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**IDEOLOGICAL PRESSURE ON SCIENCE  
IN THE SOVIET UNION AT THE END OF THE FORTIES  
AND THE BEGINNING OF THE FIFTIES\***

The paper discusses the facts of the ideological campaign which took place in the USSR to suppress any free thinking in physics and in chemistry and establish a Leninist-Stalinist totalitarian world view. Philosophers, physicists and chemists participated in the campaign. By following A. Sonin's books we indicate two ideological dominants of the campaigns: the struggle with "idealism in physics" and with cosmopolitanism. We emphasize that in contrast to Lysenkovism in biology, the ideological campaigns did not lead to considerable destruction of scientific research in physics and in chemistry. Nevertheless, they were harmful from a moral point of view; they carried conformism and limited the horizon of research.

The philosophers Maximov and Deborin, the physicist Blokhintsev, the chemists Chelintsev, Shakhparonov and Tatevskii participated in the campaign, trying to establish their understanding of theoretical knowledge and their scientific priorities. At the end of the paper the metaphysical problem "knowledge and power" is outlined.

*Keywords:* ideology; scientific theory; positivism; quantum mechanics; quantum chemistry; totalitarian state

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## **ИДЕОЛОГИЧЕСКОЕ ДАВЛЕНИЕ НА НАУКУ В СОВЕТСКОМ СОЮЗЕ В КОНЦЕ Сороковых И НАЧАЛЕ Пятидесятых годов**

В статье обсуждаются некоторые факты идеологического давления на людей науки и на науку, имевшие место в СССР в 30-е, 40-е и 50-е годы XX века. Следуя А.С. Сониному, автор выделяет две доминанты этих событий: борьба с идеализмом и борьба с космополитизмом. При этом подчеркивается, что идеологическое давление проистекало не только от философов-марксистов, но и от самих научных работников. Упоминаются статьи философов-марксистов Максимова и Деборина, книги и статьи физика Блохинцева, выступления химиков Челинцева, Шахпаронова и Татевского. Упоминается также молчаливое противодействие идеологическому давлению. В конце статьи ставится общий вопрос – «знание и власть».

*Ключевые слова:* идеология; марксизм-ленинизм; позитивизм; квантовая механика; теория относительности

### **Introductory comments**

In 1994, I published a paper about an “anti-resonance” campaign that took place in the USSR in the late forties and early fifties [24; 25] (in 2022 this paper was reprinted and published as a small book). It was one of many papers about the ideological pressure on science in the USSR published in 1980s and 1990s (see, for example: [1; 14; 15; 20; 21; 30; 31; 35]). By using the well-known ideological liberalism of the 1980s, many authors began to publish papers and books on previously forbidden topics – the topics of ideological pressure on science and on scientists in the USSR since the late 20s and continued throughout the time of being of this state. Many of these papers were revealing in nature and described the damage caused to science by Marxist-Leninist ideology. However, there were also analytical papers written on the topic “science in a totalitarian society”. These papers took into account the complexity of such a phenomenon as state ideology and took the ideological function of scientific knowledge under consideration. These papers examined the structure of the scientific community and the status of the researchers in the social structure of the state.

In his paper, A. Kozhevnikov [21] warns that a relapse is possible: the new ideological campaigns are possible in Russia.

In this paper, I take the only physics and chemistry under consideration. I am not going to consider the situation in psychology and biology. In other words, I am not going to analyze the behavior of scientists in the context of the 1948 meeting of the Lenin All-union Academy of Agricultural Science (in Russian abbreviation: VASHNIL) which was the culmination of Lysenkovism. I shall not be concerned with the 1950 joint session of the USSR Academy of Science and the Academy of Medical Sciences (Pavlov session) either.

True, the following comment should be taken into account: “The session of VASHNIL created an atmosphere of alarming suspicion in scientific institutions. The meetings devoted to its results were held everywhere. In addition to denouncing the Mendelism-Weismannism-Morganism and glorifying Lysenko, they assumed the identification of their own idealists and cosmopolitans” [33, p. 110–111].

I am not either going to consider the events in art and in the humanities: the 1946 resolution of the Central Committee of the Communist Party on the journals *Zvezda* and *Leningrad*, the 1948 decision of the Central Committee of the Communist Party on Muradeli’s opera *Great Friendship* (“Confusion instead of music”), the discussion of G.F. Alexandrov’s book “The history of Western philosophy” (1947).

My paper highlights two ideological dominants of the 40s – 50s: the struggle against physical idealism in Soviet science and the struggle against cosmopolitanism. The paper describes what was meant by physical idealism and cosmopolitanism, and also shows the stratification of scientists that arose in the context of this struggle (activists, conformists, victims, spectators...). It is shown that there was a wide community of scientists who adopted the Communist slogans at their face value and were involved in this struggle. Among them there were careerists who were planned to take step up by manifesting their allegiance to the dominant ideology. The careerists used ideological slogans to get preferences in their promotion through the ranks. There were scientific administrators whose problem was the organization of scientific research and getting results that were noticeable to those who led the state. They tried to demonstrate their political loyalty. However, there were honest research workers who implicitly took Marxist – Leninist ideology as a kind of religion and used it

as a framework of the discussion of scientific problems. They did not know any other ideology than the communist one. However, not all scientists were “religious people”. Not all scientists in the Soviet Union prayed for dialectical materialism. Many of them said to themselves “I am engaged in science, rather than in philosophy” and “science is precisely science, not philosophy.” This does not mean that they were positivists (although the positivist views were present among scientists in the Soviet Union – see my book describing the worldview of L.I. Mandelstam and physicists close to him [26]). They simply decided for themselves that they were engaged in physics or in chemistry and their worldview is determined by the scientific theories which they developed or followed.

It should be noted that there were no clear boundaries between these groups of researchers. In some cases, the scientists discussed the scientific problems like the administrators did, sometimes the administrators behaved themselves like the scientists. Moreover, sometimes talented scientists became administrators.

Careerists often had in their mental baggage not only Marxist-Leninist-Stalinist slogans, but also scientific hypothesis and theories.

As was mentioned, this article considers the ideological discussions in quantum physics and quantum chemistry. We consider relatively prosperous areas of knowledge. In quantum physics and quantum chemistry, ideological discussions did not lead to the identification of “enemies of the people”, the persons who should be taken into a prison or even executed, they did not even lead to significant personnel changes. However, the opposition “knowledge and power” was clearly realized in these areas. Scientists working in these areas faced the requirement to interpret their results in the terminology of Marxism-Leninism-Stalinism. Moreover, they were required to follow the guidelines of the Marxist-Leninist-Stalinist philosophy when setting up experiments, when formulating theoretical conclusions. However, the focus on truth was not lost in these areas like this focus was lost in biology, the phenomenon of Marxist-Leninist science was not outlined in the course of the discussion of quantum theory. Moreover, in the USSR physicists and chemists obtained the results which were included in the world scientific literature. Ideological pressure, however, was present. It was expressed in the violation of the norms of scientific ethics, in the appearance of Marxist (or quasimarxist) ideological interpretations of scientific results, in the philosophical prefaces

to Russian textbooks, in the successful career advancement of orthodox-minded scientists.

What are we going to discuss in the paper? The first two paragraphs will describe what is meant under the ideological dominants which were mentioned above (the physical idealism and cosmopolitanism). Then two examples will be considered – the struggle against the theory of resonance in chemistry and the struggle against the idealism and Machism in physics. The end of the article will be devoted to the historical context of these events. We shall come to the philosophical problem “knowledge and power”. We will insist that knowledge, insofar as it is scientific knowledge, is itself a power and cannot be subordinated to an alien ideology.

### **“Physical idealism”**

In my publications on the anti-resonance campaign, two books I have not taken into account (they appeared after my paper had been published): A.S. Sonin’s book on the struggle against the “physical idealism” in the Soviet Union [33] and A.S. Sonin’s book on the struggle against cosmopolitism in the Soviet Union [34]. These books, however, are important. The ideological dominants which directed the Soviet authorities to organize the attack against the theory of resonance have been outlined in them. The first ideological dominant was the struggle against idealism in physics. The second ideological target was cosmopolitanism.

The expression “physical idealism” was coined by Vladimir Lenin. As A.S. Sonin correctly noticed, the notion “physical idealism” can be traced back to V.I. Lenin’s book “Materialism and Empirico-Criticism”. This book was written by Lenin (1908–1909) to strengthen the unity of Russian Marxists. After the defeat of Russian Marxists in the 1905 revolution some of them went into philosophical investigations and turned to the philosophy of positivism. They turned to E. Mach’s philosophy and were close to accept Machian anti-materialism. Lenin experienced the danger of a split among the Russian social democrats who were traditionally oriented to Marxism and hence to materialism.

What does “materialism” mean? There is no such an item in *Stanford Encyclopedia*. Lenin provided the following definition: “materialism is the recognition of objects in themselves or outside the mind. The opposite doctrine (‘idealism’) claims that objects don’t exist without the mind,

objects are combinations of sensations” [22, p. 14]. What does “physical idealism” mean? Lenin wrote the following: “The fundamental idea of the school of the new physics under discussion is the denial of the objective reality given us in our sensation and reflected in our theories, of the doubt as to the existence of such a reality. Here this school departs from *materialism* (inaccurately called realism, neo-mechanism, hylo-kinesism), and not in any appreciable degree consciously developed by the physicists), which by *general acknowledgment* prevails among the physicists—and departs from it as a school of ‘physical’ idealism” [Lenin, p. 283]. In short, Lenin also wrote, the “physical” idealism “of today signifies that one school of natural scientists in one branch of natural science has slid into reactionary philosophy, being unable to rise directly and once from metaphysical materialism to dialectical materialism” [22, p. 292].

In the Soviet Union Lenin’s “Materialism and Empirico-Criticism” was highly appreciated. The university students studied philosophy along this book. Every excursion into the contemporary world view was supposed to be equipped by the references to this book and it should contain quotations from Lenin’s text. After the USSR collapsed the references to Lenin’s books step by step disappeared. The official philosophy announced itself as free from the ideological presumptions connected with Marxism-Leninism. Nevertheless, the popular literature kept the spots of the ideology of Marxism-Leninism. Moreover, in “The new philosophical encyclopedia” (2001) edited by the leader of the Russian philosophers Academician Professor V. Stepin, there is an article entitled “Lenin’s ‘Materialism and Empirico-Criticism’” in which there is the following statement: “Lenin’s book is useful as a guide for getting acquainted with the philosophical conclusions from the modern scientific discoveries”. A.S. Sonin’s position is more accurate. Sonin does not deny that the phenomenon that Lenin called “the newest revolution in natural science” really took place. Sonin does not deny that Lenin yelled at good reviews written by the prominent physicists. However, Sonin states that the polemic fervor led Lenin to looseness and inaccuracy, led him to simplification of views of Western physicists and philosophers. Especially Lenin simplified (and distorted) Mach’s philosophy of science. One needs to accept Sonin’s following claim: “They say that a deep analysis of the contemporary physics was given in Lenin’s book. There is nothing of the kind in this

book, for Lenin simplified (sometimes, deliberately) the positions of his opponents, especially he simplified E. Mach's philosophy" [33, p. 12].

When did the idea of the conference on the philosophy of physics arise? The first official document which was found by A. Sonin was a letter from the President of the USSR Academy of sciences S.I. Vavilov and Minister of higher education S.V. Kaftanov to the secretary of the Central Committee of the Communist Party G.M. Malenkov. Vavilov and Kaftanov wrote that Lenin's book "Materialism and Empiriocriticism" was incompletely used when teaching physics. "In many educational institutions physics is taught in isolation from dialectical materialism" [33, p. 114–115]. Although an organizing committee was formed and this committee worked, the conference did not take place (there is no documented answer to the question why it was canceled). Deputy Minister of Higher Education A.N. Topchiev who became an academician (1949) and the Chief scientific secretary of the Academy of Sciences (the highest administrative position in the Soviet Union Academy of Sciences) was appointed chairman of this committee in 1948. As A.S. Sonin writes, Topchiev held forty meetings of the organizing committee of this conference [32]. Topchiev proclaimed that the conference should be held on the level of VASKHNIL session where the power of Lysenko was strengthened.

Who was A.N. Topchiev? This was a controversial figure. Professor M.I. Kabachik, a specialist in organophosphorus compounds, interviewed by the present author said that he was an "excellent scientific secretary" (he meant Topchiev's contribution to the management of scientific research conducted at the USSR Academy of Sciences). In his book on the history of Russian science A. Vucinich writes that Topchiev was a "mediocrity in chemistry" [36, p. 246]. The historian of science G. Gorelik [14] writes that Topchiev's main achievement was his contribution to the organization of the conference on the philosophy of physics, the conference which did not occur.

### **Cosmopolitanism**

As noted above, the second ideological dominant of the ideological struggle in Soviet chemistry and physics was the struggle against cosmopolitanism. This should cause surprise: after all, Marxism-Leninism declared itself to be an international doctrine and put the slogan "Proletarians

of all countries unite” at the forefront. However, when an ideological creed is formulated, the logical consistence often simply disappears. The fight against physical idealism developed into a fight against cosmopolitanism, since physical idealism was expressed by Western philosophers and physicists and was the product of Western philosophical education. The ideologists of the fight against cosmopolitanism argued that Soviet physicists and chemists should not lose political vigilance and take the word of their Western colleagues when they write about the philosophical problems of natural science.

A. Sonin writes that the struggle against cosmopolitanism can be traced back to Stalin’s speech at 18<sup>th</sup> congress of the Communist Party (1938). Stalin spoke about the Soviet patriotism which should become “one of the driving forces of the development of the Soviet society”. Viacheslav Molotov’s 1947 report at a solemn meeting dedicated to the 30<sup>th</sup> anniversary of October was an important event. Molotov said the following: “In our country not everyone yet freed themselves from servility to the West, to capitalist culture... The ruling classes of old Russia were often in great spiritual dependence on the more developed capitalist state in Europe. This made it possible to cultivate a consciousness of slavish inferiority and spiritual dependence on the bourgeois countries of Europe. Without freeing yourself from this servility you cannot be a real Soviet citizen” (cited by [34, p. 13]).

According to Sonin, the idea of struggle against cosmopolitanism has been extended to science in 1948 by sociologist A. Zworykin who was a member of the editorial board of the main Communist Party newspaper *Pravda*. In his paper “On Soviet patriotism in science” Zworykin insisted that reasoning about abstract world science was especially harmful now because this reasoning is used by reactionaries to downplay the contribution to science from those nations which were treated by American imperialists as targets of aggression.

A.S. Sonin describes a series of events which were dedicated to the fight against cosmopolitanism: Communist Party meetings at Moscow State University and at the research institutes belonging to the Academy of Sciences. He also points to the Session of Academic Council of Physics Institute (Academy of Sciences). This session was important because President of the Academy of Sciences and Director of the Institute S.I. Vavilov spoke at this meeting. “Cosmopolitans”, Vavilov said, “treat



our science as science of the second class and even of the third class. For them real science is American, England, German science. Cosmopolitans want to publish their results in foreign journals. They presumably quote their foreign colleagues and turning to home country they mention their friends only” (see: [34, p. 215]). S.I. Vavilov named several employees who, according to his classification, made cosmopolitan mistakes by omitting the references to their Russian colleagues and to the materialistic traditions of Russian science. Nevertheless, in his speech and in his policy one can see the desire to perform the formalities “with little blood” – to avoid any personal punishments and structural innovations.

S. Vavilov’s soft position had not passed unnoticed. The philosopher I.V. Kuznetsov (Institute of Philosophy, the Academy of Sciences of the Soviet Union) wrote the following: “Vavilov has not provided the harsh scouring Zdanov-like criticism of bourgeois philosophy” (cited in [Sonin, 34, p. 233]). A. Zhdanov was the main ideologist of the USSR and a politician close to Stalin.

### **Marxism-Leninism for physics: the end of forties and the beginning of fifties**

In Russian literature it was often proclaimed that ideological pressure on physicists exerted primary by philosophers. For example, V. Vizgin writes that “already in the 1920s the physicists experienced the philosophical and ideological pressure to which they should be adopted” [35, p. 1363].

Vizgin writes: “In the Soviet Union the specific situation arose – there was the state philosophy. This was dialectical materialism which was treated as the theoretical base Marxism. As the scientists went to discuss methodological problems which arose in the theory of relativity, quantum mechanics and nuclear physics they became to experience the ideological pressure. The Soviet Union philosophers and the Communist party officials gave warning: if did these discussions go into right direction? If did the scientists consistently proceed from the principles of Marxism-Leninism?”. [35, p. 1363].

Sonin and Vizgin have indicated a philosopher who strongly contributed to the struggle for materialism and dialectic in physics. This is A. Maximov, Professor of the Moscow State University, who was Head

of the Department of the history and philosophy of science. This Department was organized at the end of 1920s. In 1943 Maximov became a corresponding member of the USSR Academy of Sciences. He thus occupied a fairly high position in the Soviet hierarchy of scientific workers.

In 1948, A. Maximov published a paper “About a philosophical centaur” in the newspaper popular among the intellectuals (*Literaturnaia gazeta*, 1948, April, 10). In this paper he took the philosophical problems of quantum mechanics under consideration. Maximov wrote that “Bohr’s interpretation of the uncertainty relations manifests his break with materialistic philosophy. N. Bohr’s philosophical views are a typical product of the ideological reaction generated by the era of imperialism in the bourgeois countries. N. Bohr’s philosophical position is the non-viable product, this is the garbage, which, according to Lenin’s definition, is to be sent to the garbage heap” [Maximov, *Literaturnaia gazeta*, 1948, April, 10]. Maximov referred here to Lenin’s passage in his “Materialism and empiriocriticism”: “Modern physics is in travail, – Lenin wrote, – it is giving birth to dialectical materialism. The process of child birth is painful and in addition to a living healthy being there are bound to be produced certain dead product refuse fit only for the garbage-heap”.

However, for Maximov the main philosophical target was not quantum mechanics. Maximov objected the Copenhagen interpretation which was elaborated by N. Bohr and W. Heisenberg. He did not intend to send quantum mechanics into the “sewage room”. Maximov’s main enemy was Einstein’s theory of relativity. Here he followed his friend and co-worker A. Timeriazev, Professor of Lomonosov Moscow State University, a specialist in molecular physics, son of the Russian famous biologist K. Timiriazev. A. Timiriazev supported D.C. Miller, an American physicist who was an advocate of the physics of the absolute space and an opponent of Einstein’s theory of relativity. In 1934 A. Timeriazev delivered a lecture in favor D. Miller’s experiments that allegedly falsified the theory of relativity (he delivered this lecture at the plenary meeting of the fifth Russian conference of physicists).

“Einstein’s views on space, time, simultaneity, motion, energy, etc., – Maximov wrote in his paper published in the newspaper ‘Krasnyi Flot’ (‘Red Fleet’), – contradict the foundations of natural science and the essence of the data available to physics. Natural science more and more confirms the correctness of the tenets of dialectical materialism. Dialectical

materialism proves the objectivity of space, time, movement as forms of existence of matter. ‘Motion is a form of existence of matter’, Engels wrote in ‘Anti-Dühring’” [Maximov. *Krasnyi Flot* (Red Fleet), 14 June, 1952].

As archive investigations conducted by S. Ilizarov and L.I. Pushkareva show, Maximov’s publication resulted in the strong negative reaction in the community of the physicists involved into the nuclear physics. A group of the prominent physicists sent a secrete letter to one of the senior figures in the Stalinist administration who was the main curator of research in the field of nuclear physics, namely to Lavrentii Beria [17]. It so happened that this letter interrupted Maximov’s career. He was allowed to publish a paper in the main philosophical journal “*Voprosy filosofii*”. However, this paper followed the extensive paper “On the ignorant criticism of theoretical physics”, written by the famous theoretician V.A. Fock. Maximov, who was passing in 1976, had not published anything considerably more. One of the important specialists in the philosophy of science N.F. Ovchinnikov said to the present author that A. Maximov declared “If my writings are confused and erroneous, I shall not write anything more”.

It is interesting that there is another approach to Maximov’s activity. In his recollections the former Dean of the Philosophy School (Lomonosov Moscow State University) A.D. Kosichev writes that the department of the history and philosophy of science was organized at the end of the twentieths with Maximov as head of the department. Kosichev writes that “this department was popular among the students and university teachers” [19, p. 12].

However, Maximov was not the only philosopher who criticized modern physics. A. Deborin who represented the group of philosopher’s alternatives to Maximov’s group (the group of “dialecticians” who opposed the group of “mechanics” to which Maximov belonged) wrote that “the theory of relativity...is sophistical theory which turns all our world around and ignores all our practicum and it is based on the principles of Machism” (see: [34, p. 17]). Nevertheless, A.M. Deborin was successful in his carrier. In 1958 Academician Deborin was invited to deliver his paper for the All-Union Conference on the Philosophical Problems of the Modern Science. Deborin did not discuss any methodological problems of physics. Deborin said the following: “Marxism-Leninism, comrade N.S. Chrushev says, captures the minds of millions and billions of people,

Marxism-Leninism became the great material power. This teaching is not developing in the studies of theoreticians, this teaching captures the minds of millions and billions of people, this teaching has become a great material force” [11, p. 446].

### **The physicists attacked bourgeois ideology. D.I. Blokhintsev**

In the USSR, several working physicists were philosophically active and attacked the bourgeois philosophy and ideology. After the second World War, one of the main figures to be mentioned was D.I. Blokhintsev, the theoretician, corresponding member of the USSR Academy of Science, who contributed to the Soviet Union project on nuclear weapon and to peaceful nuclear energetic. D.I. Blokhintsev was the author of the popular university textbook on quantum mechanics. In his famous book on the interpretations of quantum mechanics M. Jammer writes the following: “The first comprehensive university textbook on quantum mechanics in the Russian language D.I. Blokhintsev’s *Introduction to quantum mechanics* was in the spirit of Heisenberg interpretation according to which the wave function represents man’s knowledge of the state rather than the state of the system itself... Five years later Blokhintsev published a revised edition, ‘Fundamentals of Quantum Mechanics’, which by virtue of its excellent didactic approach became one of the most popular textbooks on quantum mechanics ever written in Russian and which was translated into several other languages. In this edition Blokhintsev categorically rejected the Bohr-Heisenberg interpretation and presented the theory on the basis of the statistical interpretation. In fact, as mentioned in the Preface of this edition (1949), ‘the chapter which concerns the concept of state in quantum mechanics has been changed, and the idealistic conceptions of quantum mechanics which are now widespread abroad are subjected to criticism’”. [18, p. 444–445].

Blokhintsev’s main assumption is the following: “quantum mechanics is a statistical theory... but different from classical statistical mechanics... Unlike statistical mechanics, modern quantum mechanics is not based on a theory of individual processes. It operates right from the start with statistical collectives – ensembles ... and studies these ensembles in their relationship with macroscopic measuring devices” [2, p. 11; 8, p. 12].

For Blokhintsev, the “quantum ensembles” approach helped to restore materialism as the philosophy of physics: “The quantum mechanics in fact deals with an objective nature of quantum ensemble as existing independently from the observer. The properties of a single micro phenomenon are examined through the statistical laws which are entirely objective” [51, p. 10–11].

D.I. Blokhintsev’s philosophical intentions were already reviewed by the present author [27, 28]. Here we concentrate on Blokhintsev’s 1951 paper which was heavily ideologically loaded. In this paper he did not go to philosophical details. He attacked what he treated as the main philosophical claims of the Copenhagen interpretation of quantum mechanics, namely, the principle of observability and the principle of complementarity. He claimed that the principle of complementarity is based on the principle of observability. In turn the latter is Machist in essence: it presupposes a positivist substitution of the study of objective reality for the description of human sensory data.

By criticizing the Copenhagen interpretation and by formulating his philosophical credo Blokhintsev referred to Lenin’s “Materialism and empiriocriticism” and to Stalin’s paper “On dialectical and historical materialism” written for the textbook on the history of the Communist party of the Soviet Union. Blokhintsev published a similar paper in the philosophical book [5]. In 1957 Blokhintsev published a paper “Lenin’s ‘Materialism and Empirico-criticism’ and Modern Ideas on the structure of elementary particles” [6]. At first sight the paper looks like a review of some problems in physics. However, at the beginning of the paper Blokhintsev cited the famous dictum from Lenin’s “Materialism and Empirico-Criticism”: “the electron is as inexhaustible as the atom”. He insisted that Lenin foresaw the later development of physics of elementary particles.

In 1952, the polemics between V.A. Fock, who criticized the ensemble interpretation in all its versions and Blokhintsev occurred. By objecting to Fock Blokhintsev insisted that Fock’s position is fraught with idealism [12; 4; 5]. This was an accusation: for the wide community of scientists, idealism was not a philosophical position. Idealism was treated as an ideological enemy. In 1966, Blokhintsev published a book on the philosophical problems of quantum mechanics [7], the book where central role belonged to scientific argumentation. Blokhintsev’s textbook went to five

editions during his life. In 1976 [8], Blokhintsev eliminated some of his ideological claims concerning idealism in physics.

### **Physical idealism and cosmopolitanism in quantum chemistry**

The Marxist-Leninist attack on the theory of resonance and in general on quantum chemistry developed differently. The theory of resonance was attacked by the good chemist G.V. Chelintsev who worked for the Voroshilov Military Academy. In his 1949 book “Essays on the theory of chemical structure in organic chemistry”, Chelintsev developed the classical theory of chemical structure and attacked quantum chemistry (1949). The phrase “good chemist” with respect to Chelintsev was coined by one the leaders of organic chemistry M.I. Kabachik in his interview given to the present author. Really, Chelintsev carried out a number of important organic syntheses.

True, G.V. Chelintsev did not use the term “physical idealism” in his early papers on the theory of resonance. He objected the “mechanicism”, the reduction of chemistry to physics, the reduction of the theory of the structure of a molecule to quantum mechanics. The “mechanicism” destroyed the hierarchy of forms of motion of matter put forward by Marx’s ally F. Engels.

The second anti-resonance attack was performed by the young scientists worked for School of Chemistry of Lomonosov Moscow State University V.M. Tatevskii and M.I. Shakhparonov (1949). They characterized the theory of resonance as the Machist theory because it described the molecule as a combination of ideal mental structures. They meant one of the fundamental principles of quantum mechanics, namely the principle of superposition according to which the quantum state can be described as a superposition (a linear combination) of the basic states which are simpler than the state under consideration.

Chelintsev’s attack and Tatevskii-Shakhparonov’s paper had not passed unnoticed. A couple of anonymous publications appeared in mass-media. These were politico-ideological notices: “not everything is well in chemistry”. The following history has been described by Loren Graham, Brakel and by the present author [10; 23; 29]. Chelintsev’s book and Tatevskii-Shakhparonov’s paper were followed by “scientific articles”

written by chemists who did not know quantum mechanics and did not want to improve their background.

The meeting of the Academic Council was held at the Institute of Organic Chemistry of the Academy of Sciences (February 2, 3 and 7, 1950). On June 11-14, 1951, the All-Union Conference on the Theory of Chemical Structure was held. The meeting was organized by the Department of Chemical Sciences of the Academy of Sciences of the USSR. The meeting was held in the building of the House (Club) of Scientists, located in the center of Moscow on Kropotkinskaya Street.

Like S. Vavilov, Prof. A.N. Nesmianov who became President of the Academy of Sciences when Vavilov died in 1951, tried to avoid any considerable personal and organizational perturbations in the course of the criticism of the theory of resonance.

In contrast to the planning meeting on the philosophy of physics, the meeting on the theory of chemical structure was held in 1951, June 11-14. But for critics of the theory of resonance it turned out to be fruitless. Adherents of the theory of resonance lost their part-time jobs, their articles ceased to be published for some time in leading journals. However, this happens even without any ideological perturbations.

### **Knowledge and power**

By reading the above discussion of the ideological pressure on science one may come to the idea that the Communist Party officials organized a campaign to suppress physical idealism and cosmopolitanism. However, A.S. Sonin correctly points to the aggressive role of the Academy of Sciences of the USSR in the ideological campaigns of the late forties and early fifties. For example, in 1950 a book "On Soviet patriotism" was published under the heading of the Academy of Sciences [34, p. 15]. Who were G. Alexandrov, A.M. Deborin, F. Konstantinov, M. Meetin, A. Maximov who together fought against idealists and denounced cosmopolitans? They were Academicians of the Soviet Academy of Sciences or Corresponding members of this organization.

Science in the Soviet Union was built hierarchically. The great number of researchers makes the "ground floor", the Corresponding Fellows of the Academy of Sciences make the "second floor", and the Academicians make the "upper floor". There were academicians of the Aca-

demies of Union republics (Ukraine, Belarus, Kazakhstan...). They approximately corresponded to the Corresponding Fellows of the USSR Academy of Sciences. Academicians and corresponding members were better off financially than ordinary scientists and received special “Kremlin allowances”. The “ground floor” of science was also organized hierarchically. There were Doctors of Science; there were Candidate of Science. There were also researchers who had no degree.

It should be noted that such great humanity scholars like V.F. Asmus and A.F. Losev (whose names are given to the auditoriums in the Shuvalov building which houses the main humanities schools of Lomonosov Moscow State University) were not the members of the USSR Academy of sciences. Alexander Zinoviev who recently became to be treated as an authoritative figure in the philosophy of science (the 2022 philosophical congress which took place in Moscow was named Zinoviev All-Russian Philosophical Congress) was not elected as an academician, either. Philosophy was represented by far from the best of its specialists in the course of the ideological campaigns of the late forties-early fifties. Such a hierarchical organization of science was not helpful for the development of scientific discussions. [16]. Sometimes criticism took the form of such kind of criticism which was outlined above: the criticism of the Copenhagen interpretation of quantum mechanics and the criticism of the theory of resonance.

However, one should have in mind the great success of Soviet Union science. In 1953, the first hydrogen bomb (“Sakharov’s sloika”) was tested; in 1962 the world’s first artificial Earth satellite was launched... And the great theoretical treatises on physics, mechanics, and mathematics have been written! In spite of the war against quantum chemistry in the Soviet Union there were successes in theoretical chemistry, in elemental organic chemistry. For example, in 1973 D. Bochvar and E. Galpern who both worked for INEOS headed by A. Nesmeianov predicted fullerene. INEOS means the Academy of Sciences Institute of Elementary-Organic Compounds. Now this is A.N. Nesmeianov Institute of Elementary-Organic Compounds

One needs to see the reverse side of Soviet ideology: the cult of science and scientific knowledge. Marxism in the USSR, despite all its aggressive intentions, emphasized the importance of science, emphasized the importance of objective truth. Many young people went to learn how to objec-



tively describe reality. Thinking, gifted young people did not go to study for philosophy or for political sciences. They went to study physics, mathematics, chemistry, high technology. While doing science, they came to heresy, which professional Marxist-Leninist philosophy was already struggling with.

Here we come to the metaphysical problem “knowledge and power”. What does mean that we expand and deepen our knowledge? “Indirectly, of course, this implies that our own power grows – but only in the strict sense of the original Latin *potentia* that is the sphere of possible action grows. In this somewhat metaphysical sense, more knowledge makes us “freer” but that entails new burdens as suddenly we faced with a larger decision space that than we had previously envisaged. It is worth recalling that the opposing model was one of religious leaders who ruled by promulgating dogmas that discouraged people from trying to move in new directions. These leaders were able to get their way not because they could enforce their will in all cases but because in most cases the rest of society already believed that nothing could be done to oppose them and hence nothing was tried” [13, p. 211].

Knowledge allows us to be useful for the State (especially if the State put before itself the ambitious goals concerning nuclear weapon and space exploration). At the same time knowledge gives us more freedom with respect of our position in the State. Knowledge, insofar as it is scientific knowledge, is itself a power and cannot be subordinated to ideology.

## References

1. *Akhundov, M.D. Bazhenov L.B.* (1989) *Filosofia i fizika v SSSR*. [Philosophy and physics in the USSR]. Moscow. Znanie Publisher.
2. *Blokhintsev D.I.* (1949) *Osnovy kvantovoi mehaniki*. [Foundations of quantum mechanics]. The second revised edition. GTTL.
3. *Blokhintsev D.I.* (1951) *Kritika idealisticheskogo ponimania kvantovoi teorii* [Criticism of the idealistic interpretation of quantum theory]. *Usp. Fiz. Nauk*. [Physics -Uspekhi]. Vol. 14.
4. *Blokhintsev D.I.* (1952) *Kritika ideologicheskikh kontseptsii tak nazyvaemoi kopengagenskoi shkoly v fizike* [Criticism of the ideological conceptions of so-called Copenhagen school in physics]. *Filosofskie voprosy sovremennoi fiziki*. [Philosophical questions of modern physics] Moscow: Nauka Publ.
5. *Blokhintsev D.I.* (1952) *Moi otvet akademiku Foku* [My reply to Academician Fock]. *Voprosy filosofii* [Questions of philosophy]. № 6.

6. *Blokhintsev D.I.* (1959) *Kniga Lenina "Materialism and empiric-criticism" i sovremennye predstavleniya fiziki elementarnykh chastits* [Lenin's book "Materialism and Empirico-criticism" and the modern conceptions of the structure of elementary particles]. *Usp. Fiz. Nauk.* [Physics -Uspekhi]. Vol. 69.
7. *Blokhintsev D.I.* (1964) *Principialnye voprosy kvantovoi mekhaniki* [The fundamental problems of quantum mechanics]. Moscow. Nauka Publisher, 1964.
8. *Blokhintsev D.I.* (1976) *Osnovy kvantovoi mekhaniki* [The Fundamentals of quantum mechanics] Nauka.
9. *Bochvar, D.A., Galpern, E.G.* (1973). On hypothetical systems: carbon dodecahedron, S-icosahedron and carbon-S-icosahedron. In: *Proceedings of the USSR Academy of Sciences*. Vol. 209.
10. *Brakel J. Van.* (2000) *Philosophy of chemistry*. Leuven University Press.
11. *Filosofskie problemy sovremennogo estestvoznania* [Philosophical Problems of Modern Natural Science]. Moscow, 1959.
12. *Fock V.A.* (1952) O tak nazyvaemykh ansamblakh v kvantovoi mehanike [On so called ansembles in quantum mechanics]. *Voprosy filosofii* [Questions of philosophy]. № 4.
13. *Fuller S.* (2007) *New Frontiers in Science and Technology Studies*. Cambridge. Polity.
14. *Gorelik G.* (1990) *Fizika v Moskovskom Universitete i v Akademii Nauk* [Physics at Moscow University and Physics at Academy of Sciences]. IIET Preprint.
15. *Gorelik G.* (1994) *Nauka v silnom sotsialnom pole* [Science in the strong social field]. *Znanie-Sila*, 1994. N 8.
16. *Graham L.* (1987) *Science, philosophy and human behavior in the Soviet Union*. Columbia University Press.
17. *Ilizarov S.S., Pushkareva* (1984) *Beria i teoria otnositelnosti* [Beria and the theory of relativity]. *Istoricheskii arkhiv*. Vol. 3.
18. *Jammer M.* (1974) *The philosophy of quantum mechanics. The interpretations of quantum mechanics in historical perspective*. Wiley Interscience.
19. *Kosichev A.D.* (2007) *Filosofia, vremia, liudi* [Philosophy, time, people. Recollections and meditations] Moscow, OIMA Media group.
20. *Kozhevnikov A.* (1994) *O proletarskoi, marksistskoi, kommunisticheskoi nauke* [On proletarian, Marxist, communist science]. *Metaphysics and ideology in the history of natural science*. Moscow. Nauka Publisher.
21. *Kozhevnikov A.* (1997) *Igry stalinskoï demokratii i ideologicheskie diskussii v SSSR* [Games of Stalin's democracy and ideological discussions in science in the Soviet Union]. *Voprosy istorii estestvoznania i tekhniki*. N 4.
22. *Lenin V.* (1947) *Materialism and Empirico-criticism. Critical comments on a Reactionary Philosophy*. Moscow. Progress Publisher.
23. *Pechenkin A.* (2000) *Operationalism as the philosophy of Soviet physics: the philosophical backgrounds of L.I. Mandelstam and his school*. In: *Synthese*, Vol. 124.
24. *Pechenkin A.* (1994) *Anti-resonancnaya kompania v sovetskoi nauke (1949–1951)* [The 1949–1951 Anti-resonance campaign in Soviet science]. In: *Metafizika i ideologia* [Metaphysics and Ideology]. Moscow. Izd. Nauka.

25. *Pechenkin A.* (1995) The 1949–1951 Anti-resonance campaign in Soviet science, *LLULL*, vol. 18, 1995, pp. 135–166. *LLULL*: bolitin de la Sociedad Espanola de Historia de las Ciencias
26. *Pechenkin A.* (2019) *L.Mandelstam and his school in physics. The second edition.* Springer Nature. Switzerland.
27. *Pechenkin A.* (2021) The ensemble interpretation of quantum mechanics and scientific realism. In: *Acta Baltica et Philosophiae Scientiarum*. Vol. 9, No. 1.
28. *Pechenkin A.* (2022) The statistical (ensemble) interpretation of quantum mechanics. In: *Oxford Handbook on Quantum Interpretations*. Oxford univ. press.
29. *Pechenkin A.* (2022a) *Bor'ba protiv idealizma v kvantovoi khimii* [The struggle with idealism in quantum chemistry]. The second edition. Moscow: URSS.
30. *Rossianov K.* (1993) Editing Nature: Joseph Stalin and the “New Soviet Biology” // *ISIS*. 1993. Vol. 84.
31. *Rossianov K.* (1999) Stalin kak redactor Lysenko [Stalin as an editor of Lysenko]. In: *Vtoraia konferentsia po istorii rossiiskoi nauki* [The second conference on the history of Russian science], *Tezisy (Abstracts)*. Moscow: Nauka Pub.
32. *Sonin A.S.* (1990) *Soveshanie, kotoroe ne sostoialos* [The conference which that did not occur]. *Priroda*, N 3.
33. *Sonin A.S.* (1994) *Fizicheskii idealism* [Physical idealism. The history of an ideological campaign]. Moscow: Fizmatgiz.
34. *Sonin A.S.* (2011) *Borba protiv kosmopolitizma v sovetskoj nauke* [The struggle against cosmopolitanism in Soviet science]. Moscow: Nauka Publisher.
35. *Vizgin V.P.* (1999) *Iadernyi shchit v tritsatiletnei voine fizikov protiv neve-shestvennoi kritiki* [The nuclear shield in thirty-year war of physicists against ignorant criticism of modern physical theories]. In: *Uspekhi fizicheskikh nauk*. Vol. 169, N 12, P. 1363–1389.
36. *Vucinich A.* (1959) *Empire of knowledge. The academy of science of the USSR (1917–1970)* Univ. of California Press

## Литература

1. *Ахундов М.Д., Баженов Л.В.* *Философия и физика в СССР*. М: Знание, 1989.
2. *Блохинцев Д.И.* *Основы квантовой механики*. М.: Наука.
3. *Блохинцев Д.И.* Критика идеалистического понимания квантовой механики // *Успехи физических наук*. 1951. Т. 45. С. 195–228.
4. *Блохинцев Д.И.* Критика идеологической концепции так называемой копенгагенской школы в физике // *Философские вопросы современной физики*. М.: Изд-во АН СССР, 1952. С. 358–395.
5. *Блохинцев Д.И.* Мой ответ академику Фоку // *Вопросы философии*. 1952. № 6. С. 171–173.
6. *Блохинцев Д.И.* Книга Ленина «Материализм и эмпириокритицизм» и современные представления физики элементарных частиц // *Успехи физических наук*. 1959. Т. 69. С. 3–12.

7. Блохинцев Д.И. Принципиальные вопросы квантовой механики М.: Наука, 1964.
8. Блохинцев Д.И. Основы квантовой механики. М.: Наука, 1976.
9. Bochvar D.A., Galpern E.G. On hypothetical systems: carbon dodecahedron, S-icosahedron and carbon-S-icosahedron // Proceedings of the USSR Academy of Sciences. 1973. Vol. 209.
10. Brakel J., van. Philosophy of Chemistry. Leuven University Press, 2000.
11. Философские проблемы современного естествознания. М.: Изд-во АН СССР, 1959.
12. Фок В.А. О так называемых ансамблях в квантовой механике // Вопросы философии. 1952. № 4. С. 160–163.
13. Fuller S. New Frontiers in Science and Technology Studies. Cambridge: Polity, 2007.
14. Горелик Г. Физика в Московском университете и в Академии наук. Препринты Института истории естествознания и техники. М., 2004.
15. Горелик Г. Наука в сильном социальном поле // Знание – сила. 1994. № 8.
16. Graham L. Science, Philosophy and Human Behavior in the Soviet Union. Columbia University Press, 1987.
17. Илизаров С.С., Пушкарёва Л.И. Берия и теория относительности // Исторический архив. 1994. № 3. С. 215–223.
18. Jammer M. The Philosophy of Quantum Mechanics. The Interpretations of Quantum Mechanics in Historical Perspective. Wiley Interscience, 1974.
19. Косицев А.Д. Философия, время, люди. М.: Просвещение, 2007.
20. Кожевников А.Б. О науке пролетарской, партийной, марксистской // Метафизика и идеология в истории естествознания. М.: Наука, 1994. С. 219–238.
21. Кожевников А.Б. Игры сталинской демократии и идеологические дискуссии в советской науке: 1947–1952 // Вопросы истории естествознания и техники. 1997. № 4. С. 26–58.
22. Ленин В.И. Материализм и эмпириокритицизм. Критические комментарии об одной реакционной философии. М.: Прогресс, 1947.
23. Pechenkin A. Operationalism as the philosophy of Soviet physics: the philosophical backgrounds of L.I. Mandelstam and his school // Synthese. 2000. Vol. 124.
24. Печенкин А.А. Антирезонансная кампания в советской науке (1949–1951) // Препринт № 64 Института истории естествознания и техники. М., 1995. С. 135–166.
25. Печенкин А.А. 1949–1950. Антирезонансная кампания в советской науке // LLULL. 1995. 18.
26. Pechenkin A.L. Mandelstam and his school in physics. The second edition. Springer Nature, Switzerland, 2019.
27. Pechenkin A. The ensemble interpretation of quantum mechanics and scientific realism // Acta Baltica et Philosophiae Scientiarum. 2021. Vol. 9, No. 1.
28. Pechenkin A. The statistical (ensemble) interpretation of quantum mechanics // Oxford Handbook on Quantum Interpretations. Oxford Univ. Press, 2022.
29. Печенкин А.А. Борьба против идеализма в квантовой механике. 2-е изд. М.: УРСС, 2022а.

30. *Rossianov K.* Editing Nature: Joseph Stalin and the “New Soviet Biology” // *ISIS*. 1993. Vol. 84.
31. *Россиянов К.О.* Сталин как редактор Лысенко // Вторая конференция по истории российской науки: Тезисы. М.: Наука, 1999. С. 56–69.
32. *Сонин А.С.* Совещание, которое не состоялось // *Природа*. 1990. № 3. С. 97–102.
33. *Сонин А.С.* Физика и идеализм. М.: Физматгиз. 1994.
34. *Сонин А.С.* Борьба против космополитизма в советской науке. М.: Наука, 2011.
35. *Визгин В.П.* Ядерный щит в «тридцатилетней войне» физиков с невежественной критикой современных физических теорий // *Успехи физических наук*. 1999. № 169. С. 1363–1389.
36. *Vucinich A.* Empire of Knowledge. The Academy of Science of the USSR (1917–1970). Univ. of California Press, 1959.

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