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| **March 16, Monday** | | | |
| **Time** | **Event** | | **Place** |
| **PRECONFERENCE EVENT** | | |  |
| 17.20-18.45 | ***Workshop:***  **«Poster presentation:**  **a guide to make**  **a poster for**  **a scientific**  **conference»** | ***Presenter: Anna Yu. Smirnova*** *(PhD in Literature, Assoc.Prof., Department of English and Intercultural Communication, SSU),*  ***Anna A. Sosnovskaya*** (*PhD in Linguistics, Assoc.Prof., Department of English and Intercultural Communication,**SSU)* | Building 18,  Room 208 |

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| **March 30,**  **Monday** | | | |
| **Time** | **Event** | | **Place** |
| 11.30 - 12.00 | **REGISTRATION** | | Building 9, Room 401 |
| 12.00 - 12.05 | **Greetings** | |
| [**PLENARY SESSION**](http://en.wikipedia.org/wiki/Plenary_session) | | |
| 12.05 - 12.50 | **“ Why take international exams? ”**  In the current fast-moving world it is crucial not only to find the motivation to master English, the language of international communication, but also be aware of international standards and live up to these standards and expectations. The presentation will consider the reasons for taking an international exam, the range of examinations to choose from and benefits of acquiring an international certificate. | Presenter: ***Natalia Bayrak*** , PhD in Linguistics, the head of teacher training at International House Voronezh – Linguist |

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| **BREAK** | | | | |
| 12.55 - 13.40 | **“True or False – Critical Thinking in an Academic context”**  Critical thinking is one of the buzz words these days. We do not often talk, however, about what it means. The presentation will look at what skills are needed in the academic environment and what it truly means to understand a text. We will practice deciding on what is true and what is false using some vivid examples and materials from cutting edge Cambridge University Press course books and discuss how these skills are relevant to international exams. | Presenter: ***Natalia Bayrak ,*** PhD in Linguistics, the head of teacher training at International House Voronezh – Linguist | | Building 9, Room 401 |
| **BREAK** | | | | |
| 15.40-16.40 | International scientific system: basic principles of operation, the role of co-operation and mobility | | Presenter: ***Dmitry A. Gorin,*** Doctor of Chemistry, Professor, [Department of Semiconductor Physics](http://www.sgu.ru/en/structure/fnbmt/semi-conphys) | Building 9, Room 401 |

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| 15.40-16.25 | **“Why take international exams?”**  In the current fast-moving world it is crucial not only to find the motivation to master English, the language of international communication, but also be aware of international standards and live up to these standards and expectations. The presentation will consider the reasons for taking an international exam, the range of examinations to choose from and benefits of acquiring an international certificate. | Presenter: ***Natalia Bayrak ,*** PhD in Linguistics, the head of teacher training at International House Voronezh – Linguist | Building 12, Room 411 |
| 16.25-17.10 | ***Workshop***  «Projects: Thinking, Formulating, Creating» | ***Presenter: Anna Yu. Smirnova*** *(PhD in Literature, Assoc.Prof., Department of English and Intercultural Communication, SSU),*  ***Anna A. Sosnovskaya*** (*PhD in Linguistics, Assoc.Prof., Department of English and Intercultural Communication,**SSU)* | Building 12, Room 411 |
| **March 31,**  **Tuesday** | | | |
| 10.00-12.00 | **Panel Discussion**  **1: Physics** | | Building 18, Room 105 |
| **Panel discussion 2: Nanotechnology** | | Building 18, Room 209Б |
| **Panel Discussion**  **3: Chemistry** | | Building 18, Room 207 |
| **Panel Discussion 4: Biology&Geography** | | Building 18, Room 113 |
| **Panel Discussion 5: Mathematics** | | Building 9, Room 325 |
| 10.00 -16.00 | **Deutsche Sektion** | | Gebäude 7, Raum 409 |

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| 10.30-11.15 | **“How Do I Know if I Am a Good Teacher”**  Teachers often find it difficult to assess themselves and find directions of professional development. The presentation will consider what areas, benchmarks and resources are available in our country and in the world for a teacher who strives to do their best. We will also look at the tools available for the teacher to evaluate their progress in building knowledge and skills, international exams for teachers (TKT, IHC, CELTA, CAE, CPE) and what can a teacher do to prepare for them. | Presenter: ***Natalia Bayrak*** , PhD in Linguistics, the head of teacher training at International House Voronezh – Linguist | Building 12, Room 110 |
| 14.00-16.00 | **POSTER SESSION 1**  **POSTER SESSION 2** | | Building 12, Room 125, ground floor |
| 15.30-17.30 | **Panel Discussion 6: Computer Science** | | Building 12, Room 420 |
| 15.30-17.30 | **Panel Discussion 7: Economics** | | Building 12, Room 411 |

**Panel Discussion 1: Physics (Building 18, Room 105)**

**Time-limit: 10 minutes**

*Chairpersons:*

***Alexander B. Pravdin (****PhD in Chemistry, Assoc. Prof., Department of Optics and Biophotonics, SSU)*

***Svetlana V. Eremina*** (*PhD in Pedagogical Sciences, Assoc. Prof., Department of English and Intercultural Communication,**SSU)*

**Abdurashitov Arkadii**

*Real Time Processing of Laser Speckle Contrast Images Using Convolution Technique*

Laser speckle contrast (LSC) imaging is a powerful method for blood flow imaging in biological applications and tissue surface analysis (roughness, voids location, etc.). In this article we presented a fast algorithm for real time processing of LSC images using convolution technique.

**Alauldeen Salah Yaseen**

*Noise Reduction of Signals Using Wavelet Transform*

The wavelet transform is widely used in many applications like signal denoising, image compression, etc. In this work, a comparative study of different wavelet denoising techniques is performed, and the obtained results are discussed. Both, hard and soft thresholding are used for noise reduction with Daubechies basis functions. Also we used the double-density complex wavelet transform and revealed denoising performance of the latter approach.

**Alebastrova Albina**

*Fundamental Laws of Physics in Medicine*

The process of integration of sciences takes place in modern society. An example of such scientific synthesis is the connection of physics and medicine. Fundamental laws of physics help medicine solve the questions concerning human’s health, which are very important for the society. Integration of physics and medicine has become a basis of a new scientific discipline - medical physics. The present paper describes the opportunities of medical physics, the area of its application and innovative solutions.

**Chekmareva Aliya**

*The Destruction of Conservative Dynamics in the Phase Equations for the System of Coupled Oscillators.*

Synchronization of oscillation of interacting systems is a fundamental property of the nature having a wide application in different scientific and engineering fields. In this paper the model of phase dynamics was considered for three and four coupled oscillators.

**Goranov Miroslav**

*Application of Electromagnetic Metamaterials to High – Frequency Structures of Electronics*

The research deals with the problem of modern scientific developments and application of electromagnetic metamaterials in [microwave electronics](http://www.multitran.ru/c/m.exe?t=474810_1_2&s1=%D1%C2%D7-%FD%EB%E5%EA%F2%F0%EE%ED%E8%EA%E0). The application of metamaterials has been studied in detail.

**Harchenko Alexander**

*The Research of the Synchronization in a Network Using Integral Characteristics*

In this paper we study mechanisms of the phase synchronization in a model network of Van der Pol oscillators considering macroscopic parameters of this network. We show that the appearance of the phase synchronization leads to an increased peak in the wavelet spectrum related to the dynamics of synchronized oscillators.

**Izotova Olga**

*Phase Contrast Microscope with Michelson Interferometer as the Phase Modulator*

Phase contrast microscopy is a technique for investigation of internal microstructure of biological objects. In this paper the modernization of the phase microscope method with Michelson interferometer as the spatial light modulator is used for the obtaining cells’ images and measurement of cells' dynamics.

**Koronovsky Alexander, Shapoval Viktor, Elistrarov Andrey**

*Ferhulst Equation – the Main Equation of Nonlinear Dynamics.*

The research deals with problem of solution and applying of Ferhulst equation. The Ferhulst equation has been used as model for considering various processes in the areas of natural sciences, with the method of non-linear dynamics being applied.

**Kostyleva Ekaterina**

*Arrangement of Plane Parameters of Hénon Map*

The purpose of the article is the analysis of Hénon map and bifurcation which takes place in it. Special focus will be on the construction of the bifurcation trees and maps of dynamic regimes. It is shown that as a result of all constructions the period-doubling for small values of lambda and the possible transition to chaos are observable.

**Kozintseva Marina**

*Monitoring of Muscle Optical Clearing Using OCT*

Monitoring of clearing agents diffusion within tissues is important in a wide context of medicine including surgery, therapy and cosmetics. In this paper the results of optical coherence tomography (OCT) monitoring of diffusion of 40% glucose solution as clearing agent in samples of muscle tissue *in vitro* are presented.

**Kozlova Ekatetina, Tsvyk Vladislav**

*The Influence of Temperature and Compression on the Rat’s Adipose Tissue*

This work represents the experiment carried out to study the influence of temperature and compression on the rat’s adipose tissue.

**Preobrazhenskaya Natalia, Torgashov Roman**

*Analysis of Terminology of Synergetics.*

The research deals with the analysis of terminology of synergetics via authentic articles of modern scientists. Terminological apparatus of synergetics has been studied to form the groups of vocabulary units of heterogenetic origin. Percentage of the various groups of terms has been estimated.

**Talaikova Natalia**

*Influence of Transmission Illumination System NA on Signal in Diffraction Phase Microscopy*

There has been shown a signal significant dependence on the numerical aperture of the transmission illumination system and the filter window size of the reference arm of the interferometer, including changes in the measured thickness and distortion of the reconstructed object phase profile.

**Tyshkun Alexandra**

*Frequency Stabilization of a Gyrotron by a Signal Reflected from a Remote Load*

Continious-wave gyrotrons are of great interest in modern science. In this paper frequency stabilization of a gyrotron by a signal reflected from a remote load is considered. Results of numerical simulation reveal which states are steady and unsteady as well as transitions between them.

**Ustalkov Sergey**

*Computational Investigation of Constant in Stefan-Boltzmann Law*

This work explains the concept “Black body” and shows computational investigation of the Stefan-Boltzmann constant

**Mohammad Yasir Khalaf Mohammad**

*Quantifying Chaotic Oscillations from Interspike Intervals*

We address the problem of characterization of chaotic dynamics at the input of a threshold device described by an integrate-and-fire (IF) or a threshold crossing (TC) model from the output sequences of interspike intervals (ISIs). We consider the conditions under which quite short sequences of spiking events provide correct identification of the dynamical regime characterized by the single positive Lyapunov exponent (LE). We discuss features of detecting the LE for both types of the considered models of events generation.

**Panel Discussion 2: Nanotechnology (Building 18, Room 209Б)**

**Time-limit: 10 minutes**

*Chairpersons:*

***Dmitry A. Gorin (****Doctor of Chemistry, Professor,* [*Department of Semiconductor Physics*](http://www.sgu.ru/en/structure/fnbmt/semi-conphys)*, SSU)*

***Sergey V. Pyzhonkov*** *(Senior Lecturer, Department of English and Intercultural Communication, SSU)*

**Bogolyubova Elena**

*Phase Shift Method in Full-Field Optical Coherence Tomography of Layer Objects*

Full-field optical coherence tomography is a new perspective branch in the study of cell-scale objects with high resolution. It is necessary to solve the problem associated with registration and processing large volume of data which is necessary for getting a final 3D image. In present work phase shift method for solving this problem is proposed.

**Dyachenko Anton**

*Simulation of White Light Interference Pattern in Thin Films*

Process of white light interference in thin films is considered. The result of interference colour simulating is presented. The dependence of interference color vs. optical thickness is formed. Influence of emission spectrum and spectral sensitivity of the detector with light interference is examined.

**Gulmanov Eldar, Sergeev Roman, Sergeev Sergey**

*The Phosphate Buffered Saline Properties Investigation in the X-band of Microwave Bandwidth*

The Phosphate buffered saline (PBS) is based on chlorides and phosphates of sodium and potassium. The possibility to determine water concentration in solution by microwave methods is investigated. It is shown that VSWR and attenuation values increase with water concentration in solution.

**Ishbulatov Yury, Kuzyaev Artem**

*Parameters Estimation of the Nonlinear Autonomous Model of Sympathetic Barorefleх Regulation of Arterial Pressure*

In this paper a modification of method, based on the additional system utilizing, is proposed to estimate parameters of the model of the biological system with periodic dynamics. The simulation results allow presupposing successful applying of our method to biomedical data.

**Kochnev Denis**

*The Properties of Composite Structures «Porous Silicon – Silver» Modified in Iodine Vapour*

The current article investigates the process of production of porous silicon by the method of current-free chemical etching and the method of saturation of porous silicon by silver. It studies the properties of the composite structures based on «porous silicon – silver» and modified by iodine vapor. The studies on the presence of phase transition in the structural layers were carried out by the method of differential scanning calorimetry (DSC). The surface morphology was studied by scanning electron microscopy (SEM).

**Kondrateva Olga, Kondrateva Elizaveta**

*Assessing the Reliability of Nanocomponents*

While significant progress has been made toward large-scale manufacturing of nanoparticles referred to as "nanocomponents", there is less attention to the question of a nanocomponents’ reliability. Today, high reliability is necessary to guarantee the advancement and utilization of nanocomponents due to the fact that they account for a high proportion of costs of newly designed nanosystems.

**Korsakova Svetlana**

*Evanescent Wave Sensors Based on Chalcogenide Glasses for Mid-IR Spectroscopy*

An important problem of investigation of the air and water composition by mid-IR spectroscopy is discussed. The model of a sensor node made of planar waveguide on the base of chalcogenide glasses is considered. We have demonstrated that this structure has a high sensitivity.

**Kulminskiy Danil**

*Experimental Communication Scheme Based on Chaotic Time-Delay System with Switched Delay*

We develop an experimental secure communication system with chaotic switching. The proposed scheme is based on time-delayed feedback oscillator with switching of chaotic regimes. The scheme shows high tolerance to external noise and amplitude distortions of the signal in a communication channel.

**Kunitsyn Vladislav**

*Aspects of the Origin of Sustained Current Oscillations of Large Amplitude in a Long Resistive Planar-Epitaxial Structures Based on Gallium Arsenide*

The paper presents the results of an experimental study of how temperature affects the emergence of current oscillations of large amplitude in long resistive planar-epitaxial structures based on gallium arsenide of n-type. Previously it was found that the distance between the anode and cathode contacts is a determining factor in the emergence of current oscillations of large amplitude in such structures.

**Moreva Nadezhda**

*Theoretical Study and Modeling of the Contact: Metal-Molecule*

The purpose of the research was to develop the method allowing scientists to apply quantum-mechanical methods for the calculation of coupling constants and to calculate the constant clutch with the software Gauss View.

**Savelyeva Maria**

*Formation of Functional Calcium Carbonate Coatings on Polymeric Electrospun Fibers for Tissue Engineering Applications.*

In this study the new functional material based on electro spun polymeric fibers coated with biomimetic calcium carbonate shell was prepared. The presented results can be used for designing of tissue engineering scaffolds for bone reconstruction applications.

**Senatov Oleg, Sergeev Sergey**

*Boundary Frequency of Space-Charge Waves Amplification in Thin Film Semiconductor Structures of n-InN.*

The results of theoretical calculation of the boundary frequency for space-charge wave amplification in thin film semiconductor structures of n-InN are presented in the paper.

**Sergeeva Alena, Sergeev Roman, Gulmanov Eldar, Sergeev Sergey**

*Synthesis and Research Properties of Porous CaCO3-microparticles with the Addition of Magnetite Nanoparticles.*

In this research magnetite nanoparticles were obtained. Magnetite nanoparticles were investigated using microwave method. Fe3O4 nanoparticles were embedded in the volume of porous microparticles of CaCO3. As a result, the magnetic microparticles CaCO3 were obtained. The size of the nuclei decreased with the addition of CaCO3 nanoparticles Fe3O4.

**Yagudin Ildar**

*The Properties of Composite Structures Based on Porous Silicon and Silver with the in Situ Control Research.*

The current article investigates the process of controlled getting of porous silicon. Porous silicon has been produced by means of electrochemical method followed by saturation with silver. The morphology and thickness of layers of porous silicon has been studied using scanning electronic microscopy. The processing of interferograms gotten in situ (in their original place) allowed us to determine the growth rate, the porosity and the refractive index of porous layers.

**Panel Discussion 3: Chemistry (Building 18, Room 207)**

**Time-limit: 10 minutes**

*Chairpersons:*

***Natalia A. Burmistrova (****PhD in Chemistry, Assoc.Prof., the Institute of Chemistry, SSU)*

***Anna A. Sosnovskaya*** (*PhD in Linguistics, Assoc.Prof., Department of English and Intercultural Communication,**SSU)*

**Akhrimova Tatiana**

*Synthesis and Biocidal Properties of the Composite Based on Natural Glauconite and Copper Nanoparticles*

A mode of the synthesis composite based on glauconite and copper nanoparticles with reduction of a copper ammonium complex ion (II) in solution with hydrazine has been submitted. Morphological characteristics and antimicrobial activity on strain of Escherichia coli have been investigated.

**Akmaev Alexei**

*Synthesis and Electrochemical Characterization of Modified Phosphate Lithium-Vanadium - an Electrode Material for the New Generation Lithium-Ion Batteries*

A series of electrode materials with the general formula Li3V(2-2*x*/3)Mg*x*(PO4)3 for lithium-ion batteries was synthesized and tested. A conclusion about influence of the degree of magnesium substitution *x* on the power indicators and on the cyclability of electrodes was made.

**Danchuk Alexandra**

*Transdermal Drug Transport of Procaine and Dimetylsulfoxide via the Human Skin*

The article presents the information about drug transport of procaine and its mixtures with penetration enhancer – dimethylsulfoxide – via the human skin. The values of mass transfer calculated for this system have been analyzed.

**Gabidulina Marina**

*Test-Determination of Resorcinol Using the Indicator System Fe(III)- Surfactant*

Test tools for the determination of resorcinol using indicator paper-based salts immobilized Fe (III) with the use of surface-active substances were developed.

**Krugova Ekaterina**

*Micellar-Extraction Extraction and Colorimetric Determination of Some Diatomic Phenols*

The express-method for the determination of some diatomic phenols in aqueous media based on the methodology of extraction in the «cloud-point» has been proposed. Quantitative characteristics of reactants extraction in the system: phenol – p-nitroaniline – nonionic surfactant(OP-10) have been calculated.

**Makhov Semen**

*Studies on the Compatibility of Electrode Materials in the Li4Ti5O12/Li3V2(PO4)3 Electrochemical System for Lithium-Ion Batteries*

Each of the compounds Li3V2 (PO4) 3 and Li4Ti5O12 is a promising electrode material for lithium-ion batteries. The problem of compatibility of the cathode [Li3V2 (PO4) 3] and the anode [Li4Ti5O12] materials in models of lithium-ion batteries and the possible solutions to this problem have been considered.

**Motolygina Anna**

*Sorption of Manganese (II) Compounds from Natural Waters by Using Glauconite of Saratov Region*

The results of manganese (II) cations sorption based on various modification glauconite have been shown. Isotherms of sorption have been plotted and quantitative characteristics of the manganese (II) adsorption have been defined.

**Petrovich Marina**

*Cloud Point Extraction and Spectrophotometry Determination of Dye Ponceau 4R in Jelly Brand "Aesthetics of Taste" and Kissel Brand "Cykoria S.A."*

The method of homogeneous extraction with nonionic surfactant OP-10 dye Ponce 4 R of the food matrix protein-sugar foods has been applied. The conditions and parameters extraction "cloud point" have been defined. The state of the dye in the micellar phase of nonionic surfactant has been investigated. There have been found conditions of micellar phase separation and spectrophotometry and the method of direct determination of food coloring Ponce 4 R in the pudding and jelly has been developed.

**Rybkin Yaroslav**

*A Few Words about the Transformation of Normal Hexane on the Surface of the Catalyst ZSM-5*

In recent years, the global refining industry varies greatly influenced by the environment. It redefines the technology of fuels and improves their composition. Many types of reactions are the basis of these technological processes. To improve fuel is to convert low-octane components to high-octane, by transforming them on the catalyst surface. Thus, the aim of my research was the transformation of n-hexane on the surface of ZSM-5 with 1% Ga. The analysis of the reaction products has showed an increase in the number of hydrocarbon isostructure and an increased number of aromatic compounds. It has been shown that the catalyst exhibits high activity, allows to obtain components necessary for the production of fuel, the catalyst is resistant to cox formation.

**Strelkova Christina**

*Ion-Selective Electrode for Determination of Food Coloring E-133*

The state of food coloring E-133 in solutions of different acidity has been studied. The conditions for the formation and selection of the ion associate cetylpyridinium chloride with dye E-133 have been found. The plasticized membrane with the specified electrode-active material has been received. There has been made a fabricated sensor to detect food coloring E-133 in food. Its electrode-active characteristics have been defined.

**Surinskiy Arsenii**

*Testing of Jurassic and Devonian Sediments by the Anisotropy of Magnetic Susceptibility*

Method of anisotropy of magnetic susceptibility is widely used in sedimentology, study of landslide processes, magnetostratigraphy and other branches of geology. There have been analyzed the results obtained by the method of anisotropy of magnetic susceptibility in the Southern Urals and Saratov. The report presents the results of the study of the magnetic characteristics of the samples taken in the remnants of the Upper Devonian lava and clay sediments. The specimens were excavated in the quarry on the territory of “KPD-1” factory in the north-west part of Saratov. The results shown in stereograms demonstrate how magnetite grains are located in the paramagnetic and ferromagnetic matrix rock. Information about the location of magnetite particles is necessary to obtain conclusions about the conditions of deposition of sediments and forms magma bodies.

**Vostrikova Anna**

*Management of Permeability of Polyelectrolyte Complexes Using Physical and Chemical Effects*

Carrier polyelectrolyte complexes are used for the controlled delivery and release of the encapsulated material. The important property of such systems is to control the permeability of the walls by means of physico-chemical effects.

**Yurova Nadezhda**

*Sorption Concentration of Polycyclic Aromatic Hydrocarbons with Modified Alumina Gel Containing Silver Nanoparticles*

In this research alumina gels were synthesized and used as solid phase extraction sorbents. The main advantages of synthesized alumogels are simplicity and low cost. The sorption properties of alumogels have been studied on the example of pyrene.

**Zaikin Mikhail**

*The Conversion of N-Hexane and N-Hexadecane over Zeolite Catalysts /N-Hexadecane and N-Hexane Conversion on Zeolite-Containing Catalysts*

Obtaining high-octane components of motor petrol and, at the same time, valuable liquefied gases (raw material for subsequent oil-chemistry production) is one of the main goals of secondary processes of hydrocarbon raw processing.The present work studies the activity of the zeolite-containing Ni+Ce/N-TsVM and Cr+Bi/ZSM-5 catalysts, their influence on the degree and direction of conversion of n-hexane and hexadecane.

**Zhelobitskaya Elena**

*Excitation Energy Transfer in Terbium Chelate with Flunixin in Micellar Surfactant Solutions*

The fluorimetric method for determination of flunixin based on the measurement of terbium sensitized fluorescence in the presence of trioctylphosphine oxide in micellar solutions of Tween-80 is proposed. It is shown that micellar solutions of surfactants Tb3 + form a complex compound with flunixin characterized by excitation energy transfer. Optimal conditions for the complexation and the range is determined by the concentration of which is 10-4 - 10-7 M. The method of determination of flunixin has been tested for drugs "Fluneks" (NITA-PHARM LTD, Saratov). Its correctness has been controlled by the technique "added-found".

**Zubareva Inna**

*Synthesis of Polymeric Microcapsules with Embedded “Chitosan-Iodine” Complexes*

Two synthesis schemes of polymeric microcapsules (PMC) with integrated “chitosan-iodine” complexes are offered: 1) by introduction at fabrication PMC, 2) by sorption of iodine inside the synthesized PMC walls. Additionally, “chitosan-iodine” complexes were investigated by UV-visible spectroscopy.

**Panel Discussion 4: Biology&Geography (Building 18, Room 113)**

**Time-limit: 10 minutes**

*Chairpersons:*

***Oksana Yu. Ksenophontova*** *(PhD in Biology, Assoc.Prof., Department of Microbiology and Plant Physiology, SSU)*

***Svetlana V. Kuzmina*** *(PhD in Sociology, Assoc.Prof., Department of English and Intercultural Communication, SSU)*

**Al–Bayati Basim Mohammad Ibrahim**

*Isolation of Some Microbial Agents that Cause Acute Gastroenteritis in Children*

This study was conducted to investigate the main microbial causative agent of diarrhea in children below five years of age, and to evaluate the relationship between the incidence of diarrhea with sex and age group of the patients.

**Alzubaidi Adawia Fadhel Abbaas**

*Assessment of Dynamics of Kremniikarbidnoi Hydrogels Biocidal Properties Change*

Our research was focused on the study of the possibility to use the silicon-chitosan-containing hydrogels as the more active antimicrobial substances needed for the manufacture of drugs for the treatment of many infectious diseases. Up until now, its antimicrobial activity is not well-researched and its validity remains only vaguely defined.

**Chervyakov Maxim**

*Regional and Semi-Global Distribution of Albedo and Absorbed Solar Radiation at the Top of Atmosphere*

This paper describes a new approach to the calculation of the Earth’s radiation budget components from «Meteor» satellite program which has been started in Russia. The study deals with the data from Radiometer IKOR created in Saratov State University. It was assessed spatial and temporal variations of albedo and the absorbed solar radiation over different regions. Latitudinal distributions of albedo and ASR were estimated in more detail. It was shown that the albedo and ASR data received from the radiometer IKOR can be used to detect El-Nino in the Pacific Ocean and monitoring of the East Asian Summer Monsoon. The comparison of the distributions of cloudiness and albedo had identified the existence of significant correlation to the World Ocean, lower values for the World Ocean and land together and small correlation for land.

**Gamidova Fidana**

*Microbiocoenosis of Currant Aphids (Aphis Schneideri c.b.) in the Saratov Region*

In the process of studies the microbiocoenosis of one of the most common species of aphid in the Saratov region – *Aphis schneideri C. B*. – was examined; its quantitative and qualitative characteristics were set; the most typical representatives were revealed.

**Kargatova Alica**

*Varietal Characteristics of Spring Wheat Seedlings Morphogenesis*

The growth and development of embryonic root system of spring wheat varieties is analyzed. The length of the growth zone is from 8 up to 2.5 mm, decreasing in all embryonic roots along the length of the root. The value of wheat germ significantly decreases with increasing temperature.

**Kaybeleva Elmira**

*Pollen-Ovule Ratios in Cereals with Different Reproduction Modes*

The article presents the results of studying of pollen-ovules ratios (P/O), the quality and size of the pollen in wild cereals with different mode of reproduction (sexual: Allopecurus pratensis L., Elymus caninus L., Glyceria fluitans (L.) R.Br., Poa annua L., Zerna riparia (Rehm.) Nevski; facultative apomict: Dactilis glomerata L., Koeleria cristata (L.) Pers., Festuca valesiaca Schleich. ex Gaudin, Festuca pratensis Huds., Hierochloё odorata (L.) Beauv, Poa pratensis L.).

**Korchenova Maria, Shvaiko Vadim**

## The Use of Porphyrins and Their Derivatives in Photodynamic Action on Staphylococci

The aim of this study was to evaluate the sensitivity of the two strains of S.aureus to the complex photodynamic effect of the blue (405 nm) LED radiation and metalloporphyrins.

**Kuzyanina Anastasia**

*The Functional State of the Respiratory System Students*

In the research process were examined 104 students (girls and boys) aged 19-22 years. The functional state of the respiratory system was assessed for indicators of external respiration, determined by the method spirometry, and duration of breath-holding.

**Mikhajlova Evgeniya**

*Analysis of Some Indicators of Modern Geo-Environmental State of Balakovo City*

The real environmental situation, emerged in the cities, often does not coincide with the traditional stereotypes. This article discusses the ecological status of a major industrial center of the Saratov region − Balakovo. In particular, it shows the dynamics of contamination.

**Nikishina Marina**

*The Assessment of the Housing Stock of Engels Based on the Concept of Urban Landscape Areas*

The article tells about results of urban landscape zoning of Engels. Based on the concept of urban landscape areas 48 urban landscape areas of residential construction which differ in position in the relief, the dominant height and the age of buildings and other factors were analyzed. The results can be used for more detailed analysis of the residential districts of the city.

**Pokrovskaya Yulia**

*Thermophilic Fungi: Their Physiology and Adaptations to Extreme Habitats*

The paper explicates the notions of thermotolerance and thermophily in current fungi studies of extreme habitats. Eco-physiology and adaptive characteristics of thermophilic and thermotolerant fungi as well as the assessment of the prospects for further research into fungi adaptation mechanisms to high temperatures are provided.

**Riga Elena**

*New Species of the Myrmecophilous Beetles of Saratov Region Fauna*

The article contains information about myrmecophilous beetles of Saratov region and describes a place where they were collected. The article includes a summary of ecological characteristic about founded species.

**Tyulin Dmitry**

*Other Use of Five-Point Rating Scale of Juvenile Fish Crop Evaluation*

Five-point rating scale of juvenile fish crop evaluation can be successfully applied to the analysis of conditions of feeding fry.

**Panel Discussion 5: Mathematics (Building 9, Room 325)**

**Time-limit: 10 minutes**

*Chairpersons:*

***Konstantin A. Grebenyuk*** *(PhD in Physics and Mathematics, Assoc.Prof., Department of Radiophysics and* [*Electrodynamics*](http://www.multitran.ru/c/m.exe?t=1260594_1_2)*, SSU)*

***Dina A. Alekseeva*** *(Lecturer, Department of English and Intercultural Communication,**SSU)*

**Al – Jourany Khalid Hadi Hameed**

*Application of Hadamard Rhotrices R23 of Order 12 in Coding Theory*

In the present paper Hadamard Rhotrices R23 of order 12 is used as a generator matrix to construct a linear block code. The standard generator matrix and the parity check matrix are given for this code. Finally, the Syndrome decoding method is used to correct errors which appear in transformation of information as well as some examples are given to explain this method by using MATLAB program.

**Barabash Veronika**

*Analysis of Systemic Risks for Some Russian Companies Using CoVaR*

The article contains the description of CoVaR risk measure proposed by M. Brunnermeier, T. Adrian. Our research is connected with application of CoVaR to the analysis of systemic risks for some Russian companies.

**Bragina Sofia**

*To the Problem of Calculating a Stress-Strain State of the Shell Construction Using the Method of Subsequent Parameters Perturbation*

The paper presents the analysis of the method of building an orthonormalized system of functions for obtaining a sequence of solutions of the Karman model due to the method of a subsequent perturbation of the parameters using the method of Bubnov – Galerkin on each step of a sequent stressing. As a result, a concrete example of the orthonormalized basis system for a shell construction of given configuration, that satisfies both cases of hard and hinged fixation of the shell’s boundaries, is given. A proof of orthonormalization for the obtained system is stated.

**Dolganov Andrei**

*Stress as a Factor of Hemodynamics Parameters Changes in Experimental Animals*

Under conditions of experiment on animals we studied the effect of acute and long-term hypokinetic stress on hemodynamics parameters. It is shown that the effects of acute stress lead to moderately severe deterioration of hemodynamic indicators, the impact of prolonged stressors leads to significant hemodynamic disturbances in white male rats.

**Koroleva Olga**

*About the Steinhaus Theorem*

The new Steinhaus theorem proving is obtained by the contour integration of the resolvent operator of differentiation L: Ly = y ', y (0) = y (1) method in this paper.

**Lysunkina Yulia**

*Biomechanical and Histomorphologic Investigation of Atherogenesis in the Coronary Arteries*

The article investigates the atherogenesis in coronary arteries. The reasons and the mechanism of atherosclerosis formation are considered. Natural experiment by determination of biomechanical parameters of tissues is made and the characteristic curves reflecting their variability are constructed.

**Makarov Alexander**

*Elaboration of Indicator Based on Approximating a Trajectory of Prices and Volume of Trades*

To construct an indicator of the securities market, we have proposed to use the auxiliary problem of approximating a trajectory of prices and volume of trades by polynomials trajectory. It has been shown that this problem is reduced to a linear programming problem. Designed indicator has been tested on specific assets.

**Makhankov Aleksei**

*Сomputer Modeling of Dynamic Schwinger Effect: Problems and Opportunities*

The given topic of the report is obviously a review. But its goal is not only to present the existing achievements in this direction. The success of applying possibilities of powerful calculators to complex mathematical model of non-trivial physical processes is shown. This problem has been considered to be a purely academic for a long time due to the absolute lack of ways to generate the required fields tension as well as in the laboratory and somewhere in the Universe. Nevertheless, the problem of estimating the possibility of the processes of electron-positron pairs creation from the vacuum causes interest of theorists.

**Myltcina Olga,** **Myltcin Vladimir**

*The Dynamics of Plate under the Influence of Singularity Effort*

The rectangular isotropic plate being found in conditions of convective heatchange with environment is considered. A surface of the plate is subjected to influence of the concentrated force and temperature for a short time. Analytical solution of this problem with accounting linear decrement is obtained.

**Sergeeva Nadezda**

*The Numerical Analysis of the Dispersion Equations for the Viscoelastic Circular Cylinder*

The paper deals with the infinite viscoelastic circular cylinder. The free vibrations are investigated. The dispersion equations for the axisymmetric problem are deduced. The numerical solutions of the dispersion equations are obtained. The influence of viscosity factors on the behavior of the dispersion curves is established.

**Panel Discussion 6: Computer Science (Building 12, Room 420)**

**Time-limit: 10 minutes**

*Chairpersons:*

***Klavdiya P. Vakhlaeva (****PhD in Physics and Mathematics, Assoc.Prof., Department* ***of Informatics and Programming****, SSU)*

***Elena V. Karpets*** *(PhD in Cultural Studies, Assoc.Prof., Department of English and Intercultural Communication,**SSU)*

**Afanasev Georgiy**

*Data Warehouse or the History of the Enterprise Development*

This paper is devoted to the effective design and creation of an enterprise data warehouse. The article covers methods of gathering and analyzing information from different sources. In addition, the quality management process of the data received is considered. The work is done in Microsoft SQL Server 2012 with the use of Transact-SQL programming language.

**Efremova Anastasia**

*Pseudorandom Bit Sequence Generators Based on Cellular Automata*

This report provides information about cellular automata (CA) and their use as pseudorandom number generator (PRNG). In this paper PRNG based on CA is compared with the one based on a shift register.

**Ezhova Elena**

*Detecting Forgery of JPEG Images*

Modern image processing software has made digital image forgery quite an easy task. This paper presents a forgery detection method based on analyzing inconsistencies of artifacts introduced during JPEG compression. Provided experimental results show the efficiency of the proposed approach.

**Fomina Anastasia**

*On The 1-Basis of a Digraph*

*1-basis* of a digraph is S minimal collection of such mutually nonadjacent vertices that every vertex of the digraph is either in *S* or adjacent from a vertex of *S*. Methods of construction 1-basis for acyclic and even digraphs are analyzed and intercompared.

**Kolesnikova Marina**

*Research and Analysis of the Principles of Operation and Functioning of Hybrid Automata*

The subject area of the research is mathematical models of modern technical systems presented as systems of ordinary differential equations and related with them by means of communication and boundary conditions of partial differential equations with the appropriate initial conditions called combined dynamic systems (CDS).

**Nikishov Dmitry**

*Artificial Neural Networks in Automatic Control*

The article is devoted to application of artificial neural networks in synthesis of controller elements for dynamic systems with automatic control. A short description is given to the concept of neural networks. This article justifies application of neural networks in automatic control and gives an overview of basic methods of automatic control with artificial neural networks.

**Ponomarev Michael**

*Making Videogames in 48hrs*

Ludum Dare is one of the most popular jams of game developers. This article shows the latest jam entry by Michael Ponomarev, its development stages, problems and difficulties faced during 48hrs given to complete a videogame.

**Prosviryakova Darya**

*Construction of Project Network and Software Tools to Work with It*

This work is devoted to network project and appropriate tools to help managers plan projects, draw up schedules of work and control a process of execution. Some information about the future course in the area of project management is also given.

**Rudakov Alexander**

*MIVAR Approach to the Development of Intelligent Systems*

The traditional approach to the creation of expert systems is development and further integration of productions in AND-OR trees and networks. MIVAR approach is based on the development of bipartite graphs of rules and variables. It provides creation of expert systems capable of teaching and reasoning.

**Samartsev Andrey**

*Educational Finite State Machine Android Application*

Android is the most popular platform for mobile devices. However, there are no interactive android applications now that help students study the course of the finite state machines theory. The work deals with process of creation of such an application.

**Shein Alexander**

*Applying RSA Algorithm to the Electronic Payment System Organization*

The paper is devoted to the problem of creating an electronic payment system, which would provide transaction untraceability. The main principles of such a system are given and its model is described. The system is based on the blind signature principle and RSA algorithm.

**Slepukhin Vladislav**

*SSU Timetables: Bringing University Schedules to Your Palm*

SSU Timetables is a project launched and developed by a group of students under the supervision Vlad Slepukhin in February 2014, which brings university timetables to mobile devices. The study shows the main engineering stages, project structure, release, complications and development plans.

**Vysotskiy Alexander**

*The Use of NVIDIA CUDA Parallel Computing Technology to Search for Eigenvalues*

This paper examines the problems of finding the eigenvalues of large order matrices associated with a long computation time. The main goal is to study NVIDIA CUDA parallel computing technologies, employ different methods of finding the eigenvalues of matrices using library CUBLAS and evaluate the effectiveness of the methods employed.

**Panel Discussion 7: Economics (Building 12, Room 411)**

**Time-limit: 10 minutes**

*Chairpersons:*

***Anna A. Firsova (****Doctor of Economics, Prof., Department* ***of Finances and Credit****, SSU)*

***Alla N. Pisarenko*** *(PhD in Pedagogical Sciences, Assoc.Prof., Department of English and Intercultural Communication,**SSU)*

**Bondyasheva Alisa**

*Analysis of Regional Programs to Support Small Businesses in the Saratov Region*

Small business today is one of the main priority areas of the economy in developed countries. Support for small business is one of the priorities in the Saratov region. The purpose of this article is to analyze existing programs for development of small business in the Saratov region, to investigate ways to further development.

**Chestnova Luydmila**

*Bank Reputational Risks in the Russian Economy*

The article describes reputational risks. Businesses of all kind are based on reputation and trust. The banking business is a subject of many clients and partners’ opinions therefore reputational risks are always current question for the participants of the business. Much attention is paid to the practical part of the article by the example of Russian banks. Conclusions about the importance for legal entity including Bank to maintain its reputation are drawn.

**Fenin Kyril**

*System Analysis of Functional Territorial-Temporal Connections in the Russian Economy*

The article describes the functional territorial-temporal connections in the Russian economy, which are traced by “center-peripheral” transformation of structure of the division of labor. Existing structure of the division of labor is deformed and not effective. There is proposed a number of measures for its optimization.

**Gaishoon Vladimir**

*The Role of Financial Analysis in Business Management*

This article is about one of the most important elements of the economic management. Managers often use financial analysis if the reason of big costs is not clear. They have an opportunity to control the direction of financial flows of organization. That’s why it helps company to become more profitable and more competitive.

**Goncharova Kseniya**

*The Influence of Transport Systems Evolution on Cities Development*

This article is about development of transport systems and its influence on city planning, building density and features of cities. From the article you can find out about historical development of different types of transport especially cars. Also the article tells about transport problems and ways of solving them.

**Kulikov Oleg**

*The Modern Economy of Russia: Problems of Conversion*

In the current political and economic situation Russia continues to attempt to get away from the development of raw materials export economy. And it has a different way - a way to create a highly modern economy based on free market competition and private sector development.

**Kuzmin Dmitry, Kuzmina Svetlana**

*Management of Human Resources in Corporation*

The article is devoted to the problem of management of human resources in corporation. Various definitions of the concept "human resource management" are considered and compared. The author defines the general principles of management of human resources in corporation.

**Larkina Maria**

*The Forecasts of Economic Situation in Russia.*

Economic activity in the Russian Federation came to a stand-still. With the oil price at $60-70 a barrel, Russia’s real GDP can be expected to contract by 3-5 percent in 2015. It can cause a further weakening of the ruble. Russian citizens will become poorer. The official unemployment rate will rise to around 7 percent. But how will the Kremlin respond to the challenges in 2015?

**Orlov Nikita**

*The Role and Importance of Intellectual Property in the Modernization of the Economy.*

The article tells us about intellectual property in economy in our days. In today's world competitiveness of the country depends on the level of scientific and technical progress. Intellectual property is becoming a major strategic resource for competitive national economy. Our country creates a variety of programs and projects to increase the quality and quantity of innovative projects. But the key problem is generally low demand for innovation in the Russian economy.

**Selyukova Alena**

*Economic Sanctions Effect the Russian Economy.*

The US and EU have imposed economic sanctions on Russian individuals and businesses in response to the annexation of Crimea and the crisis in Eastern Ukraine. The EU and the US have targeted key sectors of the Russian economy which are closely connected to the ruling elite. Do any of these measures really hurt the Russian economy? It’s the question of our research.

**Surovtseva Anzhelika**

*The Effect of Sanctions Adopted in 2014 on the Development of Russian Banking System*

This article describes the impact of sanctions introduced by the EU, the USA and other countries in 2014 on the Russian economy. The crisis of the banking sector of the Russian economy in 2014 and early 2015 is discussed in detail. Analysis and forecasts of analysts, experts, leading economists about the situation are presented.

**Tugusheva Ryasimya**

*Investment in Human Capital of Russia*

The article tells about investment in human capital of Russia. Also the article gives analysis of public education, health, culture and scientific research and development spending as the main directions of investment in human capital. The conclusion about the reproduction of human capital within the life of an individual, household, company or state is drawn.

**Ushakov Mikhail**

*The Impact of Economic Sanctions Against Russia on EU.*

In spring 2014, a number of Western countries led by the U.S. imposed sanctions on Russia in an attempt to change the Kremlin’s policy towards Ukraine. But the third round of sanctions was faced with criticism by numerous EU politicians, businesspeople and officials who saw them harmful to the European economy. According to Federico Ghizzoni, the CEO of UniCredit, “the sanctions have caused Russia problems and… (they are) even bigger for Europe”.

**Zhdanova Viktoria**

*Oil Price Influence Russian Economy*

Global oil prices have fallen sharply, leading to significant revenue shortfalls in many energy exporting nations. Russia is one of the world’s largest oil producers and it loses about $2bn in revenue for every dollar fall in the oil price. This research tells about the investigation of how it influenced Russian Economy.

***Poster Session Jury***

Olga I. Moskalenko *(PhD in Physics and Mathematics, Assoc.Prof.,Department of Physics of Open Systems, SSU)*

Sergey V. Pyzhonkov*(Senior Lecturer, Department of English and Intercultural Communication, SSU)*

Anna Yu. Smirnova *(PhD in Literature, Assoc.Prof., Department of English and Intercultural Communication, SSU),*

Anna A. Sosnovskaya(*PhD in Linguistics, Assoc.Prof., Department of English and Intercultural Communication,**SSU)*

Mikhail V.Pozharov *(Research Associate, Institute of Chemistry, SSU)*

**Poster Presentation 1: Chemistry&Biology**

**Akmaev Alexey**

*Synthesis and Electrochemical Characterization of Modified Phosphate Lithium-Vanadium - an Electrode Material for the New Generation Lithium-Ion Batteries*

A series of electrode materials with the general formula Li3V(2-2*x*/3)Mg*x*(PO4)3 for lithium-ion batteries was synthesized and tested. A conclusion about influence of the degree of magnesium substitution *x* on the power indicators and on the cyclability of electrodes was made.

**Al–Bayati Basim Mohammad Ibrahim**

*Isolation of Some Microbial Agents that Cause Acute Gastroenteritis in Children*

This study was conducted to investigate the main microbial causative agent of diarrhea in children below five years of age, and to evaluate the relationship between the incidence of diarrhea with sex and age group of the patients.

**Alzubaidi Adawia Fadhel Abbaas**

*Assessment of Dynamics of Kremniikarbidnoi Hydrogels Biocidal Properties Change*

Our research was focused on the study of the possibility to use the silicon-chitosan-containing hydrogels as the more active antimicrobial substances needed for the manufacture of drugs for the treatment of many infectious diseases. Up until now, its antimicrobial activity is not well-researched and its validity remains only vaguely defined.

**Babicheva Tatiana**

*The Rheological Properties of Chitosan Solutions in Semidiluted Glycolic Acid*

The rheological properties of the forming solutions of chitosan in glycolic acid were studied. Increase of viscosity, when increasing the polymer concentration in the solution, was obsereved. Tested solutions are examples of the flow of non-Newtonian liquids. The concentration, when the formation of the fluctuating net linking starts, was defined.

**Bakal Artem**

*Obtaining of Polyelectrolyte Microcapsules on the Basis of Template Cores with the Subsequent Fluorescent Nanoparticles Modification*

Using of polyelectrolyte capsules finds an application as multifunctional carrier. By downloading the different particles in the core or the capsule wall, microcontainers for various kinds of applications can be functionalized.

**Belyakov Alexey**

*Quartz Crystal Microbalance Surface Modification by Means of Layer-By-Layer Assembly*

Ability of quartz crystal microbalance modification by means of layer-by-layer assembly on purpose to determine Ochratoxin A with a future surface cleaning possibility was investigated

**Boronаchina Valeria, Savenko Olga**

*Influence of pH and Ionic Strength on Stability of Silver Nanoparticles Solutions*

Influence of pH and ionic strength on stability of silver nanoparticles solutions in water were investigated. Hydrodynamic radius, surface potential and optical properties of silver nanoparticles were measured at different environment conditions (pH, ionic strength).

**Drozd Daniil**

*The Effect of Electric Field on the Quantum Dots Solution Characteristics*

In this paper we investigated the effects of the electric field on water solutions of hydrophilized QDs with core-shell structure (CdSe / CdZnS / ZnS) and tracked changes of parameters such as hydrodynamic radius, zeta potential and the luminescence intensity of stabilized QDs.

**Gabidulina Marina**

*Test-Determination of Resorcinol Using the Indicator System Fe(Iii)- Surfactant*

Test tools for the determination of resorcinol using indicator paper-based salts immobilized Fe (III) with the use of surface-active substances were developed.

**Kaybeleva Elmira**

*Pollen-Ovule Ratios in Cereals with Different Reproduction Modes*

The article presents the results of studying of pollen-ovules ratios (P/O), the quality and size of the pollen in wild cereals with different mode of reproduction (sexual: Allopecurus pratensis L., Elymus caninus L., Glyceria fluitans (L.) R.Br., Poa annua L., Zerna riparia (Rehm.) Nevski; facultative apomict: Dactilis glomerata L., Koeleria cristata (L.) Pers., Festuca valesiaca Schleich. ex Gaudin, Festuca pratensis Huds., Hierochloё odorata (L.) Beauv, Poa pratensis L.).

## Korchenova Maria, Shvaiko Vadim

## The Use of Porphyrins and Their Derivatives in Photodynamic Action on Staphylococci

The aim of this study was to evaluate the sensitivity of the two strains of S.aureus to the complex photodynamic effect of the blue (405 nm) LED radiation and metalloporphyrins.

**Kozyreva Elena**

*Lichens of the Southern Part of the Privolzhskaya Upland (on the Basis of the Herbarium Funds of Saratov State University Named by N. G. Chernyshevsky (SARAT))*

The results of the inventory of lichens collection of the southern part of the Privolzhskaya Upland stored in Herbarium SSU (SARAT) are reported. The information about 71 species and 170 samples is presented. The database “Lichens of the southern part of the Privolzhskaya Upland” was created.

**Markina Natalia**

*Synthesis of "Oil-In-Water" Emulsions with Application of Iodinated Vegetable Oils*

Preparation of “oil-in-water” emulsions from two different vegetable oils are discussed in a current report. A new procedure of oil iodination is reported. Size distribution of oil particles in emulsion and stability of emulsions in time were measured.

**Petrunina Alexandra**

*The Impact of Gallic Acid on the Composition of the Surface of Glycopolymers Bacteria Azospirillum Brasilense Sp7*

Plants can provide directional impact on the surrounding microbiota by allocating various chemical compounds. Among them there are phenolic components, which are divided into several main groups: phenolic acids, flavonoids, lignans and stilbenes. At the same time, the phenolic acids are quite large group in which one of the highest prevalence belongs to gallic acid excreted virtually by all plant species. This study has shown that the cultivation of bacteria in the presence of gallic acid led to changes in the electro-optical properties of the bacterial cell surface and macromolecular organization of lipopolysaccharides Azospirillum brasilense Sp7.

**Sereychikas Marina**

*Chemical Modification of Photonic Crystal Fibers*

Modifying of the internal surface of photonic crystal fibers (PCF) by solutions of sulfuric acid-hydrogen peroxide was examined. The influence of concentration and processing time of the PCF internal surface on their spectral characteristics was valuated.

**Sobolev Alexander**

*Quantum Dots: Synthesis and Application*

Quantum dots (semiconductor nanocrystals with unique optical properties) have been using in variety of scientific and biomedical researches, also in solar batteries technologies. Synthesis of quantum dots and their luminescent characteristic were studied.

**Tyulin Dmitry**

*Other Use of Five-Point Rating Scale of Juvenile Fish Crop Evaluation*

Five-point rating scale of juvenile fish crop evaluation can be successfully applied to the analysis of conditions of feeding fry.

***Ivan Ukraintsev***

*Zoology*

***Zharkova Irina***

*Optical Biosensors Based on Photonic Crystal Waveguides with Luminescent Quantum Dots*

This paper aims to develop and optimize the detection of new principles and design of biosensors for clinical diagnosis on the basis of photonic crystal waveguides. These waveguides combine the roles of solid substrate for location-sensitive elements and waveguides for optical signal transmission.

**Zubareva Inna**

*Synthesis of Polymeric Microcapsules with Embedded “Chitosan-Iodine” Complexes*

Two synthesis schemes of polymeric microcapsules (PMC) with integrated “chitosan-iodine” complexes are offered: 1) by introduction at fabrication PMC, 2) by sorption of iodine inside the synthesized PMC walls. Additionally, “chitosan-iodine” complexes were investigated by UV-visible spectroscopy

**Poster Presentation 2**

**Khalid Hadi Hameed Al – Jourany**

*Application of Hadamard Rhotrices R23 of Order 12 in Coding Theory*

In the present paper we used HadamardRhotrices R23 of order 12 as generator matrix to construct a linear block code .The standard generator matrix and the parity check matrix are given for this code .Finally ,the Syndrome decoding method used to correct errors which appears in transformation information ,as well as , some examples are given to explained this method by using MATLAB program.

**Bogolyubova Elena**

*Phase Shift Method in Full-Field Optical Coherence Tomography of Layer Objects*

Full-field optical coherence tomography is a new perspective branch in study of cell-scale objects with high resolution. It is necessary to solve the problem associated with registration and processing large volume of data, which is needed for getting a final 3D image. In present work phase shift method proposed for solving this problem.

**Bondyasheva Alisa**

*Analysis of Regional Programs for Small Businesses Support in the Saratov Region*

Small business today is one of the main priority areas of the economy in developed countries. Support for small business is one of the priorities in the Saratov region. The purpose of this article is to analyze existing programs for small business’ development in the Saratov region, to investigate ways to further development.

**Chervyakov Maxim**

*Regional and Semi-Global Distribution of Albedo and Absorbed Solar Radiation at the Top of Atmosphere*

This paper describes a new approach to the calculation of the Earth’s radiation budget components from «Meteor» satellite program which has been started in Russia. The study deals with the data from Radiometer IKOR created in Saratov State University. It was assessed spatial and temporal variations of albedo and the absorbed solar radiation over different regions. Latitudinal distributions of albedo and ASR were estimated in more detail. It was shown that the albedo and ASR data received from the radiometer IKOR can be used to detect El-Nino in the Pacific Ocean and monitoring of the East Asian Summer Monsoon. The comparison of the distributions of cloudiness and albedo had identified the existence of significant correlation to the World Ocean, lower values for the World Ocean and land together and small correlation for land.

**Gulmanov Eldar, Sergeev Roman, Sergeev Sergey**

*The Phosphate Buffered Saline Properties Investigation in the X-Band of Microwave Bandwidth*

The Phosphate buffered saline (PBS), based on chlorides and phosphates of sodium and potassium, was studied in the article. The possibility to determine the water concentration in solution by microwave methods is investigated. It is shown that VSWR and attenuation values increase with water concentration in solution.

**Gulmanov Eldar, Sergeev Roman, Sergeev Sergey, Sergeeva Alena**

*Synthesis and Research of Porous CaCO3 Microparticles Properties with the Addition of Magnetite Nanoparticles*

In this research magnetite nanoparticles were obtained. Magnetite nanoparticles were investigated using microwave method. Fe3O4 nanoparticles were embedded in the volume of porous microparticles of CaCO3. As a result, the magnetic microparticles CaCO3 were obtained. The size of the nuclei decreases with the addition of CaCO3 nanoparticles Fe3O4.

**Ishbulatov Yury**

*Parameters Estimation of the Nonlinear Autonomous Model of Sympathetic Barorefleх Regulation of Arterial Pressure*

In this paper a modification of methods, based on the additional system utilizing, is proposed to estimate parameters of the model of the biological system with periodic dynamics. The simulation results allow presupposing successful applying of our method to biomedical data.

**Kochnev Denis**

*The Properties of Composite Structures «Porous Silicon – Silver» Modified in Iodine Vapor*

The current article investigates the process of production of porous silicon by the method of electroless chemical etching and the method of saturation of porous silicon by silver. It studies the properties of the composite structures based on «porous silicon – silver» and modified by iodine vapor. The studies on the presence of phase transition in the structural layers were carried out by the method of differential scanning calorimetry (DSC). The surface morphology was studied by scanning electron microscopy (SEM).

**Kondratyeva Olga, Kondratyeva Elizaveta**

*Assessment of Nanocomponents Reliability*

While significant progress has been made toward large-scale manufacturing of nanoparticles,here referred to as "nano components", there is less attention to the question of a nano component's reliability. Today, high reliability is necessary to guarantee the advancement and utilization of nanocomponents due to the fact that they account for a high proportion of costs of newly designed nanosystems.

**Korsakova Svetlana**

*Evanescent Wave Sensors Based on Chalcogenide Glasses For mid-IR Spectroscopy*

An important problem of investigation of the air and water composition by mid-IR spectroscopy is discussed. The sensor node model made of planar waveguide on the base of chalcogenide glasses is considered. We have demonstrated that this structure has a high sensitivity.

**Kostyleva Ekaterina**

*Plane Parameters Arrangement of Hénon Map*

The purpose of the article is analysis of the Hénon map and bifurcation in it. Special focus is given to the construction of the bifurcation trees and maps of dynamic modes. It is shown, that as a result of all constructions, the period-doubling for small values of lambda, and the possible transition to chaos are observed.

**Kozintseva Marina**

*Monitoring of Muscle Optical Clearing by Using OCT*

Monitoring of clearing agents diffusion within tissues is important in a wide context of medicine including surgery, therapy and cosmetics. In this paper the results of optical coherence tomography (OCT) monitoring of diffusion of 40% glucose solution as clearing agent in samples of muscle tissue *in vitro* are presented.

**Kozlova Ekatetina, Tsvyk Vladislav**

*The Influence of Temperature and Compression on the Rat’s Adipose Tissue*

This work represents the experiment carried to study the influence of temperature and compression on the rat’s adipose tissue.

**Kharchenko Alexander**

*The Research of the Complex Network Synchronization by the Integral Characteristics*

In this paper we study mechanisms of the phase synchronization in a model network of Van der Pol oscillators by consideration of macroscopic parameters of this network. We show that the appearance of the phase synchronization leads to an increased peak in the wavelet spectrum related to the dynamics of synchronized oscillators.

**Sergeeva Nadezda**

*The Numerical Analysis of the Dispersion Equations for the Viscoelastic Circular Cylinder*

The paper deals with the infinite viscoelastic circular cylinder. The free vibrations are investigated. The dispersion equations for the axisymmetric problem are deduced. The numerical solutions of the dispersion equations are obtained. The influence of viscosity factors on the behavior of the dispersion curves is established.

**Sergeev Konstantin**

*Active Brownian Particles, Interacting by Mean Velocity Field*

In presented work an ensemble of active particles, which are globally coupled through a field of their velocities has been examined. The dynamics of small ensemble of these active Brownian particles under noise influence has been studied by numerical simulation. Noise-induced transitions were analyzed.

**Savelyeva Maria**

*Formation of Functional Calcium Carbonate Coatings on Polymeric Electrospun Fibers for Tissue Engineering Applications*

In this study the new functional material based on electrospun polymeric fibers coated with biomimetic calcium carbonate shell was prepared. The presented results can be used for designing of tissue engineering scaffolds for bone reconstruction applications.

**Ustalkov Sergey**

*Computational Investigation of Сonstant in Stefan-Boltzmann Law*

This work explains the concept “Black body” and shows computational investigation of the Stefan-Boltzmann constant.

**Yagudin Ildar**

*The Properties of Composite Structures Based on Porous Silicon and Silver With the in Situ Control Research*

The current article investigates the process of controlled process of getting of porous silicon. Porous silicon has been produced by means of electrochemical method followed by saturation with silver. The morphology and thickness of layers of porous silicon has been studied using scanning electronic microscopy. The processing of interferograms got in situ (in their original place) allowed to determine the growth rate, the porosity and the refractive index of porous layers.

**Участники конференции (английский язык):**

1. Абдурашитов Аркадий Сергеевич (студент 5 курса физического факультета СГУ)
2. Акмаев Алексей Сергеевич (студент 5 курса Института химии СГУ)
3. Алаулдин Салах Ясин (аспирант 2 года обучения физического факультета СГУ, преподаватель факультета прикладных наук университета технологий Багдада, Ирак)
4. Алебастрова Альбина Анатольевна (студент 2 курса физического факультета СГУ)
5. Аль-Джоурани Халид Хади Хамид (аспирант 2 года обучения механико-математического факультета СГУ)
6. Аль Баяти Басим Мохаммад Ибрахим (аспирант 2 года обучения биологического факультета СГУ)
7. Альзубейди Адавия Фадхел Аббаас (аспирант 2 года обучения биологического факультета СГУ)
8. Афанасьев Георгий Михайлович (студент 3 курса факультета компьютерных наук и информационных технологий)
9. Ахримова Татьяна Михайловна (студент 5 курса Института химии СГУ)
10. Бабичева Татьяна Сергеевна (магистрант 1 курса Института химии СГУ)
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**Deutsche Sektion (Gebäude 7, Raum 409)**

**Vorsitzende:** Dr. T. Schido

***Vorträge*** *(Redezeit 10 Minuten)*

**Margarita Arejewa, Arina Kirjuchina**

*Ist Russland aggressiv und totalitär?*

Der vorliegende Artikel ist der Änderung des Image Russlands in westlichen Medien Anfang des XXI. Jahrhunderts gewidmet. Es wird der Einfluss der unbeständigen politischen und wirtschaftlichen Situation in Osteuropa auf das Bild Russlands beschrieben.

**Dinara Bishanowa**

*Einfluss organischer Chemie auf die Gesundheit des Menschen*

Das Hauptthema dieses Artikels ist enge Verbindung der organischen Chemie mit der Medizin.

**Irina Jemelina**

*Deutsch-chinesische Beziehungen*

Im Artikel wird über Entstehen und Entwicklung der deutsch-chinesischen Beziehungen erzählt. Es werden verschiedene Perioden ihres Aufstiegs und Rückgangs betont und vor allem auf die Entwicklung der Wirtschafts- und Handelsbeziehungen eingegangen, die für beide Länder vorrangig sind.

**Darja Fomina**

*PEGIDA - Der neue Aufruf Deutschlands*

PEGIDA bedeutet „Patriotische Europäer gegen die Islamisierung des Abendlandes“. Als Pegida bezeichnet sich eine Organisation, die seit dem 20. Oktober 2014 in Dresden wöchentliche Demonstrationen gegen eine von ihr behauptete Islamisierung durchführt.

**Soja Gartzujewa**

*Evangelische Kirchen in der Welt und in Russland*

Es geht um die evangelische Kirche und die Besonderheiten der evangelischen Glaubenslehre, um die Geschichte des Protestantismus und die evangelische Bewegung in Russland. Es wird die Statistik der protestantischen Kirchen in der modernen Gesellschaft Russlands vorgestellt. Es handelt sich auch um eine der evangelischen Kirchen Saratows und ihre Tätigkeit.

**Ruslan Gasanov**

*Die Deutschen in der russischen Geschichte*

In dieser Arbeit handelt es sich um die historischen Beziehungen zwischen Russen und Deutschen.

**Marina Gurjanowa**

*Zum Problem der inklusiven Bildung in Russland und in Deutschland*

Dieser Artikel ist dem aktuellen Problem in der Schulbildung und zwar der inklusiven Ausbildung der behinderten Kinder gewidmet. Es wird russische und deutsche Erfahrung in der Schaffung des inklusiven Bildungssystems beschrieben. Im Artikel wird über die Schwierigkeiten erzählt, mit denen die Schule in den Bedingungen der barrierelosen Umwelt zusammenstößt.

**Olga Krawtschenko**

*„Museennacht“ als ein besonderes soziologisches Phänomen*

Der Autor macht seine Leser mit der Expertenbeurteilung des soziologischen Phänomens „Museennacht“ bekannt. Er macht das unter Gebrauch der Materialien des Tiefinterviews.

**Olga Khudoschina**

*Gesellschaftliche Bewegung der Russlanddeutschen: jugendliche Organisationen*

Im März 1997 wurde die Organisation „Jugendring der Russlanddeutschen“ gegründet, der alle jugendlichen Organisationen von Russlanddeutschen der RF beigetreten sind. Was ist der „JdR“ heute? Auf diese Frage antwortet der vorliegende Artikel.

**Margarita Lisitskaja**

*Grenznahe Zusammenarbeit zwischen China und Indien: Probleme und Aussichten*

Im Artikel handelt es sich um indisch-chinesische Beziehungen im zentralen Grenzbezirk. Es werden Gründe der zwischenstaatlichen Gegensätze und der Aufschwung des Grenzhandels analysiert.

**Alexander Michejew**

*Universalität des Schaffens von Gottfried Wilhelm Leibnitz*

Das Hauptthema dieses Artikels ist aktuelle Bedeutung der mathematischen Entdeckungen von Leibnitz. Es werden Daten der soziologischen Umfrage angeführt.

**Jelisaweta Orina**

*Antirussische Propaganda in Deutschland*

Der Artikel betrachtet das aktuelle Thema der weltweiten Propaganda, die die Lage in der Ukraine auslöste. Am Beispiel westeuropäischer Massenmedien, sowie Äußerungen von Politikern wird gezeigt, wie diese Propaganda auswirken kann.

**Maria Popowkina**

*Das Problem der Islamisierung Deutschlands*

Dieser Artikel behandelt das Problem der Islamisierung Deutschlands. Es werden die Migrationspolitik Deutschlands und die Gründe des Misserfolges der deutschen multikulturellen Politik erforscht.

**Nina Sadojan**

*In Russland der Deutsche und in Deutschland der Russe*

Ist ein erfolgreicher Integrationsprozess möglich?

**Jewgenija Tarejewa**

*Cycloaddition*

In dieser Arbeit werden die Reaktionen der 1,3-dipolaren Cycloaddition betrachtet. Bei diesen Reaktionen kann man Fragmente erhalten, die zu mehreren physiologisch aktiven Verbindungen gehören. Es handelt sich auch um die Regioselektivität, die die Entstehung von einigen strukturisomeren Produkten bei der Reaktion beeinflusst.

**Larissa Sarkisjan**

*Über die Rolle der BRD bei der Gewährleistung der europäischen Sicherheit in den 90er Jahren des 20. Jahrhunderts*

Im Artikel wird die Wirksamkeit der deutschen Politik im Bereich der europäischen Sicherheit und Verteidigung Ende des vorigen Jahrhunderts behandelt. Es wird die Rolle der BRD bei der Lösung der Krisensituation betont. Eine besondere Aufmerksamkeit wird der Reaktion der europäischen Alliierten und der USA darauf geschenkt.

**Nikita Tschishow, Swetlana Drushina**

*Warum muss man Energie sparen?*

Das Hauptthema dieses Artikels ist Erzeugung und Verwendung des Ökostroms.

**Michail Wachljujew**

*Eurasische Wirtschaftsunion: Was gibt die neue geopolitische Realität?*

Die Rede ist von der Eurasischen Wirtschaftsunion als internationale Organisation der regionalen Wirtschaftsintegration. Diese Union wurde für die komplexe Modernisierung, Erhöhung der Konkurrenzfähigkeit und Zusammenarbeit zwischen den nationalen Wirtschaften im postsowjetischen Raum gegründet.

**Sofja Janina**

*Alternative Energien. Können alternative Energien den Bedarf der Zukunft decken?*

Die Frage der Nutzung entweder traditioneller oder alternativer Energiequellen wird heutzutage aktiv diskutiert. Verschiedene Faktoren machen einen Ausbau der Nutzung alternativer Energien notwendig. Deswegen wurden auch mehrere Lösungen des Problems des Energieverbrauchs gefunden.

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