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Молодые ученые Российской Федерации – участники всероссийского форума молодых изобретателей

Young scientists of the Russian Federation – participants of the all-russian forum of young inventors

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Аннотация. *В статье авторы рассматривают вопросы участия молодых ученых в мероприятиях Фестиваля Всероссийского общества изобретателей и рационализаторов (далее – ВОИР) «Наука и изобретения для жизни», которые проходили в 2023 году в различных регионах Российской Федерации. Особое внимание при этом уделяют организации и проведению Всероссийского форума молодых изобретателей в Новгородском государственном университете имени Ярослава Мудрого (далее – НовГУ) (г. Великий Новгород). Авторы делают выводы о том, что модель проведения мероприятий подобного формата для молодых ученых формирует не только профессиональные, но и дополнительные навыки в области коммуникации, взаимодействия, а также компетенций в вопросах сферы интеллектуальной собственности. В работе отмечены преимущества анализируемой модели проведения научно-практических мероприятий всероссийского уровня. Авторами раскрывается инновационный подход к подготовке научно-практических мероприятий. В частности, выявлены требования к организации конкурсной, экспертной, выставочной и конгрессной части мероприятий, алгоритм действий и стадии выполнения. Сделан вывод о том, что модель научно-практических мероприятий студентов университетов должна сопровождаться комплексным взаимодействием с патентным ведомством.*

Ключевые слова: Всероссийское общество изобретателей и рационализаторов, молодые ученые, университет, магистранты, интеллектуальная собственность, компетенции, инновации

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Abstract. *In the article, the authors consider the issues of participation of young scientists in the events of the Festival of the All-Russian Society of Inventors and Innovators (hereinafter - VOIR) "Science and Inventions for Life", which took place in 2023 in various regions of the Russian Federation. At the same time, special attention is paid to the organization and holding of the Forum at Yaroslav the Wise Novgorod State University (hereinafter – NovSU) (Veliky Novgorod). The authors conclude that the model of holding events of this format for young scientists forms not only professional, but also additional skills in the field of communication, interaction, as well as competencies in the field of intellectual property. The advantages of the analyzed model of conducting scientific and practical events at the All-Russian level are noted in the work. The authors reveal an innovative approach to the preparation of scientific and practical events. In particular, the requirements for the organization of the competitive, expert, exhibition and congress part of the events, the algorithm of actions and the stage of implementation are revealed. It is*

concluded that the model of scientific and practical activities of university students should be accompanied by comprehensive interaction with the patent office.

Keywords: All-Russian Society of Inventors and Innovators, young scientists, university, magisters, intellectual property, competencies, innovations

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Introduction. Every year, changes in teaching methods occur in the higher education system, and new educational models appear. Approaches to teaching specialized disciplines are changing, and new ones are emerging. A project-oriented learning model is being actively introduced at all universities in the country.

New approaches, new knowledge that students gain when performing practical, applied tasks, studying databases, working with information resources, studying and analyzing static data on economic performance indicators and innovative activities of regions, allow them to conduct educational activities most effectively. This is most important in areas such as invention and intellectual property, which are directly related to innovation processes.

Materials and research methods. Innovative processes in the technical field and business are studied comprehensively, this allows for a deeper understanding of the features of the formation of an innovative environment, innovative potential, and management capabilities. The basis of the research is empirical methods - description, analysis, induction, general scientific methods of cognition - analysis and synthesis, dialectical and logical method, method of systems approach.

Research results and their discussion. The ARSII Festival is a large complex project, the main goal of which is to promote, disseminate invention and popularize science among young people. Festival events take place within the framework of the Decade of Science and Technology announced by the President of the Russian Federation and are designed to ensure the achievement of technological sovereignty of our country.

Decree of the President of the Russian Federation dated April 25, 2022 No. 231 defines the main tasks during the “Decade of Science and Technology”. The most significant of them is attracting talented youth into the field of research and development [1, 2]. Government assistance is needed to involve researchers and developers in solving the most important problems of the development of society and the country [3, 4]. To increase the availability of information about the achievements and prospects of Russian science for citizens of the Russian Federation, the Coordination Committee for the “Decade of Science and Technology” in the Russian Federation was formed.

One of the events for young scientists and inventors in 2023 in the Russian Federation is the All-Russian Forum of Young Inventors held in Veliky Novgorod. The forum was held as part of the Congress of Young Scientists in the Novgorod Region with the support of the Ministry of Science and Higher Education of the Russian Federation as an event of the ARSII Festival: Science and Inventions for Life. The event took place at the Novgorod University in the innovative scientific and technological center “Intelligent Electronics-Valdai”.

The organizers of the Forum were: the Government of the Novgorod Region, the State Duma Committee on Science and Higher Education, the Federal Service for Intellectual Property, the Federal Institute of Industrial Property, the Federal Agency for the Legal Protection of the Results of Intellectual Activities of the Military, Special and dual-use, All-Russian Society of Inventors and Innovators, Ministry of Industry and Trade of the Novgorod Region, Novgorod State University named after Yaroslav the Wise, Novgorod Center for the Development of Innovation and Industry, Novgorod Chamber of Commerce and Industry, Boiling Point - Veliky Novgorod, Novgorod Quantorium.

The All-Russian Forum of Young Inventors is aimed at attracting talented youth into the field of research and development, providing accessible information about the achievements and

prospects for the development of inventive activity in the country [5, 6]. These are the key tasks of the decade of science and technology, which were outlined by Russian President Vladimir Putin. The team of organizers of the All-Russian Forum of Young Inventors, held in Veliky Novgorod in 2023, showed clear implementation of the assigned tasks, identified the best inventions and developments at the examination stage, assisted in promoting projects, and presented them to the business community, companies, and interested departments.

Over two days, the event brought together representatives from twenty-three constituent entities of the Russian Federation: young scientists, inventors, innovators, representatives of the scientific community and business from the Kamchatka Territory, Primorsky Territory, Khabarovsk Territory, Krasnoyarsk Territory, Omsk Region, the Republic of Tatarstan, the Ulyanovsk Region, the Republic of Mari El, Chuvash Republic, Saratov Region, Belgorod Region, Stavropol Territory, Republic of Kalmykia, Moscow, St. Petersburg, Ivanovo Region, Ryazan Region, Tver Region, Kirov Region, Pskov Region, Murmansk Region and Novgorod Region.

Delegations from regional branches of ARSII took part in the Forum: Novgorod, Ulyanovsk, Kirov regions, the Republic of Kalmykia and the city of Sevastopol.

In total, more than a thousand people became guests and participants of the Forum.

The Forum began its work with the opening ceremony. Welcoming speeches were made by the heads of organizations and departments involved in innovation, invention, intellectual property policy, protection and protection of the results of intellectual activity.

As part of the Forum, the All-Russian exhibition of projects of young inventors was held, more than fifty exhibits were presented. I would like to note the high level of work; experts selected the best developments of young scientists announced at the Forum. Most of the presented works are already ready for commercialization, because has a high level of patent protection.

Young inventors under the age of thirty-five, as well as schoolchildren, who demonstrated the results of children's and youth's technical creativity, took part in the exhibition and business programs of the Forum.

As part of international cooperation between Novgorod State University named after Yaroslav the Wise and the state of Kazakhstan, the exhibition part of the Forum was visited by the Ambassador of Kazakhstan to Russia, whom the rector of NovSU introduced to the achievements of young scientists of Novgorod University and the Russian Federation.

One of the brightest events held within the framework of the Forum was the All-Russian Robotics Championship among schoolchildren “Battle of Robots”, in which twenty-six teams from different regions of the Russian Federation took part. The winners were a team from the city of Dimitrovgrad, Ulyanovsk region, second and third places were shared by teams of schoolchildren from the Novgorod region.

Future young scientists also took part in the Exhibition - schoolchildren from Veliky Novgorod, studying at the Novgorod Quantorium State Autonomous Institution and the Palace of Children's (Youth) Creativity named after Lenya Golikov.

The All-Russian Forum of Young Inventors is another opportunity for young people to express themselves, share experiences and communicate with colleagues from the scientific community [7, 8].

The logical conclusion of the creation of the result of intellectual activity is the stage of creating intellectual property [9]. Specialists and managers from the Federal Institute of Industrial Property and the Federal Agency for the Legal Protection of the Results of Intellectual Activities of Military, Special and Dual Use gave scientific and educational lectures on the legal protection of intellectual property.

The Honored Inventor of the Russian Federation, Doctor of Technical Sciences, Professor of the Ulyanovsk State Agrarian University named after P.A. Stolypin spoke popularly about invention. Being the author of more than seven hundred inventions, he showed with interest to

young scientists the importance of legal protection of their scientific developments and inventions.

The General Director of LLC Patent Law Firm NEVA-PATENT, patent attorney, member of the Public Council of Rospatent, outlined for young scientists and inventors the importance of the ability to find and see intellectual property in innovative projects.

Popular science lectures and conferences of the Forum were interspersed with networking, which is especially important for beginning specialists.

A team of young scientists from the Pyatigorsk Institute of the North Caucasus Federal University, which won the Student Startup grant, worthily presented their projects in Veliky Novgorod.

One of the projects of young scientists from the Pyatigorsk Institute presented at the Forum Exhibition is the innovative product "Drinking yoghurt with immunorestorative action based on spirulina," which is a functional product with selective action. The developed product increases the immune response and restores the intestinal microflora, has a positive effect on acute respiratory viral infections, including COVID-19. The new product is not only innovative, but also completely domestic, which is very important in recent years and is an argument in the context of import substitution of foreign food products in connection with the sanctions imposed against the Russian Federation.

As a result of the use of an innovative product, the body's immune system is further strengthened through immunomodulatory and immunorestorative effects, which may be an additional link in the overall mechanism of treatment and prevention of diseases, including COVID-19. Moreover, this product allows its use in both therapeutic and preventive profiles, which indicates the versatility of its further use. An analysis of the food products market conducted by a team of young scientists showed the following advantages: cheaper than similar products presented in retail chains, innovation - there are no identical products on the market, accessibility for all categories of consumers (hypoallergenic), environmentally friendly, etc.

Cooperation, friendly and working relations between Pyatigorsk University and Novgorod State University have been developing for several years, starting in 2021, when teachers and students of Pyatigorsk University first came to Veliky Novgorod for the International Assembly of Young Inventors, where they successfully presented their developments.

The Republic of Tatarstan was represented by young scientists from the Kazan Federal University (Kazan). One of the exhibits of the Exhibition was the development of a stabilizing additive for crushed stone-mastic asphalt concrete using secondary products of petrochemical refining. The product is a stabilizing additive for crushed stone-mastic asphalt concrete and is intended to improve the physical and operational properties of the asphalt concrete mixture, such as reducing the flow of the bitumen binder component to stabilize the asphalt concrete mixture at the stages of preliminary storage and during transportation to the laying site, increasing resistance to rutting and etc.

Another young scientist from the Republic of Tatarstan demonstrated to the experts "A software package for solving diffraction problems in rectangular semi-infinite and infinite waveguide structures." The software package is designed for modeling rectangular resonant waveguide structures using the method of integral-adder identities. The software package can be used in problems of computational electrodynamics.

A cadet of the Kamchatka State Technical University (Kamchatka Territory, Petropavlovsk-Kamchatsky) interested experts and guests of the Exhibition in the development of an underwater drone of a modular design. The development of an underwater drone of a modular design is a software and hardware complex that is aimed at solving the problem of resource-intensive and labor-intensive underwater operations: inspection of water areas, diagnostics of ships for corrosion, collection of water and aquatic organisms, collection of samples of seabed soil and marine plants.

At the Conference, the author of the invention showed the participants that the purpose of his work was to develop an underwater drone for research organizations, fishing enterprises and shipping companies to collect samples of water and aquatic organisms, inspect water areas and diagnose ships for hull corrosion, thanks to replaceable technical modules. The innovative development will reduce resource costs and risky consequences when underwater work is performed by humans.

A young scientist from a branch of the Military Academy of Logistics named after Army General A.V. Khrulev, Omsk, developed and presented at the Exhibition and Conference a dynamic supercharging system for the power plant. The invention can be used both in civilian industry and in the Armed Forces of the Russian Federation. The invention relates to engine building, namely to devices for improving the acceleration response of the power plant of military tracked and wheeled vehicles. The development allows us to avoid the negative phenomenon of “turbine lag” on engines equipped with gas turbine supercharging. The developed hydraulic unit is installed on the machine’s turbocharger and includes: a housing, a Pelton wheel, 2 nozzles, and an oil drain system. The hydraulic unit itself operates from the engine lubrication system; oil is supplied to the wheel at low engine speeds - this allows the turbocharger to accelerate faster and eliminate the phenomenon of “turbo lag”.

The All-Russian Forum of Young Inventors brought together representatives of leading scientific schools from different regions of Russia, scientific and educational organizations, authorities, industrial partners, bright leaders of domestic science, and most importantly - young scientists of the Russian Federation with high scientific results, winners of grant competitions, students and schoolchildren from Russia. In their regions, these young people take an active part in regional projects.

Within the framework of the Forum, there was also a consultation center organized by specialists from Neva Patent LLC, St. Petersburg, for young researchers and developers on the issues of protection and protection of the results of intellectual activity.

On the final day of the Forum, a Memorandum was signed between the Foundation for Supporting Children's Scientific and Technical Creativity "Young Technicians and Inventors", NovSU and the Novgorod Quantorium on participation in the annual All-Russian Conference "Young Technicians and Inventors" in the State Duma.

Conclusion. The organization of such events for young scientists, schoolchildren, representatives of the professional community involved in the issues of invention, innovation, protection and protection of intellectual property is intended to promote the professional development of young researchers, teachers and staff of educational organizations, the accumulation and maximum use of the scientific potential of young people, strengthening relationships between representatives of scientific and educational organizations, entrepreneurs, public figures, representatives of other structures and associations [10].

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