



**THE INTERNATIONAL FORUM FOR SCIENTIFIC YOUTH “STEP INTO THE FUTURE”  
YOUTH OF THE WORLD – TO CHALLENGES OF OUR TIME**  
DEDICATED TO THE 175TH ANNIVERSARY FROM THE BIRTHDAY  
OF N.E. ZHUKOVSKY - THE FATHER OF RUSSIAN AVIATION

Press release dated 18.03.2022

**Moscow meets the future of the planet.** These spring days, a grandiose contest of the best young minds of the planet is starting – the International Forum for Scientific Youth “Step into the Future”. The Forum brings together more than 1000 brilliant schoolchildren-researchers and first-year students from 12 countries of Europe, America, Asia. Topics of the Forum cover the most relevant areas in engineering, exact, natural, and social-humanitarian sciences.

The Forum is dedicated to the 175th anniversary from the birthday of Nikolai Yegorovich Zhukovsky – the Russian Galileo and the father of Russian aviation, whose creative heirs are being trained today under the “Step into the Future” program (the essay on Zhukovsky is attached).

The main organizers of the Forum are the Bauman Moscow State Technical University (BMSTU) and the Russian Youth Engineering Society. The key role in arrangements of the Forum is played by the Secretariat of the “Step into the Future” program, as well as regional offices, Russian and foreign partners of the Program.

Mikhail Valeryevich Gordin, the Rector of the BMSTU, in his greetings to the Forum participants, said: “True engineers are born from such schoolchildren – these are people with a sincere desire to know and improve the world, who are ready to implement their ideas and prove their benefits to everyone”.

**World-level event.** The Forum events will be held in a first-class academic environment – based on 14 world-renowned research institutes and 12 leading Russian universities. The Forum opening ceremony will be broadcasted on March 28 on the main website of the “Step into the Future” program.

The digital platform of the “Step into the Future” program will host 52 distant-sections, a scientific and engineering exhibition, a youth business school, and a consultarium. Within the framework of the Forum, the final of the “Youth. Science. Business” International Contest of Scientific, Technological and Social Entrepreneurs will be held.

The Russian Academy of Sciences delegated the best scientists to communicate with young colleagues who dare to answer the most acute challenges of our time. More than 100 Doctors and 150 Candidates of Sciences will take part in scientific discussions and project appraisals.

**“Step into the Future” program.** The “Step into the Future” program over the 30 years of its activity has become a “forge” of talented young people, who are generators of promising ideas, innovations, new engineering and technological solutions. More than 150,000 schoolchildren and students undergo research training in the program every year.

The “Step into the Future” program gives priority to the problem of involving schoolchildren-researchers in the areas of innovations and scientific-technological entrepreneurship. This involvement is a fundamental factor in the economic advancement, since it can fuel the growth of “adult” innovations and, first of all, technological innovations. Development of in-house technology is expensive. But in-house technologies mean independence. And independence is always expensive. Moreover, it is priceless!

Today, the ecosystem of the “Step into the Future” program incorporates 69 scientific organizations and design bureaus, 118 universities, 90 industrial enterprises, 132 energy, mining, trade and transport companies, 11 nature reserves and botanic gardens, 16 medical centers and private clinics, 23 libraries, museums, theaters and archives.

At the World Innovation Summit for Education (WISE), the “Step into the Future” program was recognized by the international community as one of the two main innovation projects in Russia (along with the Skolkovo Center).

**Public attention, partners and sponsors.** The Forum participants received greetings from the Government of the Russian Federation, the Federation Council, the State Duma, the Russian Academy of Sciences, the Russian Ministry of Science and Higher Education, the Russian Ministry of Education, the Russian Ministry of Defense, the Government of St. Petersburg, the “Roscosmos” State Corporation, “Rosstrudnichestvo”, the National Agency for Development of Qualifications, the Public Chamber of the Russian Federation, the “Knowledge” Russian Society, rectors of leading universities, heads of scientific centers, other officials.

The Forum is supported by the President Grants Fund, “Roscosmos” and “Rosatom” state corporations, the Fund for Infrastructure and Education Programs, “Sibur Holding” PJSC, “Rosseti” PJSC, “RusHydro” PJSC, “Ulanotech” Ulyanovsk Nano-technology Center, “Komus” Company, “Khrapunov Tool-Making Plant” JSC, Moscow Department of Mass Media and Advertisement, “Science and Life”, “Technology of Youth”, “Young Technician” journals, federal and regional mass media, a number of other organizations.

**Contacts.** Phone numbers of the “Step into the Future” Program Secretariat: +7 (499) 267-55-52, +7 (499) 267-73-60. Full information about the Forum is available on the main website of the “Step into the Future” program: [www.step-into-the-future.ru](http://www.step-into-the-future.ru).





**TO THE 175TH ANNIVERSARY FROM THE  
BIRTHDAY OF N. YE. ZHUKOVSKY –  
THE FATHER OF RUSSIAN AVIATION  
AND RUSSIAN GALILEO  
(1847-1921)**

The genius of the great Russian scientist Nikolai Yegorovich Zhukovsky stands at the origin of aeronautics and space exploration. Moreover, thanks to him it became possible. For the first time since Galileo, his gigantic mind «managed to embrace the grandiose science - mechanics in its entirety» - this is exactly what his closest disciple Academician L.S. Leibenzon said about him.



Named in honor of the Russian Galileo are a crater on the far side of the Moon, academies and institutions, a science city, where the International Aviation and Space Show (MAKS) is held annually, a department of theoretical mechanics he founded almost 150 years ago at the Imperial Moscow Technical School (IMTS) – as of today, it is the Bauman Moscow State Technical University (BMSTU). The Bauman University, or Moscow Rocket College on Yauza as it is called in the West, became a cradle of modern engineering education and world aeronautics. It was from the walls of the Bauman University, humanity made a step into space.

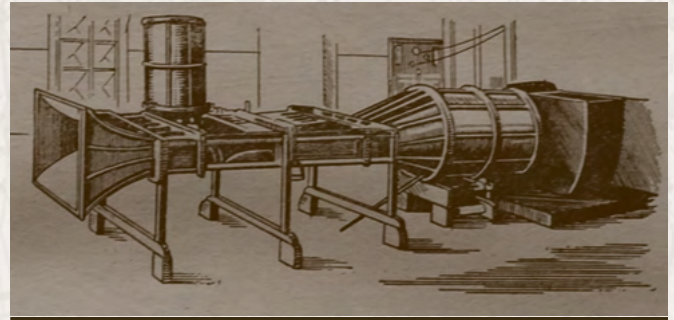


Bauman Moscow Higher Imperial College, Slobodskoy Palace, Central part

Since 1871 and for the next 50 years, this educational institution was a scientific and pedagogical home for Zhukovsky. Of all universities in the Russian Empire, only here the theoretical and engineering problems of aeronautics of flight vehicles heavier than air were studied. Within the walls of IMTS, the Russian method of engineers training was developed and cultivated, and in 1873, awarded the Great Gold Medal at the World Exhibition in Vienna. «Russia is recognized as a complete success in solving this important task of engineering education. After that, no other system will be used in America», wrote J. Runkle, the President of the Massachusetts Institute of Technology.

It was working at the IMTS that Zhukovsky gained fame as «the father of Russian aviation». In 1890, he said fatidic words: «A man ... will fly relying not on the strength of his muscles, but on the strength of his mind».

In 1904, Zhukovsky was the first in the world who gave us a formula for wing lift that laid the basis for aerodynamic calculations. And thus, he taught aerial vehicles to fly. He laid foundations of modern aero- and hydrodynamics, published dozens of pioneering research works devoted to aeronautics.



Wind tunnel of the times of N. YE. Zhukovsky

And most importantly, Zhukovsky united around him young aeronautics enthusiasts who, in the XX-th century, became creators of Russian and world aviation. Many of them came out of the Aeronautical Circle he organized in 1908 within the walls of the IMTS, including such outstanding aircraft designers as A.N. Tupolev, P.O. Sukhoi, V.M. Petlyakov. All of them were graduates of the Moscow Higher Technical School (MHTS, former IMTS).

Andrey Nikolaevich Tupolev — he is a whole era in aviation. More than hundred types of aircraft were designed under his leadership, and they are still flying all over the world. He was a companion of Zhukovsky in establishment of the Central Aerohydrodynamic Institute (TsAGI) that became a leader in world strategic aircraft manufacturing.



Tupolev Design Bureau. ANT-2

Pavel Osipovich Sukhoi is an innovative designer, one of the founders of jet and supersonic aviation. Under his leadership, more than fifty aircraft designs were developed, including famous fighters, strike and attack aircraft in «Su» family – they got designation by his surname. Sukhoi was the Chief Aircraft Designer at the Experimental Design Bureau.



Sukhoi Design Bureau. An experimental Su-3 fighter



Vladimir Mikhailovich Petlyakov was an outstanding designer of heavy «ANT-» series aircraft. Antoine de Saint-Exupéry flew on the ANT-20 («Maxim Gorky») aircraft – the largest for that time. In 1937, the ANT-25 aircraft set two flight range records when crossing the North Pole in flight to the USA. The first was 10148-km straight-line flight made by V. Chkalov, G. Baidukov and A. Belyakov pilots and the second – 11,500-km broken-line flight made by M. Gromov, A. Yumashev and S. Danilin.



Petlyakov Design Bureau. Pe-8. Heavy long-range bomber

Zhukovsky's students were involved in education of brilliant design engineers.

Among those students was Igor Ivanovich Sikorsky, the Russian and American aircraft designer, who developed about fifteen types of aircraft and helicopters of «S» series. The last one he built was indexed as «S-58». In 1908, when studying at the Kiev Polytechnic Institute, Sikorsky became a member of a mathematics circle that emerged from the Aeronautical Section organized by Professor N. Artemiev, one of Zhukovsky's educatees.

Among the most outstanding students was Sergey Pavlovich Korolev – the scientist, academician, chief designer of the first earth satellite and the first manned spacecraft. Tupolev supervised the diploma work of this glorious graduate of the Moscow Higher Technical School – the future founder of practical cosmonautics. He made Russia a leading rocket and space country.



Korolev Design Bureau. Launch vehicle 8K72 or «Luna»

According to a vivid expression of Yuri Alekseevich Gagarin, the first cosmonaut of the planet, Korolev became his cosmic father. Gagarin graduated from the Air Force Engineering Academy named in honor of Professor N.Ye. Zhukovsky. It was founded in 1920 as the Institute of Engineers of the Red Air Force. N.Ye. Zhukovsky was elected as its first rector. Forty years later, in the city named in honor of the Russian Galileo, future cosmonauts were trained to be ready for their first escape missions. So the big chain of generations of

pioneers in aeronautics and space exploration was closed.



The First Cosmonaut of the Planet – Yuri Alekseevich Gagarin

The scientific and pedagogical heritage of N.Ye. Zhukovsky became ingrained into the Russian scientific and social program for youth and schoolchildren, that was initiated more than thirty years ago within the walls of the BMSTU. It lives in traditions of the University and is transmitted through the «from a follower to a follower» line of the great compatriot. The successor of this heritage was Konstantin Sergeevich Kolesnikov, who headed the Department of Theoretical Mechanics at the Bauman University that was founded by N.Ye. Zhukovsky as the first such department in Russia.

K.S. Kolesnikov was the first chairman of the Expert Council in the «Step into the Future» program, who devoted more than twenty years of his life to education of schoolchildren-researchers. K.S. Kolesnikov was a war veteran who went through the war, a participant in defense of Moscow and Leningrad, capture of Bucharest and Budapest, student, professor, vice-rector of the Bauman University, academician, associate of S.P. Korolev, one of pioneers in astronautics. In 2008, the Cambridge International Biographical Center listed him among one hundred leading engineers of the planet.

The legacy of N.Ye. Zhukovsky lives and is embodied in projects of participants of the «Step into the Future» program – young researchers from 23 countries in Europe, Asia and Africa. Today, it goes far beyond the scope of aerospace topics – it covers the most relevant areas of scientific and engineering ideas. These include energy of the future, artificial intelligence, safe environment, bioinformatics, smart machines and materials, quantum chemistry, digital economy, conflict management, health engineering and many others.



Academician K.S. Kolesnikov

The name of Zhukovsky has become a symbol of international movement of the «Step into the Future» program daring to horizons of the future under the stellar motto: «Youth of the world – to challenges of our time».