



Project by



Funded by



› POLICY PAPER

› Olga Orlova

Transformation of Science and Education in Russia under Sanctions 2022–2026

Preprint



**Transformation of Science and Education
in Russia under Sanctions 2022–2026**

Contents

Abstract.....3
About the Author3
Zusammenfassung4
Introduction6
**Scientific Reorientation towards the East
and its Consequences8**
Control Over Sovereign Education and Sovereign Science16
Brain Drain with a Return Ticket21
Summary and Conclusions 22
Counter-strategies and recommendations: 23
References 24
List of Abbreviation 28



Abstract

The Russian full-scale invasion of Ukraine marked a turning point for the Russian academic sector: For the first time in post-Soviet Russia, the Kremlin utilizes science and education as key instruments for regime survival. Under conditions of isolation from the Western academic sphere and sanctions, research centers and universities are becoming resources for the militarization of both society and the economy. This article examines the increasing integration of science and higher education into state priorities. It describes sanctions and the disruption of academic ties in response to the full-scale invasion as key factors in this process, as well as changes in domestic politics and the emergence of a security-oriented, state-led, and selectively internationalized science model. It documents the heterogeneity of the consequences across various scientific disciplines and identifies implications for future academic collaboration and sanctions policy.

About the Author

Olga Orlova is the head of the T-invariant project, a media platform for the academic community that serves as a bridge between scientists within Russia and those abroad. The project unites researchers who advocate for civil and academic freedoms and provides expert analysis in the fields of Russian science and education.

Prior to 2022, Olga Orlova served as a science correspondent for Public Television of Russia (OTR) and the Moscow bureau of Radio Free Europe/Radio Liberty. She also collaborated with the scientific community publication Troitsky Variant – Nauka. Additionally, she taught science communication and science journalism at the Faculty of Media Communications at the Higher School of Economics (HSE). She holds a Ph.D. in Philology and is a specialist in the literature of the Russian emigration from the first half of the 20th century.





Zusammenfassung

Russlands Wissenschaft und Hochschulbildung unter Sanktionen (2022–2026)

Der russische Angriffskrieg gegen die Ukraine und die darauf folgenden westlichen Sanktionen haben die russische Wissenschafts- und Hochschullandschaft tiefgreifend verändert. Bereits in den ersten Wochen nach Kriegsbeginn wurden zahlreiche internationale Forschungsk Kooperationen beendet. Die Sanktionen beschleunigten damit einen in Russland bereits einsetzenden Wandel von einer global integrierten Wissenschaft hin zu einem Modell „souveräner russischer Wissenschaft“, das stärker staatlich kontrolliert, sicherheitspolitisch geprägt und auf die Bedürfnisse von Krieg, technologischer Unabhängigkeit und nationaler Mobilisierung ausgerichtet ist.

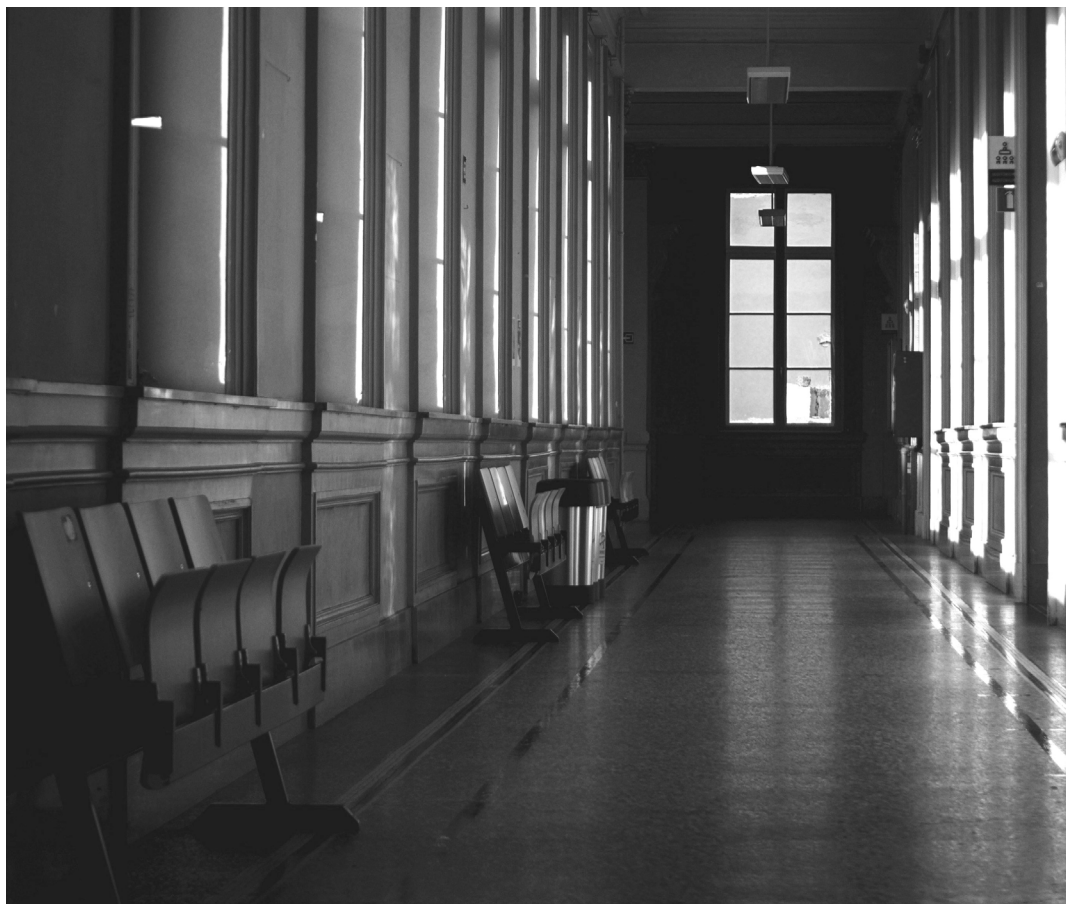
Die Entkopplung von westlichen Wissenschaftssystemen erfolgte durch mehrere parallele Prozesse: staatliche Sanktionen, freiwilligen Rückzug westlicher Universitäten und Forschungseinrichtungen, den Wegfall wichtiger wissenschaftlicher Infrastrukturen sowie eine zunehmende Kontrolle internationaler Kooperationen durch russische Sicherheitsbehörden. Russische Hochschulen und Forschungsinstitute verloren weitgehend den Zugang zu westlichen Förderprogrammen, Austauschformaten und wissenschaftlichen Netzwerken.

Russland orientiert sich seit 2022 damit verstärkt nach Osten. China entwickelte sich zum wichtigsten wissenschaftlichen Partner des Landes. Führende russische Spitzenuniversitäten schlossen zahlreiche neue Kooperationsabkommen mit chinesischen Universitäten, Forschungseinrichtungen und Technologieunternehmen. Gemeinsame Projekte konzentrieren sich insbesondere auf künstliche Intelligenz, Quantentechnologien, Materialwissenschaften und Biomedizin. Daneben wurden auch die Beziehungen zu Indien, den Vereinigten Arabischen Emiraten und dem Iran deutlich ausgebaut.

Parallel dazu hat der russische Staat Wissenschaft und Hochschulbildung stärker in seine Kriegs- und Sicherheitsstrategie integriert. Universitäten richten Studiengänge auf Sanktionsumgehungen, technologische Souveränität und die Bedürfnisse des militärisch-industriellen Komplexes aus.

Zudem hat sich der innenpolitische Druck auf die akademische Gemeinschaft durch Ressionen und juristische Verfolgung verschärft. Dadurch erlebt Russland eine anhaltende Abwanderung hochqualifizierter Fachkräfte. Gleichzeitig stoßen viele Wissenschaftler:innen im Westen auf Visa-, Sicherheits- und Arbeitsmarkthürden.

Insgesamt hat die Isolierung von westlichen Wissenschaftssystemen nicht zum Zusammenbruch der russischen Forschung geführt. Stattdessen entstand ein neues Modell selektiver Internationalisierung, das auf enger Zusammenarbeit mit China und anderen nichtwestlichen Partnern, stärkerer staatlicher Kontrolle, technologischer Eigenständigkeit und militärischer Prioritätensetzung basiert. Langfristig ist eine weitere Schädigung der Wissenschaft und Hochschulbildung zu erwarten, da die zunehmende politische Kontrolle, die Abhängigkeit von wenigen internationalen Partnern sowie die Schwächung der Sozial- und Geisteswissenschaften erhebliche Auswirkungen für das System birgt.





Introduction



In the very first weeks of the war, major international projects by Russian scientists, years or even decades in the making, were discontinued. For example, Germany shut down its telescope at the Spektr-RG space observatory, a multi-year, joint Russian-German project. And the International Mathematical Union canceled the most important global event in mathematics - the International Congress of Mathematicians, scheduled to take place in St. Petersburg in July 2022. There were numerous such examples.

Following the Russian full-scale invasion of Ukraine, the Western countries imposed an unprecedented number of sanctions against Russia. While virtually all spheres of public and economic life have been affected, higher education and science have felt the impact of these sanctions more acutely and quickly than many other sectors.

In particular, sanctions accelerated the transition of Russian science from a model of globally integrated science toward a model of selectively internationalized, state-mobilized, and increasingly militarized science. It is being integrated into the goals of war, technological sovereignty, and political control.

A new model of “sovereign Russian science” is thus emerging. At the same time, cooperation with China plays a central role, not only symbolically, but also institutionally, technologically, and strategically.

The termination of institutional cooperation between Russian state research organizations and their partners in Europe, the United States, and Canada was a key factor in accelerating the transformation of Russian science towards a new operating model that aims for sovereignty and actively engages China and other partners from the East. Restrictions affected joint research projects,

international funding mechanisms, participation in academic mobility programs, access to scientific databases and research infrastructure, and institutional partnerships with Western universities and publishers.

At the same time, the transformation of Russian science cannot be explained exclusively through sanctions. Several interconnected processes unfolded simultaneously: formal sanctions imposed by Western governments, the growing securitization of scientific cooperation inside Russia, wartime restructuring of state priorities, and the expansion of policies aimed at achieving technological sovereignty and reducing dependence on Western infrastructure.

This paper examines the transformation of Russian science and higher education between 2022 and 2026 due to sanctions, wartime governance, and geopolitical realignment. It pays particular attention to the growing role of China, the involvement of other non-Western partners, and the uneven consequences across disciplines. Additionally, it addresses the securitization of scientific and educational policy and the long-term restructuring of Russian academia under conditions of war and isolation from the Western academic sphere.



The mutual disengagement of Russian and Western science and education institutions is not only politically coercive on the part of Russian and European authorities, but has also sometimes been voluntary. For example, a number of German universities, such as Freie Universität Berlin and TU Berlin, have severed ties with their Russian counterparts. Meanwhile, several dozen Russian university rectors have published a letter supporting the war, thereby confirming the validity of their foreign colleagues' claims.





Scientific Reorientation towards the East and its Consequences



FORMS OF SCIENTIFIC DISENGAGEMENT FROM THE WEST

After February 2022, the rupture between Russian science and Western academic institutions developed through several parallel mechanisms: formal government sanctions, voluntary institutional disengagement, withdrawal of commercial academic infrastructure, and the growing securitization of international cooperation inside Russia itself. Together, these processes produced a much deeper level of isolation than sanctions alone could have achieved.



U.S. Restrictions

June 2022

The White House issued a general institutional ban level for all federal agencies, halting cooperation with Russian state-funded research institutions (Ambrose, 2022).

August 2022

The U.S. Department of the Treasury imposed direct sanctions on key technological universities, such as [Skoltech](#) and the [MIPT](#) (Moscow Institute of Physics and Technology), making any cooperation with them illegal for U.S. citizens (Locario & Meyer, 2022; MIT, 2022).



EU Restrictions

March 2022

The European Commission officially announced the suspension of cooperation with Russian entities in the fields of research, science, and innovation. A ban was implemented on entering into any new contracts or agreements under the flagship **Horizon Europe** program. Furthermore, payments to Russian organizations under existing **Horizon 2020** grants were frozen (European Commission, 2022a).

April 2022

As part of the EU's fifth sanctions package, a total ban on providing financial and non-financial support to Russian state-owned entities was legally enshrined. This resulted in the termination of participation for all Russian state bodies and affiliated structures in ongoing **Horizon 2020** projects. Cooperation under the **Erasmus+** educational program was ceased, as did interaction within **Euratom** and cross-border cooperation (European Commission, 2022b).

November 2024

The **European Organization for Nuclear Research (CERN)** completed the termination of all cooperation with Russia (CERN 2023; O'Malley, 2022).





Withdrawal of global academic infrastructure providers

March 31, 2022

Approximately 15 major academic publishers, including Elsevier, Springer Nature, Wiley, ACS Publications, Cambridge University Press, and IOP Publishing, announced the suspension of all sales and marketing activities to research organizations in Russia and Belarus.

March 2022

Clarivate, which operates the Web of Science database, announced the cessation of all commercial activities in Russia on March 11. Shortly thereafter, in May 2022, Russian scientific organizations were officially disconnected from the database.

April – May 2022

Elsevier closed its offices in Russia and terminated access to its services, including the Scopus database and the Reaxys chemical database, for institutional subscribers.

March 2026

The Pleiades Publishing group, which had produced English-language versions of Russian Academy of Sciences (RAS) journals in partnership with Springer Nature for decades, announced the gradual phase-out of this long-term partnership by the end of 2026 (Clarivate, 2022; Chernaya, 2026).

Russian universities and research institutes lost institutional access to scientific journals, databases, scientometric tools, and parts of the global publishing infrastructure. According to estimates by the Russian Academy of Sciences, Russia lost access to **97.5%** of the world's subscription-based scientific output (Dulneva 2022; Kholkhov 2022).

Russia lost access to

97.5%

of the world's
subscription-based
scientific output

As of April 2026, 55 Russian research and educational organizations were included on at least one Western sanctions list. Seventeen universities and 34 research institutes, including the NRC Kurchatov Institute and the Skolkovo Institute of Science and Technology (Skoltech). Additionally, 11 university rectors are subject to personal sanctions imposed by Ukraine, the U.S., Canada, the E.U., Switzerland, and the U.K. The breakdown in institutional cooperation discussed above extends to all scientific organizations in Russia. Inclusion on a sanctions list means a ban on selling scientific equipment and software to those organizations and a prohibition on publishing work with their authors. For university rectors, this means a ban on traveling to or interacting with the US or the EU (Davydov, 2026).

55



Russian research and educational organizations have been included in at least one Western sanctions list

11



University rectors are under personal sanctions

» THE PIVOT TO THE EAST

From the early 1990s until 2022, Russian scientists primarily partnered with colleagues from the United States, Canada, Japan, and Western Europe. Over the past thirty years, these strong ties enabled active Russian participation in international consortia such as CERN, the European XFEL, DESY, ITER, and numerous joint Russian-American space projects, including the International Space Station. After 2022, Russia was forced to seek scientific partners in other regions due to mutual disengagement. This has allowed Russia to mitigate or neutralize the effects of sanctions in some cases and further engage its human resources in addressing the Kremlin's military objectives. Reorienting toward the East has become one of the central mechanisms through which Russian science attempts to catch up to Western academic institutions and technological infrastructure.





China as Russia's main scientific partner

By 2026, the share of joint publications between Russian scientists and Chinese colleagues in the Scopus database reached

22%,

exceeding the level of collaboration with all other countries

While Western scientific organizations were closing their doors to Russian scientists, China was opening its gates wider. China was interested in qualified personnel from Russia at all levels, including students, teachers, and leaders of research groups. Concurrently, a large number of joint academic programs and research projects were launched. Cooperation with China has been particularly significant and productive for leading Russian universities. China provides experimental facilities for Russian theoreticians, grants access to its facilities, exports equipment, offers lucrative contracts to Russian researchers and faculty, and provides access to international databases.

By 2026, the share of joint publications between Russian scientists and Chinese colleagues in the Scopus database reached 22%, exceeding the level of collaboration with all other countries (Gokhberg et al., 2025).

In 2025–2026, approximately 66,000 Chinese citizens were studying at Russian universities, and approximately 22,000 Russian students were studying in China. These figures are planned to increase fivefold in the coming years. Currently, more than 160 bilateral educational programs are being implemented between Chinese and Russian universities, with at least 27 joint educational institutions operating (Lomonosov Moscow State University, 2024).

Key Projects and Agreements (2022–2026)

Since the start of the war in Ukraine, Lomonosov Moscow State University (MSU), Russia's leading university, has signed over 80 joint project agreements and over 20 cooperation agreements with Chinese technology companies (Editorial Board of the Russkiy Mir Portal, 2024; Gazprom, 2025; Moscow Institute of Physics and Technology, 2024; Livanov, 2025).

Russia's top technological university, the Moscow Institute of Physics and Technology (MIPT), has concluded over 35 active agreements since 2022. These agreements focus on specific technological niches, such as artificial intelligence (AI), quantum technologies, and materials science. Since 2024, MIPT has implemented joint undergraduate and graduate programs, developed engineering projects, and opened joint laboratories.

Founded in 2011 in partnership with the Massachusetts Institute of Technology (MIT), Skoltech is a leading Russian university. In 2021, it ranked 65th in the Nature Index ranking of young universities, the highest ranking among Russian institutions. After receiving 22 official contract termination notices from Western partners in 2022, China became Skoltech's primary strategic partner. By 2026, the institute had concluded more than 15 direct institutional agreements with Chinese universities and research centers and had implemented several major joint projects (Basken, 2022).

In partnership with Peking University, the Russian-Chinese Institute for Fundamental Research was established. It comprises five thematic centers: Mathematics, Chemistry, Physics, Earth Sciences, and Life Sciences. The Russian-Chinese Mathematical Center is also in active operation. Additionally, the MSU-BIT Joint University in Shenzhen is under development.

International STEM Center (Skoltech + Nanjing University)



RSF and NSFC Grants: In December 2025, four Skoltech scientists won grants in a joint competition held by the Russian Science Foundation and the National Natural Science Foundation of China for research in medicine (proteomics) and AI (Skolkovo Institute of Science and Technology, 2025).



Quantum Technologies and AI: Skoltech laboratories are conducting joint research with Tsinghua University and the Harbin Institute of Technology (China Daily, 2025).



Strengthening positions through the MENA region and South Asia

Academic cooperation with Middle Eastern countries is developing at an equally brisk pace, with India, the United Arab Emirates, Iran, and Oman leading the way. Dual degree programs between MSU, MIPT, Skoltech, and Middle Eastern institutions are currently in active formation.

Key Projects and Agreements (2022–2026)

Shahid Beheshti University is preparing to launch a program focused on training energy sector personnel (Ministry of Petroleum of Iran). In the United Arab Emirates, MIPT is in negotiations to establish dual

SOURCE: National Research University Higher School of Economics, 2024a, 2024b; Gazprom Neft, 2025; Russian Science Foundation, 2025.

degree programs in artificial intelligence and machine learning with the Mohamed bin Zayed University of Artificial Intelligence (MBZUAI). In May 2025, Skoltech and MIPT launched an internal joint program, "Technological Entrepreneurship," which actively attracts students from the UAE and Iran.

Since 2022, India has emerged as a new frontier for Russian academic cooperation. By July 2025, the number of Indian students in Russian universities had risen to 30,000. In December 2025, the Russian Education Agency opened its first branch in New Delhi, aiming to attract 10,000 new students annually.



HSE University: In 2024, it became the first Russian university to sign an agreement with the Indian Institute of Technology Bombay (IIT Bombay), opening a research hub at the University of Delhi.



MIPT: Since January 2025, it has implemented an educational exchange program for master's students in collaboration with Indian institutes of technology and the company Gazprom Neft. Negotiations are underway regarding dual degree programs in the field of AI.



Skoltech: It actively participates in joint grant competitions with the Science and Engineering Research Board (SERB) of India, particularly in the fields of biomedicine and new materials.

》 ACADEMIC REORIENTATION AT THE EXPENSE OF THE HUMANITIES

Primary development projects with Eastern countries are concentrated in STEM fields. Consequently, these areas of scientific development did not suffer significant damage following the rupture of institutional cooperation with the West. However, a completely different situation has emerged for Russian scholars in the social sciences and humanities. STEM did not escape damage, but received state priority and partial compensation through China and military production.

And the humanities suffered not only because of sanctions, but because they depended on openness, mobility, and intellectual integration. This is not just damage, but de-internationalization, ideologization, and a loss of access to reality within the country.



Dual Degrees: By 2023–2024, more than 90% of dual degree programs with universities in Western Europe (notably the UK, France, and Germany) and the US were closed or suspended at leading institutions, such as HSE, MGIMO, and MSU. The majority of these programs were specifically in the fields of economics, law, and international relations (Sukhova et.al 2024).



Research Grants: Russia's participation in the major European program, Horizon Europe (and Horizon 2020), has been completely terminated. At the beginning of 2022, 86 multilateral projects were underway within this framework, a significant portion of which pertained to sociology, economics, and interdisciplinary humanities research (European Commission. 2022, c).



Exchange Programs: Cooperation through Erasmus+ has been suspended. This has led to the termination of hundreds of academic exchanges and joint master's programs, specifically in the humanities (European Commission 2022, d).



Field Research: Virtually all joint sociological, geographical, and anthropological expeditions in Russian territory that were funded by Western foundations have been terminated (Dezhina, 2023, Deutsche Forschungsgemeinschaft, 2022).

Thus, the sanctions and policy of isolation imposed on Russian science by the US and the EU have not led to a weakening of the natural and exact sciences or technology in Russia. Instead, they have inflicted serious damage on the development of the social sciences and humanities, which served as the primary tools for Russia's integration into the global community.

With rare exceptions, Russian sociologists, economists, historians, cultural scientists, and philologists no longer participate in international conferences and do not conduct joint research with Western colleagues. Consequently, the world now knows much less about what is happening inside Russia. The country is becoming invisible to the world.

Overall, the turn of Russian science away from the West and toward the East has led Russia to partially meet its financial and technological needs. It has also strengthened the intellectual and personnel strength of scientific and technological teams in countries opposing the collective West, thereby strengthening Russia's influence in them.



Control Over Sovereign Education and Sovereign Science

Since 2022, the state has restructured the science and education system as elements of national security, sanctions resistance, and the military economy. This restructuring was implemented through a comprehensive set of measures, including changes to academic programs, regulation of personnel policies, and the adoption of new laws ensuring oversight in the scientific and technological spheres.

UNIVERSITIES UNDER WARTIME MOBILIZATION

A significant transformation of the academic sphere has been the shift in research and educational programs under Wartime Mobilization. Some disciplines, such as gender studies, have been perceived as unnecessary and even hostile. Conversely, the importance of other research fields has grown in the context of Russia's isolation from the Western world. Since the invasion of Ukraine, hundreds of Western brands have officially left Russia. Over the course of more than four years of war, a parallel logistics system has emerged to stock foreign products on Russian shelves and supply drones and other weapons with necessary components. Clearly, the country is rebuilding itself for long-term survival under sanctions. This parallel economy requires specialists who can evade sanctions. Therefore, Russian universities have quickly launched dozens of programs to teach sanctions compliance. Among the leaders is the renowned Higher School of Economics, which offers four such programs. The development of these programs led to the inclusion of HSE Rector Nikita Anisimov on the EU sanctions list.

Another critical element of the Kremlin's isolationist policy is the high demand for engineering and technical specialists within the military-

industrial complex (MIC). However, these fields remain unpopular among Russian youth. The authorities are attempting to solve this problem using a "carrot and stick" approach. On the one hand, vast sums are spent on propagandistic promotion of these programs. On the other hand, strict coercive measures are being implemented. Currently, the government is imposing state-funded (budget) quotas on engineering and technical programs related to the MIC, while simultaneously restricting paid enrollment in humanities and social science majors. By doing so, the government is clearly signaling to students that if they want to study for free, they must study the professions that the state needs.

› TRANSFORMATION OF FOREIGN LANGUAGE PRIORITIES

In response to the termination of institutional cooperation with Russian scientific and educational organizations, the Russian authorities have designated a growing number of foreign universities and educational entities designated as "undesirable."¹

As of May 2026, at least 18 Western universities, educational alliances, and major academic programs have been added to this list, including **Stanford University, Yale University, Tufts University, the University of California, Berkeley, and George Washington University.**

The English language education system has sustained particular damage in this regard, following the designation of three major organizations in the field as undesirable: **EF Education First** (English First); **the British Council** (co-organizer of IELTS, the most sought-after international English exam); and **American Councils for International Education.**

Against this backdrop, there is a significant increase in the number of universities in Russia offering Chinese language studies. While Chinese was taught in 142 universities at the beginning of 2022, this number rose to 150 by mid-2024. The demand for Chinese language instructors in universities grew 3.6 times in 2023 compared to 2022 (Kommersant, 2022; E-Xecutive.ru, 2023). Despite this explosive interest, English still maintains its position as the primary foreign language. Chinese, however, has already surpassed French in popularity and has moved into second place in several Moscow schools and universities.

¹ Being designated as an "undesirable organization" means its activities are completely banned in Russia, all domestic branches must close, and its bank accounts are immediately frozen. For individuals, any involvement carries severe criminal risks: sharing their links or content leads to fines, while working for them or sending any financial donations triggers direct prison sentences of up to five years.

› “SOVEREIGN SCIENCE” IN LEGISLATION AND PERSONALITIES

The termination of institutional cooperation with Western science has accelerated the implementation of the concept of "sovereign Russian science." Throughout the war years, several laws have been enacted or drafted to facilitate the isolation of the Russian scientific sphere from the West.

Key among these are:



Law on FSB Control over Foreign Involvement: The Federal Law No. 159-FZ of June 24, 2025, on "Amendments to Articles 7.1 and 16 of the Federal Law 'On Science and State Scientific and Technical Policy'" establishes a list of scientific and technical activities and experimental developments where the participation of foreign citizens and organizations is permitted only with the prior approval of the Russian FSB. It also defines the procedures for obtaining such clearance.



Law on "Sovereign Genetics": According to the Federal Law No. 43-FZ of February 20, 2026 on "Amendments to the Federal Law 'On State Regulation in the Field of Genetic Engineering Activities,'" Russian scientists are now required to notify state agencies of any scientific or research publication containing genetic information of three or more individuals if that information is being transmitted abroad.



Law on "Sovereign Artificial Intelligence"

Through a draft law titled "On the Foundations of State Regulation of the Use of Artificial Intelligence Technologies in the Russian Federation" (Ministry of Economic Development of the Russian Federation, 2023), the state intends to legalize censorship within the field of AI. The law introduces user liability for the "illegitimate use" of AI models. For example, users are mandated to "utilize AI services and models for purposes that do not contradict the legislation of the Russian Federation" and "refrain from actions aimed at bypassing embedded security and control mechanisms in violation of established functional parameters."

Mariya Vorontsova and Katerina Tikhonova, the daughters of Vladimir Putin, have emerged as the key figures in the oversight and control of biotechnology and artificial intelligence.

› SECURITIZATION AND INTERNAL CONTROL

The fear of reprisals and the pressure on scientists by the security services cannot be ignored when assessing the state of the scientific community in Russia. The escalation of repression against scientists intensified significantly after a notable segment of the academic community – estimated at approximately 10,000 individuals – left Russia during the first two years of the war. Anti-war sentiment has been particularly prominent within the research and teaching environment. In February 2022, over 9,000 Russian scientists from dozens of cities signed an open anti-war letter. Now in the fifth year since then, FSB officers in various regions continue to target the signatories, demanding they withdraw their signatures and pressuring them with threats of dismissal and criminal prosecution. Currently, at least 40 scientists are detained, 14 of whom have been charged with high treason. Furthermore, the Ministry of Justice has designated 42 scientists as "foreign agents,"² including three members of the Russian Academy of Sciences (RAS). Another 27 scientists have been labeled as "terrorists and extremists,"³ three of whom are also members of the RAS.

Criminal and administrative cases have been filed against 29 university rectors.

Scientists in Russia face persecution for their political views, civic stance, and academic and administrative activities. They are among the most vulnerable social groups in relation to the security forces ("siloviki"). The intensity of repression is determined by general paranoia in the security sphere, but not its nature. Scientists are a potentially dangerous group for the FSB because they are disloyal and because they operate in the international arena.

Consequently, the security services are initiating criminal cases against scientists under various statutes, accusing them of treason and economic crimes. However, the majority of these cases are rooted in politically motivated persecution, regardless of whether these scientists work in the humanities or STEM fields. A new phenomenon of persecution has emerged, in which the FSB verifies scientists' activity reports, uses falsified expert assessments

² The "foreign agent" status in Russia targets individuals under foreign influence, legally freezing their domestic creative revenues on restricted bank accounts and completely banning them from making advertising income. Furthermore, any failure to comply with strict reporting rules or committing political offenses can trigger the immediate seizure and confiscation of their Russian real estate, bank accounts, and assets.

³ Being designated as an extremist or terrorist in Russia triggers immediate inclusion in the Rosfinmonitoring blacklist, resulting in the total freezing of all bank accounts and cards except for a minimal living allowance. This status strips individuals of their rights to run for office or engage in public and political activities, while creating severe risks of long-term imprisonment for themselves and anyone providing them with financial or informational support."

Criminal and administrative cases have been filed against

29 

university rectors



to discover poorly executed research, and then charges them with embezzlement of public funds. This is how criminal cases were initiated against Oleg Kabov, a corresponding member of the Russian Academy of Sciences and head of a laboratory at the Institute of Thermal Physics of the Siberian Branch of the Russian Academy of Sciences, and against Svetlana Mesyats, a PhD candidate in philosophy and senior research fellow at the Institute of Philosophy of the Russian Academy of Sciences.

This domestic "search for enemies" has become a central element of the Kremlin's wartime internal policy.



Brain Drain with a Return Ticket

The second massive and dramatic brain drain in post-Soviet Russia's history began in 2022. Unlike a similar process in the 1990s, however, it did not lead to the depletion of the intellectual potential of Russian science for two reasons. The first objective reason is that the Western academic market is extremely overheated, with much higher competition than in the 1990s. The second reason is subjective. Russian scientists increasingly face structural barriers to find work and long-term professional integration in Western countries, including lengthy security checks and visa restrictions. Consequently, there has been a significant exodus of scientists back to Russia, followed by a protest exodus in the early years of the war. In some fields of mathematics, physics, and chemistry, highly qualified scientists in Russia are still offered much better working conditions than they expect in the West. This is precisely why it is currently virtually impossible to estimate the true scale of scientific emigration. Preliminary sociologist estimates suggest that the number of scientists who have left Russia ranges from 6,000 to 10,000 (Orlova, 2024; Zavadskaya & Kamalov, 2024).

While this is incomparable in scale to the brain drain of the 1990s, it is a significant phenomenon in terms of the suddenness of the migration and the professional level of the scientific emigrants. Therefore, the effect of the current brain drain can be assessed as insignificant on a national scale, but is significantly noticeable at the scale of specific laboratories at top universities, where approximately 30% of the staff have changed academic affiliations.





Summary and Conclusions

The rupture with Western academic institutions, combined with wartime priorities and policies of technological sovereignty, has accelerated a fundamental restructuring of Russia's scientific and educational system. Over the course of Russia's full-scale invasion of Ukraine, spanning four years, science and higher education have become increasingly important instruments for state resilience, technological adaptation, and political control in Russia. The need to rely on domestic resources or the opportunity to move into new markets in Southeast Asia and the Middle East has led to isolation from the Western academic market.

The main result of this transformation has not been isolation per se, but rather the development of a new model characterized by selective internationalization, growing reliance on China and other non-Western partners, militarization of research priorities, increased political oversight, and the securitization of scientific and educational governance. Instead of causing the collapse of Russian science, sanctions and institutional disengagement have contributed to its reorientation toward new international partners and state-defined strategic objectives.

At the same time, the consequences of this transformation have been highly uneven. Strategically important STEM fields have received state support, which has partially compensated for the loss of Western cooperation through alternative international partnerships. In contrast, the social sciences and humanities have experienced deeper processes of de-internationalization, ideologization, and declining integration into global academic networks.

The most significant consequences will likely emerge in the long term. These include changes in the composition of the scientific workforce, a shift in educational priorities toward strategically important sectors, increased dependence on a smaller pool of international partners, and the restructuring of science and higher education institutions around state security and technological sovereignty objectives.



Counter-Strategies and Recommendations



Support academic mobility and provide pathways for at-risk researchers and highly qualified specialists:

Facilitating the migration of talented specialists toward Western institutions to prevent their skills from serving the current regime.



Maintain ties with the constructive academic community:

Preserving and supporting connections with the constructive segment of the scientific and educational community within Russia, while taking international measures to protect repressed scientists.



Improve the effectiveness of targeted sanctions

by focusing on individuals and institutions that directly contribute to military production, wartime mobilization, or the implementation of state policies supporting the war.



Systematic engagement with academic émigrés:

Developing long-term mechanisms for cooperation with Russian academic émigrés and displaced scholars, including research networks, expert communities, educational initiatives, and analytical platforms.



References

Ambrose, M. (2022). U.S. restricts science collaborations with Russia. FYI: Science Policy News. American Institute of Physics. <https://www.aip.org/fyi/2022/us-restricts-science-collaborations-russia>

Basken, P. (2022). MIT ends Skoltech partnership over Ukraine war: After helping to build version of Silicon Valley near Moscow, Reif calls Russian invasion unacceptable. Times Higher Education. <https://www.timeshighereducation.com/news/mit-ends-skoltech-partnership-over-ukraine-war>

CERN. (2023). CERN Council decides to conclude cooperation with Russia and Belarus in 2024 [Press release]. <https://home.cern/cern-council-decides-conclude-cooperation-russia-and-belarus-2024/>

China Daily. (2025, May 12). Eurasia needs an innovation corridor for artificial intelligence. <https://www.chinadaily.com.cn/a/202505/12/WS6821216da310a04af22bea56.html>

Clarivate. (2022). Clarivate to cease all commercial activity in Russia [Company statement]. <https://clarivate.com/news/clarivate-to-cess-all-commercial-activity-in-russia/>

Chernaya, Y. (2026, March 11). The end of a 35-year partnership: Why Pleiades Publishing is terminating English versions of Russian Academy of Sciences journals. T-invariant. <https://t-invariant.org/2026/03/konets-35-letnego-partnerstva-pochemu-pleiades-prekrashhaet-vypusk-angloyazychnyh-versij-zhurnalov-ran/>

Davydov, I. (2026, January 13). Scientific front: Who in Russian science ended up under Western sanctions and why. T-invariant. <https://t-invariant.org/2026/01/scientific-front-who-in-russian-science-ended-up-under-western-sanctions-and-why/>

Davydov, I. (2026, April 16). From boutique research institute to science strike force: How Igor Shuvalov is relaunching Skoltech. T-invariant. <https://t-invariant.org/2026/04/ot-nauchnogo-butika-k-nauchnomu-spetsnazu-kak-igor-shuvalov-perezapuskaet-skolteh/>

Deutsche Forschungsgemeinschaft. (2022, March 2). DFG takes steps in response to Russian attack on Ukraine [Press release]. [dfg.de](https://pmc.ncbi.nlm.nih.gov/articles/PMC9066058/)
<https://pmc.ncbi.nlm.nih.gov/articles/PMC9066058/>

Dezhina, I. G. (2023). Transformation of international relations of Russian science. Mirovaya Ekonomika i Mezhdunarodnye Otnosheniya, 67(8), 84–93. doi.org

https://www.researchgate.net/publication/370003961_New_Conditions_for_Russia's_International_Scientific_Cooperation

Dulneva, M. (2022, May 4). Nauchnaya baza dannykh Web of Science stala nedostupna v Rossii. Forbes Russia. <https://www.forbes.ru/society/464725-naucnaa-baza-dannyh-web-of-science-stala-nedostupna-v-rossii>

Editorial Board of the Russkiy Mir Portal. (2024). MFTI i vuz Kitaya dogovorilis' ob obmene studentami i sovmestnykh nauchnykh proektakh. Russkiy Mir Foundation. <https://russkiymir.ru/news/329550/>

European Commission. (2022, March 3). Commission suspends cooperation with Russia on research and innovation [Press release]. https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1544

European Commission. (2022, April 8). EU stands with Ukraine: Commission terminates participation of Russian public entities in Erasmus+ and Horizon Europe [Press release]. [europa.eu https://erasmus-plus.ec.europa.eu/lt/news/eu-stands-with-ukraine](https://erasmus-plus.ec.europa.eu/lt/news/eu-stands-with-ukraine)

E-xecutive.ru (2023, November). Spros na uchiteley kitayskogo yazyka vyros v 3,6 raza [Demand for Chinese language teachers increased by 3.6 times]. E-xecutive.ru. <https://www.e-xecutive.ru/career/hr-indicators/1996863-spros-na-uchitelei-kitaiskogo-yazyka-vyros-v-3-6-raza-novosti-rynka-truda>

Gazprom Neft. (2025). Russia and India to develop student exchange with the support of Gazprom Neft. <https://www.gazprom-neft.ru/press-center/news/rossiya-i-indiya-budut-razvivat-studencheskiy-obmen-pri-podderzhke-gazprom-nefti/>

Gokhberg, L. M., et al. (2025). Science indicators: 2025: Statistical compendium. HSE Institute for Statistical Studies and Economics of Knowledge. <https://publications.hse.ru/books/1010348681>

Gusev, A. B., & Yurevich, M. A. (2025). Russian science policy – 2024: Sanctions against mentality. Capital Publishing.

Gvozdeva, M. A. (Ed.). (2025). Science indicators: 2025: Statistical digest. Higher School of Economics. <https://publications.hse.ru/books/1010348681>

Khokhlov, A. R. (2022). On the unavailability of the Web of Science database in Russian scientific institutes and universities [Telegram post]. <https://t.me/khokhlovAR/93>

Kommersant. (2022). Kitayskiy yazyk v Rossii [Chinese language in Russia]. Kommersant. <https://www.kommersant.ru/doc/5941668>

Life.ru. (2025). Conversation with the Chinese ambassador about harmony of tastes and big politics. <https://life.ru/p/1825022>

Livanov, D. V. (2025). Self-audit report of MIPT. Moscow Institute of Physics and Technology. https://mipt.ru/vikon/sveden/files/ein/Otchet_o_samoobsledovanii_2024.pdf

- Locaria, D., & Meyer, L. B. (2022). White House announces intention to curtail scientific and technological cooperation with Russia. Venable LLP. <https://www.venable.com/insights/publications/2022/06/white-house-announces-intention-to-curta>
- Lomonosov Moscow State University. (2024). MSU agreements with Sichuan and Nankai universities. <https://msu.ru/press/smiaboutmsu/mgu-zaklyuchil-soglasheniya-s-sychuanskim-i-nankayskim-universitetami.html>
- MIT - Massachusetts Institute of Technology. (2022). MIT ends Skoltech partnership over Ukraine war. <https://skoltech.mit.edu/announcement>
- Ministry of Economic Development of the Russian Federation. (2023). Draft law on AI regulation in Russia. <https://regulation.gov.ru/projects/166424/>
- Ministry of Justice of the Russian Federation. (2026). Registry of undesirable foreign and international NGOs. <https://minjust.gov.ru/ru/pages/perechen-inostrannyh-i-mezhdunarodnyh-organizacij-deyatelnost-kotoryh-priznana-nezhelatelnoj-na-territorii-rossijskoj-federacii/>
- Ministry of Science and Higher Education of the Russian Federation. (2024). Interuniversity agreements with China. <https://minobrnauki.gov.ru/press-center/news/mezhdunarodnoe-sotrudnichestvo/83209/>
- Ministry of Science and Higher Education of the Russian Federation. (2025). Russian-Chinese Commission on Scientific Cooperation meeting. <https://minobrnauki.gov.ru/press-center/news/novosti-ministerstva/99890/>
- Moscow Institute of Physics and Technology. (2024). Phystech 2024 annual report. <https://shorturl.at/aTYue>
- Nature Index. (2021). Leading 150 young universities overall. Nature Portfolio. <https://www.nature.com/nature-index/supplements/nature-index-2021-young-universities/tables/overall>
- Nature Portfolio & EMBO. (2022). Western science funders' response to Russia's invasion of Ukraine. EMBO Reports, 23(5), e55160. doi.org <https://link.springer.com/article/10.15252/embr.202255160>
- Novaya Gazeta Europe. (2023). How Russian science loses personnel after 2022. <https://novayagazeta.eu/articles/2023/08/17/sledite-za-ukhodom-mysli>
- O'Malley, B. (2022). European Union halts scientific cooperation with Russia. University World News. <https://www.universityworldnews.com/post.php?story=20220305125136996>
- Orlova O. (2024, March 11). Kak pomoch nauke v Rossii (snova) stat mezhhdunarodnoj [How to help science in Russia become international (again)]. <https://reform.io/blog/2024/03/11/kak-pomoch-nauke-v-rossii-snova-stat-mezhhdunarodnoj/>

Putin, V. V. (2018). Decree on the development of genetic technologies in the Russian Federation. <https://base.garant.ru/72114372/>

Research Professional News. (2022). Publishers stop selling services to Russia and Belarus. <https://www.researchprofessionalnews.com/rr-news-europe-infrastructure-2022-4-publishers-stop-selling-services-to-russia-and-belarus/>

Russian Science Foundation. (2025). Results of coordinated competitions with India DST. <https://rscf.ru/upload/iblock/e4c/hjn3mdctzk4vll6lkpj7udriiax9nwfuf.pdf>

Skolkovo Institute of Science and Technology. (2026). International cooperation agreements. <https://www.skoltech.ru/sveden/inter>

Skolkovo Institute of Science and Technology. (2025, December 17). Four Skoltech scientists win grants in joint call by RSF and National Natural Science Foundation of China. <https://skoltech.ru/news/chetvero-uchyonyh-skolteha-vyigrali-granty-v-sovmestnom-konkurse-rnf-i-gosudarstvennogo-fonda-estestvennyh-nauk-kitaya>

Sukhova, M. A., & Petrov, I. V. (2024). Transformation of dual degree programs in leading Russian universities (2022–2024). *Voprosy Obrazovaniya / Educational Studies Moscow*, 2024(2), <https://po-journal.ru/wp-content/uploads/2024/08/po-2024-t.5-7.pdf>

TASS. (2024, February 15). Russian and Indian science foundations support 23 joint research team projects. <https://tass.ru/nauka/19997101>

T-invariant. (2024, November 29). “Kovalchuk proposes that our scientists become a dish on the table of an ogre”: Why Russia has failed to maintain relations with CERN. <https://straights-kind-863676.nw.r.appspot.com/2024/11/kovalchuk-proposes-that-our-scientists-become-a-dish-on-the-table-of-an-ogre-why-russia-has-failed-to-maintain-relations-with-cern/>

T-invariant. (2025, July). From import substitution to sanctions evasion: Russian universities launch programs in sanctions compliance. <https://t-invariant.org/2025/07/from-import-substitution-to-sanctions-evasion-russian-universities-launch-programs-in-sanctions-compliance/>

T-invariant. (2026, April). “Sovereign” AI on Chinese chips: Putin's daughter completes the creation of a closed AI infrastructure at MSU. <https://t-invariant.org/2026/04/sovereign-ai-on-chinese-chips-putin-s-daughter-completes-the-creation-of-a-closed-ai-infrastructure-at-msu/>

Zavadskaya, M., & Kamalov, E. (2024). The Russian “brain drain” after 2022. OutRush Research Project. https://outrush.io/report_march_2025_eng



List of Abbreviation

Abbreviation	Full Name
ACS	American Chemical Society
CERN	European Organization for Nuclear Research (Conseil Européen pour la Recherche Nucléaire)
DESY	Deutsches Elektronen-Synchrotron (German Electron Synchrotron)
DST	Department of Science and Technology (India)
EF	EF Education First
Euratom	European Atomic Energy Community
FSB	Federal Security Service of the Russian Federation
HSE	National Research University Higher School of Economics (HSE University)
ICM	International Congress of Mathematicians
IELTS	International English Language Testing System
IMU	International Mathematical Union
IOP	Institute of Physics Publishing
ISS	International Space Station
ITER	International Thermonuclear Experimental Reactor
IIT	Indian Institute of Technology
MBZUAI	Mohamed bin Zayed University of Artificial Intelligence
MIC	Military-Industrial Complex
MIPT	Moscow Institute of Physics and Technology

Abbreviation	Full Name
MENA	Middle East and North Africa
MIT	Massachusetts Institute of Technology
MSU	Lomonosov Moscow State University
NSFC	National Natural Science Foundation of China
NRC	National Research Centre
RAS	Russian Academy of Sciences
RSF	Russian Science Foundation
Scopus	Elsevier's Abstract and Citation Database
SERB	Science and Engineering Research Board (India)
Skoltech	Skolkovo Institute of Science and Technology
STEM	Science, Technology, Engineering and Mathematics
TU Berlin	Technical University of Berlin
UAE	United Arab Emirates
XFEL	X-ray Free-Electron Laser

Policy Paper
Olga Orlova

**Transformation of Science and Education
in Russia under Sanctions 2022–2026**

Edited by: Julia Mierau, Sophia Winkler, Marina K.



An updated version
of this policy paper
will be published on
academic-alliance.org

More Policy Papers in this series

Policy Paper 1/2025



Project by Funded by 

Policy Paper 1/2025
Ivan Fomin

Contesting Russia's Future in the Classroom

The Kremlin's System of Ideological Indoctrination Should Be Challenged Before It Matures



Policy Paper 2/2025



Project by Funded by the 

Policy Paper 2/2025

ETHNIC MINORITIES IN THE RUSSIAN FEDERATION AFTER 2022

Navigating Kremlin Pressure, Diaspora Politics, and EU Legal Frameworks

Mira SEALES, Independent Researcher
Kélian SANZ PASCUAL, Head of Russian Affairs at Cassini



Policy Paper 3/2025



Project by Funded by 

Policy Paper 3/2025
Ilia Kiria

Countering the digital isolation of the Russian educational space





Project by



Funded by

