals</i>
<i>Plenary Lecture</i>	<i>Demekhov Andrey Gennadievich</i>	<i>Interaction of waves and particles in the earth's inner magnetosphere</i>
<i>Plenary Lecture</i>	<i>Kalegaev Vladimir Vladimirovich</i>	<i>Dynamics of magnetospheric current systems during geomagnetic disturbances</i>
<i>Plenary Lecture</i>	<i>Padokhin Artem Mikhailovich</i>	<i>Tomographic methods in remote sensing of atmosphere and near-Earth space</i>
<i>Sectional Report</i>	<i>Charles (Chien Hung) Lin</i>	<i>Medium Scale Travel Ionospheric Disturbances (MSTIDs) Triggered by Typhoons</i>
<i>Sectional Report</i>	<i>Dmitriev Alexei</i>	<i>Spatial and energy extension of storm-time energetic electron precipitations</i>
<i>Sectional Report</i>	<i>Sergeeva Maria</i>	<i>Peculiarities of TEC behaviour along the Mexican meridian during the weak ionospheric disturbances</i>

<i>Sectional Report</i>	<i>Suvorova Alla</i>	<i>Flux enhancements of &gt;30 keV electrons at low drift shells <math>L &lt; 1.2</math> during last solar cycles</i>
<i>Sectional Report</i>	<i>Bessarab Fedor Semenovich</i>	<i>Solar extreme ultraviolet (EUV) radiation and variability of ionospheric parameters</i>
<i>Sectional Report</i>	<i>Vesnin Artem Mikhailovich</i>	<i>SM TIP viewer — the tool for ionospheric model aggregation</i>
<i>Sectional Report</i>	<i>Karpachev Alexander Trofimovich</i>	<i>Ionospheric trough model for winter day conditions</i>
<i>Sectional Report</i>	<i>Kislitsyn Alexey Alexandrovich</i>	<i>Contribution of mathematical approximations to estimation of parameters of phase frequency dispersion for transionospheric radio propagation</i>
<i>Sectional Report</i>	<i>Klimenko Maxim Vladimirovich</i>	<i>Upper atmosphere response to 2015 St. Patrick geomagnetic storm event</i>
<i>Sectional Report</i>	<i>Mylnikova Anna Alexandrovna</i>	<i>Absolute total electron content from single-frequency Galileo, Beidou and GLONASS</i>
<i>Sectional Report</i>	<i>Nepomnyashchaya Elena Valerievna</i>	<i>Evaluation of the Ionosphere-Magnetosphere Disturbance during an Intense Magnetic Storm</i>
<i>Sectional Report</i>	<i>Nosikov Igor Anatolievich</i>	<i>Global optimization for a point-two-point ionospheric ray tracing problem</i>
<i>Sectional Report</i>	<i>Oynats Alexey Vladimirovich</i>	<i>Variations of the EKB HF radar ground scatter observed in 2013-2017</i>
<i>Sectional Report</i>	<i>Ratovsky Konstantin Gennadievich</i>	<i>After-effects of geomagnetic storm in NmF2 disturbances over Irkutsk and Kaliningrad ionosondes</i>
<i>Sectional Report</i>	<i>Setov Artem Gennadievich</i>	<i>Detecting electron density irregularities using interferometric capabilities of the Irkutsk incoherent scatter radar</i>
<i>Sectional Report</i>	<i>Tereshin Nikita Alekseevich</i>	<i>Interferometry of moving ionospheric disturbances according to geostationary navigation satellites</i>
<i>Sectional Report</i>	<i>Tkachev Ivan Dmitrievich</i>	<i>Variations in the statistical characteristics of fast optical flashes in the atmosphere at mid-latitudes</i>
<i>Sectional Report</i>	<i>Fetisova Nadezhda Vladimirovna</i>	<i>Ionospheric anomalies during solar events in 2015-2017 years: features of occurrence, intensity, dynamics (according to data of the ground station network)</i>

<i>Sectional Report</i>	<i>Chernyshov Alexander Alexandrovich</i>	<i>Small-scale plasma inhomogeneities in the Earth's ionosphere of the Arctic region</i>
<i>Sectional Report</i>	<i>Yasyukevich Yuri Vladimirovich</i>	<i>Machine learning approach for ionosphere nowcasting</i>
<i>Poster</i>	<i>Owolabi Oladejo Charles</i>	<i>Influence of Sudden Stratospheric Warming on Sq Current System</i>
<i>Poster</i>	<i>Sergeeva Maria</i>	<i>HF propagation parameters in the Arctic region during substorms</i>
<i>Poster</i>	<i>Sharon Aol</i>	<i>Effects of space weather on the ionosphere: A case study of the geomagnetic storms during the period 17-28 February 2014</i>
<i>Poster</i>	<i>Grach Veronika Savelyevna</i>	<i>Resonant Interaction of Electrons with Auroral Kilometric Radiation</i>
<i>Poster</i>	<i>Despirak Irina Vadimovna</i>	<i>Magnetic substorms under different structures of the solar wind</i>
<i>Poster</i>	<i>Zhel'nina Ekaterina Andreevna</i>	<i>Optimal F10.7-related index for global empirical model of NmF2</i>
<i>Poster</i>	<i>Zakharenkova Irina Evgenevna</i>	<i>Specification of storm-induced ionospheric irregularities by ground-based and space-borne GPS observations</i>
<i>Poster</i>	<i>Kotova Daria Sergeevna</i>	<i>Model simulation of oblique sounding ionograms at the trace between Lovozero and Gorkovskaya during St. Patrick's Day 2015 Geomagnetic Storm</i>
<i>Poster</i>	<i>Markina Ekaterina Igorevna</i>	<i>Long data base of Kaliningrad ionozonde observation</i>
<i>Poster</i>	<i>Somina Elizaveta Ruslanovna</i>	<i>Model description of the oblique sounding ionogram simulation</i>
<i>Poster</i>	<i>Tatarinova Kristina</i>	<i>Comparative analysis of radiation and amplitude characteristics of the normal modes with the propagation of short waves in the ionosphere</i>
<i>Poster</i>	<i>Chugunin Dmitry Vladimirovich</i>	<i>Ion heating on the poleward moving of the the auroral oval polar boundary</i>

**Section P «Electromagnetic and optical phenomena in the atmosphere including long-lived and plasma objects»**

**Chair Bychkov V.L.**

Reports on the lightning and ball lightning generation processes accompanied by the disaster phenomena will be considered. Questions of unconventional plasmas, long-lived objects, their experimental and theoretical modeling will be represented. The dynamics of distribution and interaction of the nanoscaled, large plasma and long-lived formations with the substances and biological objects in the atmosphere will be offered.

Type of Presentation	Author	Title of the Report
Plenary Lecture	Bychkov Vladimir Lvovich	Long Lived Plasma Formations in the Atmosphere
Plenary Lecture	Ugolnikov Oleg Stanislavovich	Аэрозоль и облака выше тропосферы: цветовые и поляризационные исследования
Sectional Report	Funaro Daniele	A Model for Ball Lightning Derived from an Extension of the Electrodynamics Equations
Sectional Report	Bikmukhametova Adlia Rivallevna	Interaction of plasma with Earth surface
Sectional Report	Vasiliev Roman Valerievich	Fast atmospheric optical events from thunderstorms, meteors and processes in magnetosphere
Sectional Report	Zatelepin Valery Nikolayevich	The long-range interaction in processes of heat transfer
Sectional Report	Nikitin Anatoly Il'ich	Energy, charge, and radio-waves emission as the base principles for development of electrodynamic model of ball lightning
Sectional Report	Pyrozersky Alexey Leonidovich	On Spectral and Energetic Characteristics of Erosional Plasma on the Basis of a Tin Alloy and of "Jumping Fireballs"
Sectional Report	Chernous Sergey Alexandrovich	Using of the auroral oval model in modern time
Sectional Report	Chistolinov Andrey Vladimirovich	Whether it is possible to describe a ball lightning within the Standard Model?
Poster	Nikitin Anatoly Il'ich	Traces of ball lightning interaction with glass as a proof of its material nature
Poster	Nikitin Anatoly Il'ich	Features of the Mitino's Ball Lightning Motion near the Transmission Line
Poster	Nikitin Anatoly Il'ich	Experimental and theoretical research of electric dipoles interaction inside the shell of ball lightning
Poster	Shchedrin Andrey Igorevich	Ball lightning observations analysis of "the Mitino trap 2015"
Poster	Shchedrin Andrey Igorevich	Proposed formation mechanism of ball lightning in nature



**Section S «Information systems of the environment monitoring and the accident prevention»**

***Chair Chudnovsky L.S.***

Reports on chemical physics processes in the D-and E-layers of the atmosphere will be presented in this section. They traditionally include radiative and collisional processes of recombination, ionization, excitation and quenching of atmospheric components. Particular attention will be paid to an increase in total electron content (TEC), flux and temperature of free electrons under the influence of solar activity. Recently it was discovered experimentally that the nonequilibrium two-temperature plasma is formed under these conditions. Last theoretical calculations have shown that Rydberg states of atoms and molecules are highly populated in such plasma. The interaction of highly excited atoms and molecules with neutral particles of the medium leads to noticeable radiation of upper atmosphere in the decimetric range. This microwave radiation is incoherent and is responsible for a significant carrier/noise decrease for satellite navigation systems (i.e. GPS, GLONASS, Galileo, etc.). The main reason of sharp carrier/noise decrease is due to the processes of absorption and reradiation of electromagnetic wave (combinational scattering) on Rydberg atoms and molecules in D-layer of atmosphere. It is evident, that GPS signal reradiation leads to sufficient positioning error. The physical and chemical causes for the formation of “transparency windows” for decimetric range will be considered in details. We also plan to examine the possible mechanisms of the group and phase delays of satellite signals as they propagate through the D-and E-layers of the atmosphere.

Type of Presentation	Author	Title of the Report
<i>Plenary Lecture</i>	<i>Chudnovsky Leonid Semenovich</i>	<i>Electromagnetic radiation of expanding plasma in air environment</i>
<i>Sectional Report</i>	<i>Eppelbaum Lev Vilenovich</i>	<i>Propagation of GPS Signals in the Upper Atmosphere</i>
<i>Sectional Report</i>	<i>Mozgov Konstantin Sergeevich</i>	<i>Optimal characteristics of the advanced system intended for space based monitoring of the high-energy pulse sources</i>
<i>Sectional Report</i>	<i>Kulikova Nataliya</i>	<i>The formation and expansion of the global current system produced by beta-electron cloud of radioactive plasma</i>
<i>Sectional Report</i>	<i>Ilyushin Yaroslav Alexandrovich</i>	<i>Anthropogenic ionospheric disturbances in the central industrial region of the Russian Federation</i>
<i>Poster</i>	<i>Lobanov Anton Valerievich</i>	<i>Photosensitizers based on supported tetrapyrrolic complexes: photocatalysis and chemical safety problems</i>
<i>Poster</i>	<i>Vagin Yury Petrovich</i>	<i>The system of space monitoring of high power pulse sources</i>
<i>Poster</i>	<i>Chudnovsky Leonid Semenovich</i>	<i>Electromagnetic pulse excited in the air by a pulsed flow of gamma rays</i>
<i>Poster</i>	<i>Polyakov Vladimir Timofeevich</i>	<i>On passive ionosphere monitoring</i>
<i>Poster</i>	<i>Chudnovskaya Irina nikolaevna</i>	<i>Correction of information message in electronic channels for minimizing social-economic risks and threats</i>

**Section M** «Novel Methods for Environmental Control and Monitoring»

**Chair Kokorin A.I.**

*This section should provide an overview of the state-of-the-art and application perspectives of modern physical-chemical methods in the area of environmental control and monitoring in atmosphere, water, solid materials, soils, wastes, animal and human bodies. Such methods and technologies as EPR, NMR, tomography, optical and IR-spectroscopy, chromatography, laser technique, thermography, etc. are appreciated. Scientists working in the field of basic research and application of these methods to environmental chemistry, safety and monitoring are invited to participate. Considerable attention will be paid to issues related to the development of new methods for the quantitative analysis and control of chemical and biological toxicants, as well as the development of effective physico-chemical methods for the removal and neutralization of toxic chemical and biological contaminants in the atmosphere.*

Type of Presentation	Author	Title of the Report
<i>Plenary Lecture</i>	<i>Kulagina Tatyana Pavlovna</i>	<i>Influence of acoustic vibrations on the kinetics of chemical reactions in the nano-structured liquid phase</i>
<i>Sectional Report</i>	<i>Kokorin Alexander Il'yich</i>	<i>Determination of the band structure of nanooxide semiconductors using ESR spectroscopy</i>
<i>Sectional Report</i>	<i>Golubeva Elena Nikolaevna</i>	<i>EPR Spectroscopy for Monitoring of Biodegradable Polymers</i>
<i>Sectional Report</i>	<i>Ignatov Stanislav Konstantinovich</i>	<i>Oriental isomerism of the small neutral water clusters. Quantum chemical investigation</i>
<i>Sectional Report</i>	<i>Flid Vitaly</i>	<i>About ways of formation of hydrocarbons on the Earth</i>
<i>Sectional Report</i>	<i>Konstantinova E.A.</i>	<i>Determination of the band structure of nanooxide semiconductors using ESR spectroscopy</i>
<i>Sectional Report</i>	<i>Grigoriev Timofey Evgenievich</i>	<i>Porous materials for tissue engineering</i>
<i>Poster</i>	<i>Sviridov D.V.</i>	<i>Photocatalytic and self-cleaning properties of thin films of individual and mixed metal oxides</i>
<i>Poster</i>	<i>Alonso-Vante N.</i>	<i>Unexpected red-shift absorption of fluorinated, and surface N-Methyl-2-pyrrolidone functionalized Anatase</i>
<i>Poster</i>	<i>Breslavskaya Natalia Nikolaevna</i>	<i>Noncovalent Hydrogen Isotope Effects in the Weak van der Waals complexes</i>
<i>Poster</i>	<i>Zhuravlev Mikhail Evgenievich</i>	<i>New examples of self-organization in gaseous media with open boundary conditions</i>
<i>Poster</i>	<i>Shirokova Ekaterina Alekseevna</i>	<i>An effect of orientational isomerism of the small neutral water clusters on their</i>

		<i>thermodynamic functions and concentrations in a gas phase</i>
<i>Poster</i>	<i>Loboyko Alexey Andreevich</i>	<i>Tip photoluminescence spectroscopy of rera-earth compounds</i>
<i>Poster</i>	<i>Hramtsova Elena Alexandrovna</i>	<i>Visualization of matrixs for tissue engineering using ultrasonic microscopy</i>

**Section C «Combustion and Pollution: Environmental Impact»**

***Chair Frolov S.M.***

*This section is implied to provide an overview of the state-of-the-art in the intrincically interrelated disciplines: combustion technology and physical chemistry of atmospheric pollution. The achievements of scientists working in the field of combustion propulsion, fire and explosion safety, atmospheric chemistry and environmental protection will be discussed. A poster report will also be presented dedicated to the consideration of an important issue on ways to improve environmental safety in the transportation and storage of petroleum products.*

Type of Presentation	Author	Title of the Report
<i>Plenary Lecture</i>	<i>Pichugin S.B.</i>	<i>Peculiarities of preparation and carrying out of space experiments on combustion and explosion on the ISS</i>
<i>Plenary Lecture</i>	<i>Frolov Sergey Mikhailovich</i>	<i>Hudrogen fuelled continuous detonation burner</i>
<i>Sectional Report</i>	<i>Golubkov Gennady Valentinovich</i>	<i>Kinetics of the formation of singlet oxygen molecules by slow electrons in a flame</i>
<i>Sectional Report</i>	<i>Volkov Viktor Vladimirovich</i>	<i>Instability of flames in cylindrical tubes</i>
<i>Poster</i>	<i>Gavrilov Yuri Alekseevich</i>	<i>Ways to improve environmental safety in the transportation and storage of petroleum products</i>
<i>Poster</i>	<i>Duominov Igor Grigorievich</i>	<i>Impact of greenhouse gases on the expected recovery of the Earth's Ozone layer</i>

***Section T «Methods and techniques for remote sensing and identification of hazardous chemicals in the atmosphere and different surfaces»***

***Chair Morozov A.N.***

*The physical principles and methods of remote detection of chemical compounds in the atmospheric air environment and on various surfaces without sampling are considered in this section. Special attention is paid to the methods of optical molecular spectroscopy. Problems and prospects, concerning technical means of remote detection and identification of substances, including technical systems based on the techniques of photoluminescence, infrared Fourier spectroscopy, Raman spectroscopy, infrared laser spectroscopy by means of quantum cascade lasers are discussed.*

Type of Presentation	Author	Title of the Report
<i>Plenary Lecture</i>	<i>Vasilyev Nikolay Sergeevich</i>	<i>Analysis of the influence of spectrum bandwidth on the sensitivity of the spectroradiometer system</i>
<i>Sectional Report</i>	<i>Goliak Igor Semenovich</i>	<i>Static Fourier UV-vis spectrometer with an image intensifier tube</i>
<i>Sectional Report</i>	<i>Morozov Andrey Nikolaevich</i>	<i>Development of a single-channel infrared Fourier spectrometer for a spectral range of 3-5 <math>\mu\text{m}</math> and 7-13 <math>\mu\text{m}</math></i>
<i>Sectional Report</i>	<i>Svetlichny Sergey Ivanovich</i>	<i>One Possible Mechanism of Water Vapor Condensation in Atmosphere</i>
<i>Sectional Report</i>	<i>Dolgushin Sergey Anatolievich</i>	<i>Polarization in remote sensing of atmosphere and underlying surface</i>
<i>Sectional Report</i>	<i>Horohorin Alexander Ivanovich</i>	<i>Fourier spectrometer of visible and near infrared range</i>
<i>Sectional Report</i>	<i>Samsonov Dmitry Arturovich</i>	<i>Identification techniques for substances on a surface with diffusively reflected radiation of the quantum cascade laser source</i>
<i>Устный доклад</i>	<i>Balashov Anatoly</i>	<i>The dynamic Fourier-spectrometer optimized for Raman spectra registration</i>
<i>Poster</i>	<i>Vu Minh Tuan</i>	<i>Time Dependence of the Fluorescence from a Polymer Membrane Swollen in Water: Concentration and Isotopic Effects</i>

**Section N «Effects of ionization of the atmosphere. Natural and technogenic disasters»**

***Chair Pulinets S.A.***

*The topic of the section is devoted to a new direction of research into the ionization effects on the thermodynamic and electrodynamic properties of the atmosphere. Sources of ionization can be different: natural radioactivity of the Earth, galactic and solar cosmic rays, natural and artificial electric discharges, radioactive sources that appear as a result of accidents at nuclear cycle plants and nuclear power plants. But the effect of any ionization source is the explosive process of nucleation of aerosol particles (cluster ions), the generation of thermal anomalies and local changes in the electrical properties of the atmosphere (conductivity, vertical current), leading to the creation of local anomalies in the Earth's ionosphere.*

*Technologies based on the use of ionization effects can be applied in the fields of forecast the earthquake or tropical hurricanes and typhoons formation, remote sensing of accidents at nuclear power plants and radioactive contamination of environment, and to develop methods for active weather and climate correction.*

Type of Presentation	Author	Title of the Report
<i>Plenary Lecture</i>	<i>Dimitar Ouzounov</i>	<i>Thermal radiation anomalies associated with major earthquakes</i>
<i>Plenary Lecture</i>	<i>Krankowski Andrzej</i>	<i>ESA Ionosphere Sounding for Pre-seismic anomalies Identification REsearch (INSPIRE) project possible contribution to Understanding of seismo-ionospheric coupling</i>
<i>Sectional Report</i>	<i>Zuev Alexey Valerievich</i>	<i>Tropospheric delay of radio navigation data simulation</i>
<i>Sectional Report</i>	<i>Karelin A.V.</i>	<i>Correction of chemical potential of the water vapor in atmosphere as a reliable precursor of earthquakes. Physical mechanism of itsw generation</i>
<i>Sectional Report</i>	<i>Mareev E.A.</i>	<i>Recent advances in the Global Electric Circuit theory</i>
<i>Sectional Report</i>	<i>Davidenko D.V.</i>	<i>Self-similarity of ionospheric precursors as a background for creation of its typical pattern – “precursor mask”</i>
<i>Sectional Report</i>	<i>Pulinets Sergey Alexandrovich</i>	<i>Global Electric Circuit as a medium for inter-geospheres coupling</i>