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## Theories of Methods of Studying Mathematics

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**Annotation:** The article analyzes the development of mathematics and its prospects, the former Soviet system and the methods studied in it, and the development of modern mathematics.

**Keywords:** Mathematical basis, proof idea, abstract thinking, Mathematics, probability theory, computation, mathematics is a classical field.

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### INTRODUCTION

In fact, the deeper the basics of mathematics, the more acute the problems became. The beginning of the twentieth century was marked by the deepest crisis in the history of mathematics. Also, deep contradictions began to unfold in the foundations of Mathematics (Burali - Forti, Russell, Rishar, Grelling paradoxes). Attempts to overcome them led to the creation of an axiomatic theory of sets (Zermelo, Frenkel, Bernays, J. von Neumann) and the restoration of Hilbert's view that "the building of mathematics is built on the basis of an integral perfect project." In the 1st quarter of the twentieth century, the idea of solid proof in mathematics was fully formed. On this basis, N. Burbaki began to publish a multi-volume monograph entitled "Elements of Mathematics" in order to present the main part of the whole of Mathematics in a single way - the results in the most generalized way.

### LITERATURE ANALYSIS AND METHODOLOGY

The method propagated by Burbaki gave a great impetus to the development of some (abstract) branches of mathematics. In a number of countries (including the former Soviet Union), the teaching of mathematics has begun to be reformed in a "bourgeois" way, but this failed experiment has led to unresolved problems in the teaching of mathematics. [1] Since the middle of the twentieth century, mathematics has developed in two directions: on the one hand, with the need for scientific and technical development, differential equations, mathematical physics, finite mathematics, probability theory, computational mathematics, classical fields have expanded and become more branched, and on the other hand, very narrow, very abstract areas of application (such as general algebra, differential and algebraic geometry, topology, functional analysis) have created a variety of areas. Large scientific schools formed in developed countries began to be divided into narrow areas, [2] Until the twentieth century, mathematics had been the subject of separate scholarships, but in the last century it has taken on the nature of collective action. The number of scientific journals, pamphlets, scientific collections, articles began to grow in geometric progression. This, in turn, has led to another problem in the development of mathematics - the weakening of connections between different areas, the difficulty of the narrative method, the difficulty of checking the accuracy of the evidence and making sure that the results are correct or incorrect. The whole "mathematical" profession began to be divided into dozens of

specialties, such as "algebraist", "geometry", "topologist", "probability" and "functionalist", each of which has hundreds of narrow branch specialists who almost do not understand each other [1]. This phenomenon was described by M. Klein described it as a "new crisis of mathematics."

## DISCUSSION AND RESULTS

Although this inherent organizational crisis has not yet been fully overcome, the 20-a. eventually a new rise took place in Mathematics, in particular, Fermat's great theorem was proved (E. Wiles), and deep connections began to be opened between distant branches of mathematics. The fact that most of the works awarded the International Fields Medal in the field of mathematics are the result of the use of concepts and methods in three or four independent fields of mathematics has revived the concept of "Mathematics - a holistic science." U.S. mathematician D. The development of the universal Technical Text Editor by Knut and the advent of electronic communication opened up new horizons for the development of mathematics in the twentieth century [3]. Today P. Dirac's following symbolic definition is even more appropriate: "Mathematics is a tool specifically adapted to work with abstract concepts of any nature. There is no limit to his power in this regard. " It should be noted that in the Middle Ages the development of mathematics in Uzbekistan and the surrounding region stopped in the 16th century.

The second quarter of the twentieth century marked the beginning of a new era in this field. Founded in 1918, the first university in Central Asia (now the National University of Uzbekistan) I. Romanovskiy M. became a professor. The professor, who has a deep respect for Eastern national values and studied the Uzbek language, began to train professional mathematicians from talented young people and founded the Tashkent School of Probability Theory and Mathematical Statistics. T. from this school. A. Sarimsoqov, S. H. Sirojiddinov, T. Azlarov, Sh. More than a hundred specialists like Farmonov have emerged. The holding of the First Congress of the International Bernoulli Society in Tashkent (1986) is the result of international recognition of research in this field in Uzbekistan. Scientific schools were also established in other fields of mathematics. T. A. In the field of sarimsokrv functional analysis, I. S. Arjanix, M. S. Salohiddinov and T. J. Juraev Theory of Mathematical Physics Equations, I. S. Kukles theory of simple differential equations, T. N. Qori Niyazi, S. H. Sirojiddinov, G. P. Matvievsckaya History of Mathematics, V. Q. Qobulov, F. B. B. Abutaliev, N. A. Bondarenko, T. Bo'riev, A. F. Lauric laid the foundations for Computational Mathematics and Number Theory. In the last quarter of the twentieth century, the theory of optimal control (N. Yu. Sotimov), the theory of invariants (J. Hojiev), functional methods of mathematical physics (Sh. O. Alimov), operator algebra and mathematical methods of quantum physics (Sh. A. Ayupov) Research in the most modern fields, such as the theory of functions of complex variables (AS Sadullaev), Uzbek mathematicians have new opportunities in addition to their traditional contacts with research centers in Moscow, St. Petersburg, Novosibirsk, Kiev, Ekaterinburg. The works of Uzbek mathematicians are regularly published in research centers in Great Britain, France and the United States. [1] "Uzbek Mathematical Journal - Uzbek Mathematical Journal", 2001. "Mathematics, Physics and Informatics" for students from began to be published. Today there are more than 70 doctors of sciences and more than 300 candidates of sciences in the republic.

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