

**Ministry of Science and Higher Education
of the Russian Federation**

2020

ANNUAL REPORT



**St. Petersburg Federal Research Center
of the Russian Academy of Sciences**

**St. Petersburg
2020**



**SPC
RAS**

Ministry of Science and Higher Education of
the Russian Federation

ST. PETERSBURG FEDERAL RESEARCH CENTER OF
THE RUSSIAN ACADEMY OF SCIENCES
(SPC RAS)

ANNUAL REPORT

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GENERAL INFORMATION

St. Petersburg Federal Research Center of the Russian Academy of Sciences (SPC RAS) is a research entity established in accordance with the orders of The Ministry of Science and Higher Education of the Russian Federation of December 18, 2019 No. 1399 and of July 08, 2020 No. 768 (information about the organization is entered in the Unified State Register of Legal Entities (USRLE) by the Federal Tax Service on July 17, 2020 No. 2207803466891) through the reorganization of St. Petersburg Institute for Informatics and Automation of the Russian Academy of Sciences (SPIIRAS) in a form of joining:

North-West Research Institute of Agricultural Economics and Rural Development,

North-West Centre of Interdisciplinary Researches of Problems of Food Maintenance,

St. Petersburg Scientific Research Centre for Ecological Safety of the Russian Academy of Sciences,

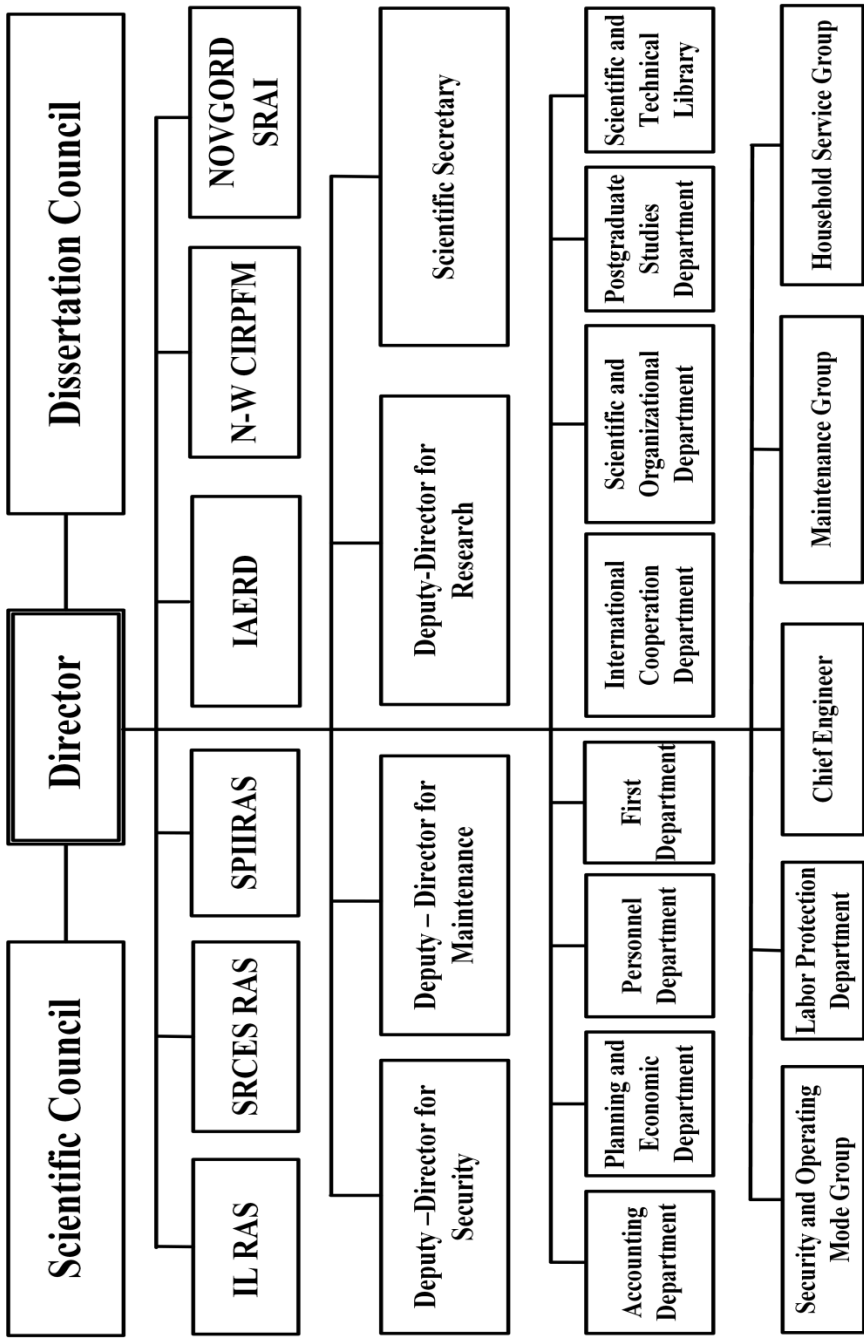
Institute of Limnology of the Russian Academy of Sciences,

Novgorod Scientific Research Agriculture Institute.

According to the Charter the SPC RAS (the SPIIRAS successor) was founded as Leningrad Research Computer Center of the USSR Academy of Sciences by the Decree of the Council of Ministers of the USSR of December 19, 1977 No. 2643-p and the Decision of the Presidium of the USSR Academy of Sciences of January 19, 1978 No. 194.

The scientific and methodological management of the SPC RAS activities is performed by RAS through: Department of Nanotechnologies and Information Technologies of RAS, Department of Earth Sciences of RAS, Department of Agricultural Sciences of RAS.

SPC RAS is headed by the Director: Andrey L. Ronzhin, Doctor of Technical Sciences, Professor, Professor of RAS, appointed by the Order of The Ministry of Science and Higher Education of the Russian Federation of July 18, 2018 No. №20-3/114 п-о based on the Minutes of the labor collective general meeting of March 23, 2018.



The purpose and subject of SPC RAS activities are basic, exploratory and applied research aimed at acquiring new knowledge in computer science and automation, management methods and information and communication technologies, environmental safety, environmental protection, food security, economy and organization of the agro-industrial complex, contributing to its technological, economic and social development, implementation of scientific advancements and best practices, training of highly qualified professionals.

Research activities

Basic, exploratory and applied research and development in the following areas: Fundamental, exploratory and applied research and developments are performed in the following areas in accordance with the the SPC RAS Charter:

- fundamentals of information society development and the digital economy in Russia;
- fundamentals of complex modeling, automation of proactive monitoring and management of information processes in complex (info -, bio-, eco-, agro-, cogni-, socio-, geo-, aviation-space and transport) systems;
- fundamental and technological basics of artificial intelligence, big data, development of intelligent integrated decision support systems, multi-modal user interfaces in human-machine and robotic complexes;
- fundamentals and technological basics of information and cyber security, post-quantum cryptosystems;
- fundamentals of rational use of the territories' agricultural resources potential, conservation and reproduction of biological diversity of agricultural animals and crops to ensure food and environmental security of the Russian Federation;
- fundamental and technological basics for optimization of reclamation systems, construction and reconstruction of reclamation facilities that ensure the preservation of natural resources potential and increase the productivity of agro-landscapes;

- fundamentals and technological models aimed at effective management of the agroecosystems' production process based on adaptation, environment formation and biologization;
- fundamental and technological basics at cultivating economically expedient agricultural crops in order to create highly productive agrophytocenoses;
- fundamental and applied technological basics of agricultural production that meet the needs of various population groups in a balanced high-quality agricultural raw materials for high-quality food supplies production;
- fundamental and applied basics of rational environmental management in the Arctic zone of the Russian Federation, given the first priority to production and consumption of locally produced food stuffs with a high level of environmental and biological safety;
- fundamentals of innovative and investment development of agricultural sectors and enterprises;
- fundamentals of integrative processes development in regional agro-industrial complexes;
- fundamentals of rural territories development, land relations and land use in the economy agrarian sector;
- fundamental ecology-economic and legal problems for ecological safety ensuring;
- fundamentals of ecosystem health assessment and maintenance, methods for their state diagnostics and prompt warning an occurrence of threats to ecological safety;
- fundamental and applied basics of transformation and migration of ecotoxicants in the environment;
- basic and applied research of life cycles of natural and economic systems and objects of past environmental damage, methods and processes of rehabilitation of disturbed and polluted ecosystems and man-made landscapes, waste management systems;
- basic research on the origin, evolution, functioning, sustainability, and lakes restoration in different physical and geographical zones;
- development of the theory of eutrophication and pollution of internal water basins, formation of their water quality and

- scientific forecast of these processes based on long-term studies, accounting for natural, climatic and anthropogenic factors;
- research fundamentals for assessing and forecasting trends in the natural resource potential of the Russian Lake Fund, its protection and rational use, taking into account the socio-economic regions' development ;
- basic and applied complex research of Lake Ladoga – the Neva river – the Gulf of Finland system as a geostrategic water object.

Within the Government Order approved in 2020 by The Ministry of Science and Higher Education of the Russian Federation SPC RAS worked on 18 State Budget tasks:

- State and prospects of the information society development in and digital economy in Russia (SPIIRAS).
- Development of theoretic and technological basics of context - managed recommending servers and intelligent personified assistive decisions for socio-cyber systems (SPIIRAS).
- Theoretical and technological basics in development and joint use of the existing and prospective state and commercial information-management and telecommunication systems and networks at different stages of their life-cycle (SPIIRAS).
- Theoretic basics and algorithmic models of cognitive control, interaction and groups' state analysis of heterogeneous robotic complexes (SPIIRAS).
- Fundamentals and practical applications of information security. (SPIIRAS).
- Fundamentals and Big Data technologies for socio-cyber systems (SPIIRAS).
- Fundamentals and cyber-security technologies in critical infrastructures and in developing post-quantum cryptosystems (SPIIRAS).
- Theoretical and methodological basics of rural development accounting for the diversification of the rural economy, innovative and investment development of the agro-industrial complex and regulation of the agricultural land market in the North-West of the Russian Federation (IAERD).
- Development of scientific basics for quality and safety management of crop and livestock products in the Russian

Federation North-West and Arctic Zone, with due account for the agroclimatic and agroecological risks restriction (N-W CIRPFM).

- Identification of new and insufficiently studied natural and anthropogenic ecotoxicants in environmental objects, study of their transformation mechanisms and impact on biota (SRCES RAS).
- Systematization, identification and methods for assessing the objects of past environmental damage in some private basin of the Gulf of Finland (SRCES RAS).
- Ecological and economic mechanism for minimizing transboundary environmental pollutions in the Baltic Sea region through the method of prevented environmental damage (SRCES RAS).
- Development of methods for early diagnostics and preventing threats to the ecological safety of ecosystems in the North-West of Russia (SRCES RAS).
- Complex assessing of the ecosystems' dynamics of Lake Ladoga and its basin reservoirs under the impact of natural and anthropogenic factors (IL RAS).
- Innovative approaches to the use and management of water ecosystem resources (IL RAS).
- Development of complex methods for exploring and evaluating the characteristics of solid particles in the nanoscale size range in water bodies with different degrees of anthropogenic load (IL RAS).
- Patterns of lakes' distribution across Eurasia and assessment of their water resources (IL RAS).
- Scientific support of technological updating of agriculture in the Novgorod Region in order to preserve the natural and resource potential and enhance the production efficiency (NSRAI - Branch of PSC RAS).

Research done in 2020 on 118 projects included: 6 projects - on the grants of the Russian Science Foundation, 53- on the grants of the Russian Foundation for Basic Research; 2 - on the projects of Federal target programs and programs of the Russian ministries and services; 1- on the

project of MIC; 36 - on the projects of industrial enterprises; 20 - on the contracts with international partners.

The following organizations acted as customers:

FSUE “State Research Institute of Applied Problems” (SRIAP); “SRI SS named after A. A. Maximov” – branch of FSUE “Khrunichev State Research and Production Space Center”; FSUE “Arsenal Design Bureau” named after M. V. Frunze; JSC The Railway Research Institute (JSC VNIIZhT); PJSC “Gazprom Neft”; FSAEIHE “Southern Federal University” (SFedU); LLC “HUAWEI TECHNOLOGIES Co. LTD”; Festo SE & Co. KG; LLC “Mobile Video Analytics”; LLC “ACM Decisions”, Moscow; LLC “Transoil”; LLC “SIRIUS”; LLC AP “Disso”; JSC “Lengiprotrans”; LLC “SPRUT”; SUE “Lengiproinzhprouekt”; LLC “SPb Project-Geology”; LLC “BALTMOR-project”; LLC “EC Prospector”, LLC “EMS-engineering”; FSBI RosNIIVH; LLC “ESG: Labor protection”; Secretariat of the IPA CIS Council; LLC “Vodokanal Nevsky”, SPSUACE; European Regional Development Fund (ERDF), JSC “Nord Stream 2 AG” Branch; The Committee for Nature Use, Environmental Protection and Ecological Safety; SGUE “State Company Mineral”; LLC “Russalt”; Center for Forest Ecology and Productivity of the Russian Academy of Sciences (CFEP RAS).

During 2020 205 SPC RAS professionals took part in 197 conferences, published over 1020 papers like:

- 133 publications indexed in the WoS systems (85 articles out of them in scientific journals, including 20 articles in the Q1 journals);
- 310 publications indexed in the Scopus system (97 articles out of them in scientific journals, including 22 articles in the Q1 journals);
- 577 publications indexed in the RSCI system (249 articles out of them in scientific journals from the current list of the Higher Attestation Commission (VAK) and 111 articles in scientific journals from the RSCI list).

2020 contributed to the SPC RAS intellectual activity results by obtaining four patents for inventions, four Data Base and 72 certificates of state registration of computer programs.

In 2020 SPC RAS made arrangements for six international scientific conferences, proceedings of five of them were indexed in the international Data Bases like WoS/Scopus.

Currently SPC RAS counts over 500 staff members, among them eight Honored Scientists of the Russian Federation, three Academicians, three Corresponding Members of RAS, one Professor of RAS, 69 doctors of sciences and 126 candidates of sciences.

Educational activity

SPC RAS is authorized to run educational activities under the programs of scientific and pedagogical personnel training through the postgraduate course in compliance with a perpetual license issued by The Federal Service for Supervision in Education and Science on September 02, 2020 No. 2918; the entity also has state accreditation for educational activities until May 18, 2022 in the following areas of postgraduate students' training:

09.06.01 Computer Science and Engineering:

a) direction "System analysis, control and information processing" (05.13.01);

b) direction "Mathematic- and soft –ware of computers, computer complexes and computer networks" (05.13.11);

10.06.01 Information Security:

a) direction "Methods and systems of information security, information assurance" (05.13.19).

38.06.01 Economics:

a) direction (speciality according to the VAK list) "Economics and national economy management" (08.00.05):

o training profile - economy, organization and management of industries, complexes – agroindustrial complex and agriculture;

o training profile – regional economy.

As of December 01, 2020, the post - graduate course counts 45 post graduate students.

The doctoral dissertation Council functions in specialities:

05.13.01 – "System analysis, control and information processing"; 05.13.11 – «Mathematic- and soft –ware of computers, computer complexes and computer networks»; 05.13.19 – "Methods and systems of information security, information assurance".

In 2020 six candidate and two doctoral theses in technical sciences have been defended.

SPC RAS administers five basic departments in the leading St. Petersburg universities as well as six joint research laboratories.

Basic Departments:

- Research Automation at *The St. Petersburg State Electrical Engineering University, established in 1979.*
- Distributed Intelligent Automation Systems at *The St. Petersburg State Polytechnic University, established in 2009.*
- Information Security at *The St. Petersburg State University of Transport Communications, established in 2010.*
- Information Systems and Technologies in Economics at *The St. Petersburg University of Economics, established in 2017.*
- Information Technologies in Logistics at *The St. Petersburg School of Economics and Management NRU HSE, established in 2018.*

Joint Research Laboratories:

- R&D Laboratory of Information Technologies in Transport Systems, Power Engineering, Automation and Modeling Systems at *Mari State Technical University, established in 2012.*
- International Research Laboratory “Intelligent Proactive Protected Technologies and Systems” at *ITMO University, established in 2014.*
- International Research Laboratory “Intelligent Technologies for Socio-Cyber-Physical Systems” at *ITMO University, established in 2014.*
- International Research Laboratory “Information Security of Cyber Physical Systems” at *ITMO University, established in 2017.*
- Virtual Joint Laboratory at *The Military Teaching and Research Center of the RF Air Force “Military Air Force Academy”, Voronezh, established in 2015.*
- Joint Research Laboratory for Robotic Systems’ Design and Programming at *The St. Petersburg State University of Aerospace Instrumentation, established in 2016.*

Sessions of the city seminar on “Informatics and Automation” at the Scientific Council for Informatization of St. Petersburg are held by the Center on a weekly basis under the leadership of Corresponding Member of RAS Yusupov, R.M. and Professor Osipov, V. Yu.

At the Center the SPIIRAS History Museum is established and maintained; the presented exhibits show the main directions of computer technologies development over previous years. The history of Museum collection is inextricably linked with the history of establishing in 1974 the Computer Engineering Department at the Joffe Physical and Technical Institute (hereinafter referred to as LRCC, LIAN, SPIIRAN and SPC RAS). The Center occupies the building that used to be the Carl May School premises with the current museum of the same name. Among the Carl May School alumni: 40 members of the Russian Academy of Sciences and the Academy of Fine Arts, 156 Full Professors, two ministers, seven governors, four members of the State Council, twenty generals and admirals, three Heroes of Socialist Labor, two pilot-cosmonauts (G. M. Grechko and A. I. Borisenko).

Using the Museums' factual database the SPC RAS staff members run enlightenment and educational activities at the secondary and higher schools of St. Petersburg promoting, at that, the best scientific, pedagogic, cultural and ethical traditions of the Russian education and science.

Publication activity

SPC RAS is a developer of an electronic editorial platform that provides automation of routine operations of publishers and editorial offices of scientific journals, transparency of the editorial process, generation of citation statistics and import/export of data to global indexes and aggregators of scientific information.

In 2020, the platform hosted 5 journals: Notes of the Mining Institute; Information and Control systems; Bulletin of Plant Protection; Intelligent Technologies in Transport, Informatics and Automation. After the reorganization of SPIIRAS, the legal successor of the co-founding agreements was SPC RAS for the journals "Izvestiya Russkogo Geograficheskogo obshchestva" and "Regional Ecology".

The journal "Trudy SPIIRAN" was renamed "Informatics and Automation" and was reregistered in the state registers and indexing systems.

Scientific Journal "Informatics and Automation" (Proceedings of SPIIRAS)

Print media and online media - The journal "Informatics and Automation" (Proceedings of SPIIRAS) has been published since 2002,

since 2016 is in the international database Scopus (CiteScoreTracker 2019: 1,3 SJR: 0,23), in the List of the Higher Attestation Commission since 2011 ISSN: 2713-3192,

E-ISSN: 2713-3206. Subscription index (Catalog "Russian Post"): P5513. Languages: Russian, English. Frequency: 6 issues per year.

Starting December 2018 r. the journal publishes articles on eight specialities:

01.01.02 – Differential equations, dynamic systems and optimal control (physical and mathematical sciences),

01.01.05 – Probability theory and mathematical statistics (physical and mathematical sciences),

01.01.09 – Discrete mathematics and mathematical cybernetics (physical and mathematical sciences),

05.13.01 – System analysis, management and information processing (by industry) (technical sciences),

05.13.11 – Mathematical and software support of computers, complexes and computer networks (technical sciences),

05.13.15 – Computing machines, complexes and computer networks (technical sciences),

05.13.17 – Theoretic fundamentals of computer science (technical sciences),

05.13.19 – Methods and systems of information protection, information security (technical sciences).

Main journal categories:

- Mathematical modeling and applied mathematics.
- Artificial Intelligence, data and knowledge engineerin.
- Digital information and telecommunications technologies.
- Robotics, automation, and control systems.
- Information security.

Full-text versions of the articles are available on the journal's website: <http://ia.spcras.ru>.

Scientific journal “Izvestiya Russkogo geograficheskogo obshchestva”

Print media and electronic media - Journal "Izvestiya Russkogo geograficheskogo obshchestva" is published since 1865, in the List of the Higher Attestation Commission (VAK), indexed in the core of RSCI, ISSN: 2079-9705, E-ISSN: 2079-9713. Language: Russian. Frequency: 6

issues per year. The journal publishes articles on the speciality: 39.00.00 Geography.

The journal articles are available on the website of the Russian Geographical Society: <https://www.rgo.ru/ru/obshchestvo/periodicheskie-izdaniya-rgo/zhurnal-izvestiya-rgo>.

Conferences organized in 2020

- 28-th Euromicro International Conference on Parallel, Distributed and Network-Based Processing (PDP'2020), Special Session "Security in Parallel, Distributed and Network – Based Computing (SPDNS 2020)". <http://www.pdp2020.com>, Vasteras (Sweden), March 11-13, 2020 (papers are indexed in WoS, Scopus). (*Kotenko, I.V.*)
- XV All-Russian Scientific and Practical Conference " Prospective Systems and Management Tasks», Dombaj (Russia), April 1-5, 2020 (*Yusupov, R. M., Ronzhin, A.L.*)
- XV International Conference on Electromechanics and Robotics "Zavalishin's Readings" (ER(ZR)-2020), <http://confs.guap.ru/zav-read>, Ufa (Russia), April 15-18, 2020 (Springer, SIST: papers are indexed in WoS, Scopus, RSCI). (*Ronzhin, A.L.*)
- VI Interregional Theoretical and Practical Conference: "Advanced Lines of Development in National Information Technologies", <http://pnroit.code-bit.com>, Sevastopol (Crimea, Russia), September 22-24, 2020. (*Yusupov, R.M., Kasatkin, V.V.*)
- 22-nd International Conference "Speech and Computer" SPECOM-2020, <http://www.specom.nw.ru/2020>, St. Petersburg (Russia), October 06-10, 2020 (Springer, LNCS: papers are indexed in WoS, Scopus, RSCI). (*Karpov, A.A.*)
- V International Conference "Interactive Collaborative Robotics" (ICR-2020), <http://specom.nw.ru/icr2020>, St. Petersburg (Russia), October 06-10, 2020 (Springer, LNCS: papers are indexed in WoS, Scopus, RSCI). (*Ronzhin, A.L.*)
- 11-th Conference "Information Technologies in Control (ITC-2020) in the framework of 12-th Russian Multiconference on Control Problems (RMCCP-2020), St. Petersburg (Russia), October, 2020. (*Yusupov, R.M., Fedorchenko, L.N.*)
- 6-th International Scientific School «Incident Management and Countering Targeted Cyber-Physical Attacks in Distributed Large-

Scale Critical Systems» (IM&CTCPA 2020), <http://www.comsec.spb.ru/en/conferences>, St. Petersburg (Russia), October 12-14, 2020. To be published in the Journal: “Systems of Control, Communication and Security” (papers are indexed in Scopus, RSCI). (*Kotenko, I.V.*)

- XVII St. Petersburg International Conference “Regional Informatics (RI-2020)”, <http://spoisu.ru>. St. Petersburg (Russia), October 28-30, 2020. (*Yusupov, R.M, Kasatkin, V.V.*)
- All-Russian Scientific Conference with international with international participation "Earth and Space" for the centenary of Academician of the Russian Academy of Sciences K. Ya. Kondratiev, <http://ecosafety-spb.ru/index.php/conference-earth-and-space>, St. Petersburg (Russia), October 20-21, 2020. (*Tronin, A.A., Binenko, V.I.*)

Conferences to be organized in 2021

- 29-th Euromicro International Conference on Parallel, Distributed and Network-Based Processing (PDP’2021); Special Session: "Security in Parallel, Distributed and Network – Based Computing (SPDNS 2021)". <https://www.pdp2021.org/specialsessions/snds/snds.php>, Valladolid (Spain), March 10-12, 2021 (papers are indexed in WoS, Scopus). (*Kotenko, I.V.*)
- XVI All-Russian Scientific and Practical Conference " Prospective Systems and Management Tasks», Dombaj (Russia), April 5-9, 2021. (*Yusupov, R. M., Ronzhin, A.L.*)
- XVI International Conference on Electromechanics and Robotics “Zavalishin’s Readings” (ER(ZR)-2021), <http://confs.guap.ru/zav-read>, St. Petersburg (Russia), April 14-17, 2021 (Springer, SIST: papers are indexed in WoS, Scopus Q3). (*Ronzhin, A.L.*)
- First International Conference on Agriculture Digitalization and Organic Production (ADOP – 2021); <http://adop.nw.ru>, St/ Petersburg (Russia), June 07-09, 2021 (Springer, SIST: papers are indexed in WoS, Scopus Q3). (*Kostyaev, A.I., Surovtsev, V.N., Ronzhin, A.L.*)
- 6-th International Theoretical and Practical Conference “Simulation and Complex Modeling in Marine Technology and Maritime Transport Systems”) (SCM MTMTS-2021), <http://simulation.su/static/ru-ikm->

- [mtmts-2021.html](#). At the X International Marine Defence Show (IMDS 2021), St. Petersburg (Russia), June 23, 2021. (papers are indexed in RSCI). (*Sokolov, B.V.*)
- 23-rd International Conference “Speech and Computer” SPECOM-2021, <http://www.specom.nw.ru/20201>, St. Petersburg (Russia), September 27-30, 2021 (Springer, LNCS: papers are indexed in WoS, Scopus Q2). (*Karpov, A.A.*)
 - VI International Conference “Interactive Collaborative Robotics” (ICR-2021), <http://specom.nw.ru/icr2021>, St. Petersburg (Russia), September 27-30, 2020 (Springer, LNCS: papers are indexed in WoS, Scopus Q2). (*Ronzhin, A.L.*)
 - 7-th International Scientific School «Incident Management and Countering Targeted Cyber-Physical Attacks in Distributed Large-Scale Critical Systems» (IM&CTCPA 2021), <http://www.comsec.spb.ru/en/conferences> St. Petersburg (Russia), October 12-14, 2021. To be published in the Journal: “Systems of Control, Communication and Security” (papers are indexed in Scopus, RSCI). (*Kotenko, I.V.*)
 - VI Interregional Theoretical and Practical Conference: “Advanced Lines of Development in National Information Technologies”, <http://pnroit.code-bit.com>. Sevastopol (Crimea), September 21-25, 2021. (*Yusupov, R.M., Kasatkin, V.V., Sokolov, B.V.*)
 - XIV Conference “Robotocs and Mechatronics (R&M - 2021) within 14-th All Russian Multi-Conference on Control Problems (MCPU-2021), <http://www.conf.mvs.sfedu.ru>. Divnomorskoe, Gelendzhik, Krasnodar Krai, (Russia), September 27- October 02, 2021. (*Ronzhin, A.L.*)
 - 10-th All-Russian Theoretical and Practical Conference “Simulation. The Theory and Practice” IMMOD-2021, <http://simulation.su/static/ru-immmod-2021.html>. St. Petersburg (Russia), October 20-22, 2021. (*Sokolov B.V.*) (papers are indexed in RSCI).
 - XII St. Petersburg Interregional Conference “Information Security of the Russian Regions (ISRR-2021)”. St. Petersburg (Russia), October 27-29, 2021 (*Yusupov, R.M.*)

International cooperation

In 2020 disregarding the problems induced by the pandemic were continued and somewhat extended the well established engagements with international research community by strengthening the existing interactions and international scientific cooperation through international contracts, agreements, grants, the R&D contacts, information exchange; it is worth noting that on-line format even broadened the availability of many events internationally. As for personal communications, only two employees of Festo SE & Co. KG (Germany) were accepted here, at the premiers of SPC RAS; four Russian scientists made trips to events in Italy and six visited Finland under a research contract. However, 138 international conferences, seminars and other meetings were attended online - slightly above the usual average. Professional contacts were maintained with the following institutions:

- University of Informatics and Radioelectronics (Republic of Belarus);
- Institute of Experimental Botany of the National Academy of Sciences of Belarus (Republic of Belarus);
- Joint Institute of Computer Science Problems of the National Academy of Sciences of Belarus (Republic of Belarus);
- Bulgarian Academy of Sciences (Bulgaria);
- Center for Environmental Research of the Hungarian Academy of Sciences (Hungary);
- Danube Research Institute (Hungary);
- Academy of Cryptography Techniques (Vietnam);
- Vietnam Academy of Science and Technology (Vietnam);
- Hellenic Mediterranean University (Greece);
- Dresden University of Technology (Germany);
- Karlsruhe Institute of Technology (Germany);
- Technical University of Kaiserslautern (Germany);
- Leipzig University of Telecommunications (Germany);
- Higher Berlin School of Economics and Law (Germany);
- University of Rostock (Germany);
- Ulm University (Germany);
- University of Cologne, Institute for Geology and Mineralogy (Germany);

- University of Bremen (Germany);
- Euromicro Association (Germany);
- Festo SE & Co. KG (Germany);
- Fraunhofer Institute for Secure Information Technology (Germany);
- Centre for Water Resources Development and Management (CWRDM), Kerala (India);
- Karnataka Environment Research Foundation (KERF), Bangalore, (India)
- Almaty University of Energy and Communications (Kazakhstan);
- KATU named after S. Seifullin (Kazakhstan);
- Cyprus University of Technology (Cyprus);
- Liaoning University (China);
- HUAWEI TECHNOLOGIES Co. Ltd (China);
- Harbin Polytechnic Institute (China);
- Mexican National Autonomous University - UNAM (Mexico);
- Institute of Mathematics and Informatics of the Academy of Sciences of Moldova (Moldova);
- Institute of Geography and Geoecology of the Mongolian Academy of Sciences (Mongolia);
- Utrecht University (the Netherlands);
- University of Novi Sad (Serbia);
- Ford Motor Company (USA);
- Center for Arctic Research at the University of Northern Iowa (USA);
- Bogazici University (Turkey);
- Erzurum Technical University (Turkey);
- Finnish Environment Institute SYKE (Finland);
- Institute for Atmospheric and Earth System Research (INAR) (Finland);
- Natural Resources Institute of Finland in Punkaharju (Finland);
- University of Helsinki (Finland);
- Open Innovations Association FRUCT (Finland);
- Paul Sabatier University (Toulouse III) (France);
- University of West Bohemia (Czech Republic);

- Institute for Global Change, the Czech Academy of Sciences (Czech Republic);
- Thomas Bata University in Zlin (Czech Republic);
- Blekinge Institute of Technology (Sweden);
- Riga Technical University (Latvia);
- Tallinn University of Technology (Estonia).

The research and contractual works were done on orders by the Secretariat of the CIS Interparliamentary Assembly; EC Program ERASMUS; University of West Bohemia in Plzen (Czech Republic); Festo SE & Co. KG (Germany); Nord Stream 2 AG (Switzerland); Swedish University of Agricultural Sciences (Sweden); HUAWEI TECHNOLOGIES Co. Ltd (China); Nord Consult OY (Finland); Hellenic Mediterranean University (Greece); Finnish Environment Institute SYKE (Finland) and other; totally on 20 agreements and contracts including those concerning the EC Cross-Border Cooperation Programs (CBC).

Expeditions

- In 2020 SPC RAS researchers took part in 39 expeditions, including:
- one research tour to reindeer herding farms of the Yamalo-Nenets and Nenets Autonomous Districts;
 - one exploratory tour to the coastal zone of the Gulf of Finland Eastern part under the Russian-Estonian Cross-Border Cooperation Program;
 - thirteen expeditions in Lake Ladoga aboard the Research vessel "Ecologist";
 - twelve research expeditions in regard to R&D No. 0154-2020-0001 "Comprehensive assessment of the Lake Ladoga ecosystems' dynamics and its basin reservoirs as influenced by natural and anthropogenic impacts", Valaam Island, Lake Ladoga, Eastern shore of Lake Ladoga, Leningrad Region, Priozersk and Lodeynoye Pole;
 - eleven expeditions entitled "Field work at the Limnological Station on the Lake Red" (Karelian Isthmus, Leningrad Region.);
 - one research voyage "Complex Study of lakes in the Arctic zone of the Russian Federation", Kola Peninsula, Rybachy, Murmansk.

Monographs

1. Sokolov B., Ivanov D., Dolgui A. (Eds.) Scheduling in Industry 4.0 and Cloud Manufacturing. International Series in Operations Research & Management Science. 2020. Series volume 289. Switzerland: Springer, Cham. 273 p. DOI: 10.1007/978-3-030-43177-8. ISSN 0884-8289.
2. Natalia Grigoryeva (Ed.). Fluorescence Methods for Investigation of Living Cells and Microorganisms. IntechOpen, 2020. DOI: <http://dx.doi.org/10.5772/intechopen.83296>.
3. Nikonova, N.A. Economic Efficiency of Milk Production and Processing in Agricultural Organizations (Theoretical and Practical Aspects). SPbSUE. 2020. 216 p.
4. Makarenko, S.I. Countering Unmanned Aerial Vehicles. SPb: Science-Intensive Technologies. 2020. 204 p. <https://publishing.intelgr.com/index.php/izdannye-raboty?id=142>.
5. Markov, V.S., Ivanov, V.P. Component and Factor Analysis of the Project Data Numerical Arrays. SPb, SPbSUE. 2020. 100 p.
6. Sleptsov, E.S., Laishev, K.A., Iskandarov, M.I., Plemyshev, K.V., Fedorov, A.I., Iskandarova, S.S., Vinokurov, N.V., Fedorov, V.I., Bochkarev, I.I., Rummyantseva, T.D., Nifontov, K.R. Immunobiological Reactivity of Laboratory and Farm animals, Depending on the Dose and Method of Brucellosis Vaccines Administration. Novosibirsk. 2020. 162 p. DOI:10.13140/RG.2.2.10818.73927.
7. Pletnev, S.P., Melnikov, M.E., C'edin, V.T., Sedysheva, T.E., Avdonin, V.V., Anokhin, V.M., Zakharov, V.D., Punina, T.A., Smirnova, O.L. Geology of the Guyotes of the Magellanic Mountains (Pacific Ocean). Vladivostok, Dalnauka. 2020. 199 p.

Honors and Awards

- Yusupov, R.M., Smokty, O.I. – The Jubilee Medal "75 Years of Victory in the Great Patriotic War 1941–1945".
- Zelentsov, V.A. – Title of Honor "Honorary Worker of Science and High Technologies of the Russian Federation», order No. 32 к/п of February 6, 2020.
- Zaitseva, A.A. – Gratitude, Ministry of Science and Higher Education of the Russian Federation for significant accomplishments in science and long-term conscientious work, order No. 21 к/п of February 6, 2020.
- Pavlov, A.N. – Title of Honor "Honorary Worker of Education of the Russian Federation", order No. 104 к/п of April 21, 2020. приказ

- Abramov, M.V., Vatamanyuk, I.V., Ivanko, D.V., Krestovnikov, K.D., Letenkov, M.A., Nenausnikov, K.V., Ronzhin, A.L., Ryumin, D.A., Uzdyayev, M.Yu., Khlobystova, A.O., Chersakikh, E.O.– Letters of Thanks from the Committee for Youth Policy and Interaction with Public Organizations of St. Petersburg for their great contribution to the popularization of science among young people and the education of the younger generation.

- Verkholyak, O.V., Karpov, A.A. – Winners of International Competition INTERSPEECH Computational Paralinguistics Challenge (ComParE 2020) in direction of elderly people emotions' recognition (Elderly Emotion Sub-Challenge).

- Markitantov, M.V., Karpov, A.A. – Winners of International Competition INTERSPEECH Computational Paralinguistics Challenge (ComParE 2020) in direction of the speaker breathing analysis (Breathing Sub-Challenge).

- Fedorchenko, E.V. – the Russian Federation President's Scholarship for young scientists and post graduate students in direction: "Strategic information technologies, including issues of supercomputers and software development" (CII - 2018) "Developing models, methods and algorithms for automatic response to cyber attacks in industrial Internet of Things systems based on a combination of neuro-fuzzy networks and genetic algorithms", No. CII-751.2018.5, 2018-2020.

- Levshun, D.S. – Winner of the competitive selection for the Russian Federation President's Scholarship in priority areas for the period from 01.09.2020 - 31.08.2021.

- Kipyatkova, I.S., Verkholyak, O.V., Ivanko, D.V., Markitantov, M.V. - Winner's Diploma of the St. Petersburg 2020 Grant Competition for Young Candidates of Sciences from St. Petersburg Government.

- Gaifulina, D.A. – Winner of the competitive selection for the Russian Federation Government Scholarship for those studying in directions that correspond the priority areas of modernization and technological development of the Russian economy and the areas of higher education learning, being approved by the Russian Federation Government of the, 2020-2021.

- Ushakov, I.A. – Winner of the National Prize "Safe Information Environment" (INFOFORUM Award'20).

- Mityukov, A.C. – "Gold Medal" of the Agrorus-2020 Exhibition for development of technologies and methods for the sapropel suspensions use in animal husbandry and crop production.

SPIIRAS - Structural Division of SPC RAS

St. Petersburg Institute for Informatics and Automation of the Russian Academy of Sciences was founded on the basis of Computer Science Department at A. F. Joffe Physical and Technical Institute of the USSR Academy of Sciences according to the Decree of the Council of Ministers of the USSR dated December 19, 1977 and to the Decision of the Presidium of the USSR Academy of Sciences dated January 19, 1978 as Leningrad Research Computer Center (LRCC) of the USSR Academy of Sciences. Based on LRCC computer center was established one of the country first global information and computing networks – AcademNet “North-WEST”. In 1985 LRCC was transformed into Leningrad Institute for Informatics and Automation of the USSR Academy of Sciences.

By 1991 the Institute grew into a large research organization that gave a start to new academic institutions like the Scientific Research Center for Ecological Safety of the St. Petersburg Scientific Center of the Russian Academy of Sciences.

In 1992 by the Decision of the Presidium of the Russian Academy of Sciences the Leningrad Institute for Informatics and Automation of the USSR Academy of Sciences was renamed to St. Petersburg Institute for Informatics and Automation of RAS (SPIIRAS) since the historic name of St. Petersburg had been returned to the city of Leningrad. In compliance with the Decree of the Government of the Russian Federation of December 30, 2013 No. 2591-p SPIIRAS was turned over to the management of the Federal Agency for Scientific Organizations (FASO of Russia). By the Order of the Russian Government of June 27, 2018 No. 1293-p SPIIRAS is transferred to The Ministry of Science and Higher Education of the Russian Federation management.

According to the Order of The Ministry of Science and Higher Education of the Russian Federation of July 08, 2020 No. 768 SPIIRAS received a status of the SPC RAS structural division.

SPIIRAS does research in informatics, automation and robotics, information and telecommunication technologies.

From October 01, 2020 the Institute is headed by Doctor of Technical Sciences, Professor Vasily Yu. Osipov

Honored Scientist of of the Russian Federation, Corresponding Member of RAS Rafael M. Yusupov heads the SPIIRAS scientific direction.

IAERD – Structural Division of SPC RAS

Institute of Agricultural Economics and Rural Development (IAERD) started out as the North-West Research Institute for Economics and Organization of Agricultural Production (NWRIEOA) in the RSFSR non-Chernozem zone under the VASHNIL Department for the RSFSR non-Chernozem zone, formed by the Decree of the RSFSR Council of Ministers of September 14, 1977 No.483

In compliance to the Decree of the President of the Russian Federation "About the Russian Academy of Agricultural Sciences" dated January 30, 1992 No. 84 the united Russian Academy of Agricultural Sciences was established based on the Russian Academy of Agricultural Sciences and the All-Union Academy of Agricultural Sciences, and the Research Institute for Economics and Organization of Agricultural Production in the Russian Federation non-Chernozem zone was transferred to its management.

In accordance with the Order of the Russian Academy of Agricultural Sciences dated January 28, 1998 No. 14 the Research Institute for Economics and Organization of Agricultural Production in the Russian Federation non-Chernozem zone was renamed to the North-West Research Institute of Economics and Organization of Agriculture.

Based on the Federal Law "On the Russian Academy of Sciences, reorganization of State Academies of Sciences and amendments to certain legislative acts of the Russian Federation" of September 27, 2013 No. 253-FL and Decree of the Government of the Russian Federation of December 30, 2013 No. 2591-p NWRIEOA was turned over to the management of the Federal Agency for Scientific Organizations

By the Decree of the Russian Federation President of May 15, 2018 No. 215: "On the structure of Federal Executive Authorities" and by the Order of the Russian Government of June 27, 2018 No. 1293-p NWRIEOA is transferred to The Ministry of Science and Higher Education of the Russian Federation management.

According to the Order of the Ministry of Science and Higher Education of the Russian Federation of July 08, 2020 No. 768 NWRIEOA was remained into IAERD and received a status of the SPC RAS structural division.

IAERD does basic, exploratory and applied research aimed at improving the efficiency of scientific support of the Russian Federation in

matters of economic, food and environmental security, and aimed at acquiring new knowledge in the rational use of agricultural resources at the North-West of Russia, economy of the agro-industrial complex, innovation and investment development of agricultural sectors that contribute to technological, economic, social and human development and sustainable development of rural areas of the non-Chernozem zone of Russia.

Candidate of Economic Sciences, Associate Professor Vladimir N. Surovtsev is the Institute Director.

N-W CIRPFM – Separate Division of SPC RAS

North-West Centre of Interdisciplinary Researches of Problems of Food Maintenance (N-W CIRPFM – SPC RAS) is the legal successor of the VASHNIL Department for the non - Chernozem zone of the RSFSR, established by the Decree of The Central Committee of the Communist Party of the Soviet Union and Council of Ministers of the USSR of March 20, 1974 No. 206

By the Decree of the RSFSR Council of Ministers dated April 3, 1990 No. 107, the VASHNIL Department for the non - Chernozem zone of the RSFSR was transformed in the Regional Department of the Russian Academy of Agricultural Sciences for the non-Chernozem zone of the Russian Federation. In compliance to the Decree of the President of the Russian Federation "About the Russian Academy of Agricultural Sciences" dated January 30, 1992 No. 84 the united Russian Academy of Agricultural Sciences was established based on the Russian Academy of Agricultural Sciences and the All-Union Academy of Agricultural Sciences, and N-W CIRPFM was transferred to its management.

Due to liquidation of the Regional Branch of the Russian Agricultural Academy for the non-Chernozem zone of the Russian Federation, and by the Order of the Russian Agricultural Academy dated January 04, 1996 No. 29 was established the North-West Scientific Center of the Russian Agricultural Academy. In compliance to the Order of the Russian Agricultural Academy dated November 16, 2001 No. 85 the North-Western Scientific Center of the Russian Agricultural Academy was transformed into the State Research Institution: North-West Scientific-Methodical Center of the Russian Agricultural Academy. According to the Order of the Russian Agricultural Academy dated June 23, 2009 No. 81 the State Research Institution: North-West Scientific-Methodical Center of the Russian Agricultural Academy was converted into the State Research Institution: North-West Regional Scientific Center of the Russian Academy of Agricultural Sciences.

Based on the Order of the Federal Agency for Scientific Organizations dated December 15, 2014 No. 1320, the State Research Institution: North-West Regional Scientific Center of the Russian Academy of Agricultural Sciences was renamed to the Federal State

Research Institution: "North-West Center for Interdisciplinary Researches of Food Maintenance".

In compliance with the Federal Law "On the Russian Academy of Sciences, reorganization of State Academies of Sciences and amendments to certain legislative acts of the Russian Federation" of September 27, 2013 No. 253- FL and Decree of the Government of the Russian Federation of December 30, 2013 No. 2591-p N-W CIRPFM was turned over to the management of the Federal Agency for Scientific Organizations.

By the Decree of the Russian Federation President of May 15, 2018 No. 215: "On the structure of Federal Executive Authorities" and by the Order of the Russian Government of June 27, 2018 No. 1293-p N-W CIRPFM is transferred to The Ministry of Science and Higher Education of the Russian Federation management.

According to the Order of the Ministry of Science and Higher Education of the Russian Federation of July 08, 2020 No. 768 N-W CIRPFM received a status of the SPC RAS separate division.

N-W CIRPFM – SPC RAS does basic, exploratory and applied research in the field of food security, with due account for the developing and mastering innovative technologies for the production, storage and processing of environmentally safe agricultural products.

Candidate of Technical Sciences Yury A. Tyukalov is the Center Director.

CRCES RAS – Separate Division of SPC RAS

Scientific Research Center for Ecological Safety of the Russian Academy of Sciences (SRCES RAS) was established on the rights of an Institute of the USSR Academy of Sciences based on the Decree of the Presidium of the USSR Academy of Sciences of March 19, 1991 No. 74 and the Decree of the Presidium of the Leningrad Scientific Center of the USSR Academy of Sciences of April 2, 1991 No. 01-78; in accordance with the Decree of the Presidium of the Russian Academy of Sciences of December 18, 2007 No. 274 renamed to the Institution of the Russian Academy of Sciences St. Petersburg Scientific Research Center for Ecological Safety of the Russian Academy of Sciences.

Based on the Decree of the Presidium of the Russian Academy of Sciences dated December 13, 2011 No. 262, the name of SRCES RAS was changed to the Federal State Institution of Science St. Petersburg Scientific Research Center for Ecological Safety of the Russian Academy of Sciences.

In compliance with the Federal Law "On the Russian Academy of Sciences, reorganization of State Academies of Sciences and amendments to certain legislative acts of the Russian Federation" of September 27, 2013 No. 253-FL and Decree of the Government of the Russian Federation of December 30, 2013 No. 2591-p SRCES RAS was turned over to the management of the Federal Agency for Scientific Organizations.

By the Decree of the Russian Federation President of May 15, 2018 No. 215: "On the structure of Federal Executive Authorities" and by the Order of the Russian Government of June 27, 2018 No. 1293-p SRCES RAS is transferred to The Ministry of Science and Higher Education of the Russian Federation management.

According to the Order of the Ministry of Science and Higher Education of the Russian Federation of July 08, 2020 No. 768 CRCES RAS received a status of the SPC RAS separate division.

CRCES RAS – SPC RAS does basic and applied research in the field of environmental safety.

Doctor of Geological and Mineralogical Sciences Andrey A. Tronin is the Center Executive Director.

IL RAS – Separate Division of SPC RAS

Institute of Limnology of the Russian Academy of Sciences (IL RAS) was founded by the Decree of the Presidium of the USSR Academy of Sciences of July 29, 1971 No. 731. Based on the Decree of the President of the RSFSR of November 21, 1991 No. 228 "On the organization of the Russian Academy of Sciences", IL RAS became a part of the Russian Academy of Sciences as the Institute of Limnology of the Russian Academy of Sciences. In compliance with the Decree of the Presidium of the Russian Academy of Sciences dated December 18, 2007, No. 274 IL RAS was renamed to the Institution of the Russian Academy of Sciences: Institute of Limnology RAS. By the decree of the Presidium of the Russian Academy of Sciences dated December 13, 2011 No. 262, IL RAS was renamed into the Federal State Institution of Science: Institute of Limnology of the Russian Academy of Sciences.

In compliance with the Federal Law "On the Russian Academy of Sciences, reorganization of State Academies of Sciences and amendments to certain legislative acts of the Russian Federation" of September 27, 2013 No. 253- FL and Decree of the Government of the Russian Federation of December 30, 2013 No. 2591-p IL RAS was turned over to the management of the Federal Agency for Scientific Organizations. By the Decree of the Russian Federation President of May 15, 2018 No. 215: "On the structure of Federal Executive Authorities" and by the Order of the Russian Government of June 27, 2018 No. 1293-p IL RAS is transferred to the Ministry of Science and Higher Education of the Russian Federation management.

According to the Order of the Ministry of Science and Higher Education of the Russian Federation of July 08, 2020 No. 768 IL RAS received a status of the SPC RAS separate division.

IL RAS – SPC RAS does basic and applied research in limnology; developing methods intended for in-depth comprehensive study of the structural and functional features of lake ecosystems, restoration of lakes and reservoirs, their use for drinking water supply purposes, fish farming and recreation; solving lakes' monitoring and managing problems as well as tasks of their natural resources' rational use.

Doctor of Geographical Sciences Shamil R. Pozdnyakov is the Institute Director.

Academician of RAS Vladislav A. Rumyantsev heads the IL RAS scientific direction.

Novgorod SRAI – Branch of SPC RAS

Novgorod Research Agriculture Institute (“Novgorod SRAI”) was established as the Novgorod Regional Integrated Agricultural Experimental Station in accordance with the Order of the Council of Ministers of the USSR of January 30, 1950 and the Order of the Ministry of Agriculture of the USSR of February 08, 1950 No. 237.

“Novgorod SRAI” is the legal successor of the Novgorod Research and Design - Technological Institute of Agriculture, formed in accordance with the Decree of the USSR State Agricultural Committee of August 19, 1988 No. 63 and the Order of the VASHhNIL Department for the non - Chernozem zone of the RSFSR of September 19, 1988 No. 127.

In compliance to the Decree of the President of the Russian Federation "About the Russian Academy of Agricultural Sciences" dated January 30, 1992 No. 84 the united Russian Academy of Agricultural Sciences was established based on the Russian Academy of Agricultural Sciences and the All-Union Academy of Agricultural Sciences, and “Novgorod SRAI” was transferred to its management.

Based on the Federal Law "On the Russian Academy of Sciences, reorganization of State Academies of Sciences and amendments to certain legislative acts of the Russian Federation" of September 27, 2013 No. 253-FL and Decree of the Government of the Russian Federation of December 30, 2013 No. 2591-p “Novgorod SRAI” was turned over to the management of the Federal Agency for Scientific Organizations.

By the Decree of the Russian Federation President of May 15, 2018 No. 215: “On the structure of Federal Executive Authorities” and by the Order of the Russian Government of June 27, 2018 No. 1293-p “Novgorod SRAI” is transferred to the Ministry of Science and Higher Education of the Russian Federation management.

According to the Order of the Ministry of Science and Higher Education of the Russian Federation of July 08, 2020 No. 768 Novgorod SRAI received a status of the SPC RAS branch.

Novgorod SRAI does basic and applied research in the sphere of technological, economic, and social development of the agro-industrial complex of the Novgorod region and the Russian Federation as a whole.

Candidate of Agricultural Sciences Maria Yu. Zhukova is the Institute Director.

LIST OF LICENSES

1. A license for executing works related to use of information that constitutes a state secret. GT No. 0112530 registration No. 11508. Issued by: The UFSB of Russia for St. Petersburg and the region. End date: 20.07.2023.

2. License for implementing activities and providing services for the state secrets defense. GT No. 0112531 registration No. 11509. Issued by: The UFSB of Russia for St. Petersburg and the. End date: 20.07.2023.

3. License for implementing activities and/or providing services for the state secrets defense (in terms of technical information protection). GT 0231 No. 011644 registration No. 1869. Issued by: FSTEC of Russia. End date: 02.06.2024.

4. License for the activities to develop and produce the means of confidential information protection. KI 0322 series No. 016152. Registration No. 1806. Issued by: FSTEC of Russia. End date: perpetual.

5. License for technical protection of confidential information. KI 0322 series No. 016151. Registration number 3422. Issued by: FSTEC of Russia. End date: perpetual.

6. License for the activities to develop and produce the means of confidential information protection. LSZ No. 0017713 Registration No. 17998 K. Issued by: The Center for Licensing, Certification and Protection of State Secrets of FSB of Russia. End date: perpetual.

7. A license to perform work related to the developing the information protection tools. GT 0231 series No. 011645 Registration No. 1870. Issued by: FSTEC of Russia. End date: 02.06.2024.

8. License to execute space activities. Types of works (services) performed (rendered) as part of the licensed activity: according to Appendix No. 000581. Registration No. 1766K. Issued by: Federal Space Agency. End date: perpetual.

9. License for the development, production, distribution of encryption (cryptographic) tools, information systems protected using encryption (cryptographic) tools, performance of works, provision of services in information encryption, maintenance of encryption (cryptographic) tools (except for the case when maintenance of encryption (cryptographic) tools of information systems and telecommunication systems protected using encryption (cryptographic) tools, as carried out to meet the needs of a legal entity or an individual entrepreneur. LSZ No.

0017712 Registration No. 17999 N. Issued by: Center for Licensing, Certification and Protection of State Secrets of the FSB of Russia. End date: perpetual.

10. License for the development, production, testing, installation, mounting, maintenance, repair, disposal and sale of weapons and military equipment. Registration No. M 003880 VVT-O. Issued by: Ministry of Industry and Trade of the Russian Federation. End date: perpetual.

11. License for educational activities Registration No. 2918. Issued by: Federal Service for Supervision of Education and Science. End date: perpetual.

12. Certificate of state accreditation of educational activities. Registration No. 3436. Issued by: Federal Service for Supervision of Education and Science. End date: 18.05.2022.

ABBREVIATIONS

ASRT	Academy of Sciences of the Republic of Tatarstan
BSTU	Baltic State Technical University "Voenmeh" D.F. Ustinov
A.F. Mozhaysky's	A.F. Mozhaysky's Military-Space Academy
MSA	
IAERD	Institute of Agricultural Economics and Rural Development
IL RAS	Institute of Limnology of the Russian Academy of Sciences
MAPE	Medical Academy of Postgraduate Education Minobrnauki of Russia
Minobrnauki	Ministry of Science and Higher Education of the Russian Federation
SRCES RAS	St. Petersburg Scientific Research Center for Ecological Safety of the Russian Academy of Sciences
Novgorod SRAI	Novgorod Scientific Research Agriculture Institute
NSU	Yaroslav-the-Wise Novgorod State University
DES RAS	Department of Earth Sciences of the Russian Academy of Sciences
DNTIT RAS	Department of Nano Technologies and Information Technologies of the Russian Academy of Sciences
DAS RAS	Department of Agricultural Sciences of the Russian Academy of Sciences
PSTU	St. Petersburg State Transport University
PetrSU	Petrozavodsk State University
BRP	Basic Research Program
RAS	Russian Academy of Sciences
Herzen University	Herzen State Pedagogical University of Russia
SZNIESH	North-West Research Institute Economy and Organization of Agriculture
N-W CIEPFM	North-West Center of Interdisciplinary Researches of Problems of Food Maintenance
Mass media	Mass media
SPSUACE	Saint Petersburg State University of Architecture and Civil Engineering (SPSUACE)
SPSAU	Saint Petersburg State Agrarian University
SPbU	Saint Petersburg State University

SPbMU	St. Petersburg Mining University
SPbSMTU	St. Petersburg State Marine Technical University
FPSPbSMU	First Pavlov State Medical University of St. Petersburg
SPbPU	Peter the Great St. Petersburg Polytechnic University
SUAI	Saint Petersburg State University of Aerospace Instrumentation
SPbUWC	Saint Petersburg Water Communications University
SPbUTME	St. Petersburg University of Management and Economics Technologies
ITMO	ITMO University
LETI	Saint Petersburg Electrotechnical University "LETI"
SPbSC RAS	St. Petersburg Scientific Center of the Russian Academy of Sciences
SPC RAS	St. Petersburg Federal Research Center of the Russian Academy of Sciences
SPIIRAS	St. Petersburg Institute for Informatics and Automation of the Russian Academy of Sciences
FTP	Federal Target Program

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