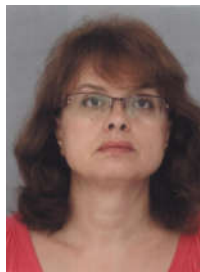


Mathematical Institute in the Faculty of Physics and Mathematics at the Sofia University



Maroussia Slavtchova-Bojkova, Plamen Mateev

Sofia University, Faculty of Mathematics and Informatics, 5 James Bourchier Blvd., Sofia 1164
Bulgarian Academy of Sciences, Institute of Mathematics and Informatics, G. Bonchev Str., blok 8, Sofia 1113
bojkova@fmi.uni-sofia.bg; pmat@fmi.uni-sofia.bg,



Abstract. Sofia University was founded as an institution for higher education in 1888. Faculty of physics and mathematics was formed next 1889. The name of the faculty should be interpreted in the context of the time and the original Greek sense of the word *physics* and *mathematics*. The importance of the first has preserved – nature. The original meaning of *mathematics* is forgotten and *science, learning-related variables*. In the late nineteenth century, *pure mathematics* consists of arithmetic, algebra and geometry and considers values abstract of their nature. *Complicated mathematics or physical mathematics* handles variables that are measured and *shares the experience of well-proven physics*. It includes *mechanics, astronomy, optics, acoustics, etc.* Three subjects have trained in the Faculty – naturalists, chemists and mathematicians or mathematicians just physical. Every professor relevant department heads. Close by area departments have merged into Institute and professors live in their common room – office. Mathematical Institute in its creation combines four departments: foundations of mathematics, high analysis, geometry, analytical mechanics, and room for the library models and jobs of the four professors. Over time, the Mathematical Institute is changing in size and facilities – offices and classrooms for the subject *mathematics*. In 1949 Mathematical Institute have formed by professors on mathematics who are members of the Bulgarian Academy of Sciences. Both homonymous Institutes work closely together. Result is a collaborative computing center, which created computer *Vitosha* and the full integration from 1971 to 1988 in the center for science and training of personnel.

Key words: Mathematical education, Sofia University history

Introduction. Sofia University was founded as an institution for higher education in year 1888. In the next year the Faculty of Physics and Mathematics was formed (1889). The name of the faculty should be interpreted in the context of the current time and the original Greek sense of the words *physics* and *mathematics*. The meaning of the first is preserved as *Nature*. The original meaning of *mathematics* is forgotten and it is *science, learning – related variables*. In the late nineteenth century *pure mathematics* consists of arithmetic, algebra and geometry and considers values independently of their nature. *Complex mathematics or physical – mathematics* handles variables that are measured and *rely on the well-proven physical experiments*. It includes *mechanics, astronomy, optics, acoustics, etc.* So the name of the division Faculty of Physics and Mathematics of the High School has to be realized as *Faculty of natural sciences*.

The students in Faculty of Physics and Mathematics were trained in three majors – natural scientists, chemists and mathematicians or more precisely *physical-mathematicians*. There were seventeen departments and six supporting institutions at the Faculty of Physics and Mathematics. Every professor was head of the respective chair. Chairs close by subjects were integrated into Institute and their professors occupied a common room – their office. Mathematical Institute in its creation incorporated four chairs: Foundations of mathematics, Higher analysis, Geometry, Analytical mechanics and a room for the book-library, three-dimensional surface models and work places of these professors. Over time, the Mathematical Institute is changing in size and facilities – offices and classrooms for the major mathematics.

The history of Mathematical Institute from its origin to the end is exposed here in brief emphasizing on significant events and participants – students, professors and faculty

inhabitations. We used Almanacs of the Sofia University [1-2], jubilee [3] and biographical collections [4-6]. In this history paper the following list of years and events, which influenced on the life of Mathematical Institute, has to be pointed out:

- 1889 – Faculty of Physics and Mathematics in the High School in Sofia was founded
- 1904 – Faculty of Physics and Mathematics at the Sofia University –The new Law of the University
- 1907 – 1908 – The University Crisis
- 1912 – 1913, 1914 – 1919 – Balkan and First World Wars
- 1942 – a new Polytechnic School was detached
- 1942 – 1945 – the World War II
- 1947 – The new Law of Higher Education
- 1963 – An autonomous Mathematical Faculty was established.

The Students. The number of students at Mathematical Institute varied. We present a chart (Fig. 1) with the number of diploma students over the years with major in mathematics.

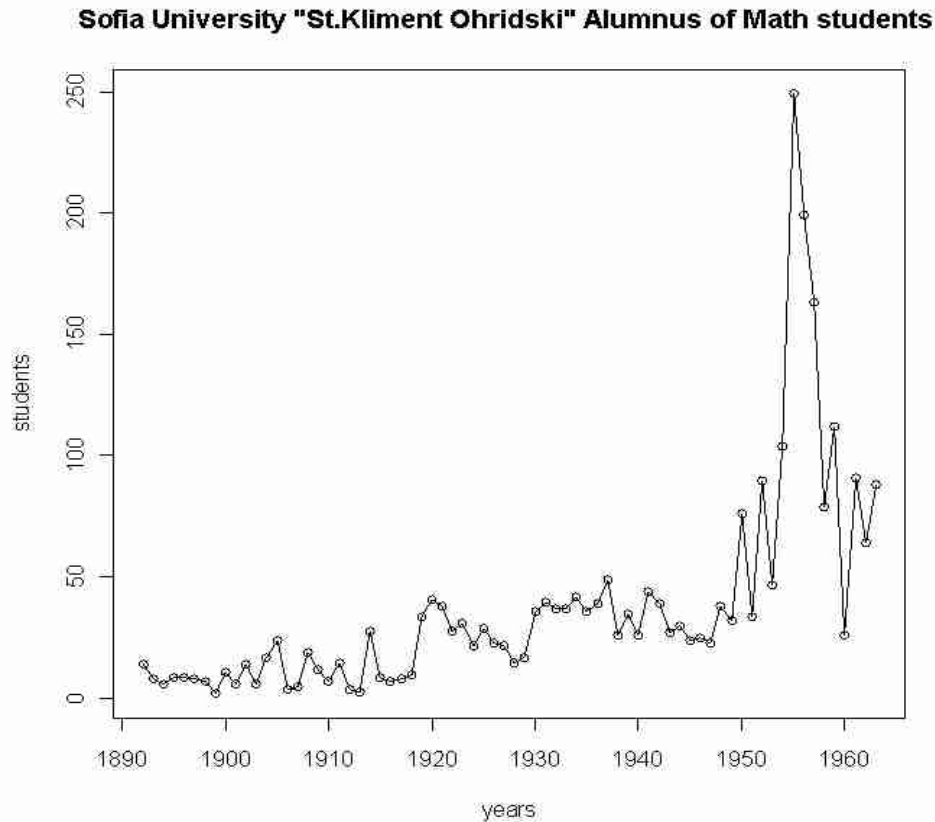


Fig. 1.

The trend of increasing of the number of students over the years is quite evident. There are some bad periods in the time of wars and crises. The major was renamed in year 1896 as *mathematics and physics*. In year 1926 the major is disjoined in two majors – *mathematics*

and *physics*. The extraordinary peak in 1955 is due to military reforms when a few annual contingents were delayed.

Mathematical Institute – The Faculty. At the beginning in 1890, the academic staff consisted of the pioneers of the Mathematical Institute – Professor Emanuil Ivanov and Czech professors Teodor Monin, Vladislav Shak and Antony Shourek. In what follows we will give some biographic details for their lives and contribution to the University.

Emanuil Ivanov was born in 1857 and deceased in 1925. He studied mathematics and physics in Munich Polytechnics until 1883 and was doyen of mathematicians in the University, professor on higher analysis from 1895 until 1907 and 1908 until 1910 and professor on higher algebra from 1918 until 1923. He had lectured courses on advanced calculus, differential calculus, differential equations, integral calculus, introduction to the theory of functions of complex variables, theory of functions, elliptical integrals and functions, elementary mathematics.

Antony Shourek was the first director of the Institute. He was born in 1857 in Pisek, Austro-Hungarian Empire. He had studied at the University of Vienna and University and Polytechnics of Prague. Since 1880, after he had taken state exam as teacher on descriptive geometry and mathematics, he has worked as teacher in secondary schools in Plovdiv, Sliven and Sofia. He was professor on geometry from 1893 until his decease in 1926, in snatches (from 1915 until 1921) because of his illness. He has lectured various courses on geometry – analytical, synthetic, descriptive, projective, differential and advanced course on geometry, also kinematics of space, theory of curves and surfaces, algebraic analysis, algebra, calculus, advanced course on mathematics, methods of teaching descriptive geometry and drawing.

Teodor Monin was born in 1858 in Kolin, Austro-Hungarian Empire. He ended his studies in Prague Polytechnics on 1878 and then worked as a teacher in secondary school in Prague, in Sliven and later on as an assistant professor in Prague Polytechnics. He was professor on mathematics in Sofia High School (University) for three years from 1889 until 1891, when he took out by reason of illness and shortly after that he died in 1893.

Vladislav Shak (1860 – 1941) was the third Czech professor in the High School. He worked shortly as a lecturer from 1891 until 1894.

Michail Momchilow has worked as a part-time lecturer on analytical mechanics from 1891 until 1893. He was born in 1862 and he finished his engineering education at the Royal Saxsonian Polytechnic in Dresden in 1888. After a short time to the mathematicians team were joining Atanas Tinterov and Spyridon Ganew.

Atanas Tinterov was born in 1857. He has taken his degree in mathematics from University of Odessa in 1881 and has worked as teacher in secondary schools in Sliven, Plovdiv and Sofia. His career at University began as lecturer in 1893 and ended as principal professor in year 1910. He has taught on algebraic analysis, foundations of mathematics, calculus, probability theory and applications of calculus in geometry.

Spyridon Ganew was born in 1869, had studied mathematics and physics in Polytechnic of Prague and University of Liege, Belgium. He ended with doctoral exam in 1893. He

began his University career as part time lecturer in 1893 and ended it in 1911 as associate professor on analytical mechanics.

The four professors E. Ivanov, A. Shourek, A. Tinterov and S. Ganew have been the basic members of the Mathematical Institute in its first period until University crisis in 1907.

D. Popov (from 1897 until 1902) and N. Stoyanoff (from 1901 until 1907) were assistant professors as members of the Institute for a short time. Another two assistant professors Kyrille Popoff and Dimitar Tabakov had been members for a short time, too, but they had came back after a break. K. Popoff return back after his specialization in France, and D. Tabakov came back in 1919. He has spent this time as a teacher in the secondary school in Sliven.

The next generation of assistant professors came in 1908. They were N. Konstantinov, I. Tzenoff, and L. Tchakalov. The first one (N. Konstantinov) left the University in 1913. At that time, from 1909 until 1912, the first associate Professor Georgi Stoyanov, who took his education in mathematics at the Sofia University, was lecturer at Mathematical Institute. He was born in 1872 and unfortunately was killed in the Balkan war.

The year 1914 was auspicious for the Institute with three new associate professors. They were current assistant professors Tzenoff, Tchakalov and Kyrille Popoff, who came back with doctorate from the Sorbonne University. Moreover, two new assistant professors were involved for a short period of time – Tzarkovski, who was born in 1885, lectured from 1914 until 1920, and Svetoslav Grekov, born in 1886, lectured from 1915 until 1919.

Despite the war interruption, the young mathematicians Nikola Obreshkov and Arkady Stoyanov were finished their education at the Sofia University and completed the staff of the Mathematical Institute after the war.

On the Fig. 2 we offered a time line for each of those thirty mathematicians in the Mathematical Institute. The path of life for a person is presented as a segment determined by the points of birth and death. The academic position in the university is denoted by bar, which width corresponds to positions: assistant professor, lecturer, extraordinary and ordinary associate professor, extraordinary professor and (full, chair of department) professor. Additionally, the asterisk denotes the time of defense of doctorate (PhD) and the rhomb indicates the time of election as a member of Bulgarian Academy of Sciences.

The three of the rest eleven collaborators of Mathematical Institute on the diagram are three assistant professors – G. Tuleshkov, M. Brakalova (the first female in the Institute) and I. Popov who has lectured for a short time. The eight mathematicians, listed in order of engagement, devoted their lives to Bulgarian mathematical education:

- Georgi Bradistiloff (1904 – 1977) professor at the Polytechnic School
- Boyan Petkanchin (1907 – 1987) professor, member of the Academy
- Lyubomir Iliev (1913 – 2000) professor, member of the Academy
- Alipi Mateev (1914 – 1979) professor
- Yaroslav Tagamlitski (1917 – 1983) professor
- Petko Ivanov (1896 – 1974) associate professor
- Ivan Duychev (1912 – 1966) associate professor.

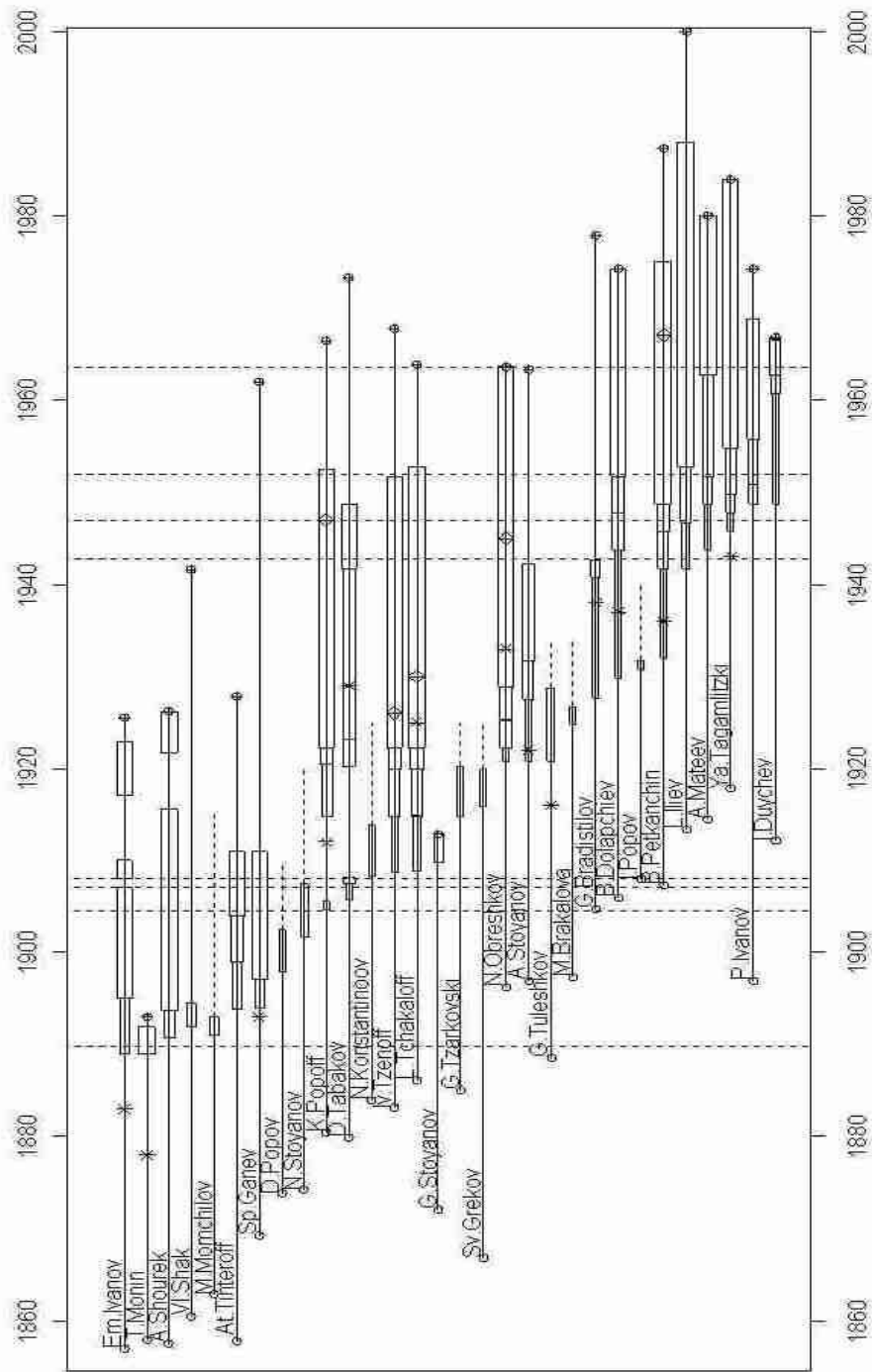


Fig. 2.

A new Higher School of Technology, named Polytechnics, was established on year 1942. A. Stoyanov and G. Bradistiloff were the founders of Mathematical Department in the new institution. At the beginning, the most members of the Mathematical Institute has been included in the education of Bulgarian engineers.

The Faculty of Physics and Mathematics has renamed as Faculty of Sciences according to the new Law of Higher Education in Bulgaria in 1947 for a short time. Mathematical Institute at the Bulgarian Academy of Sciences has founded in 1949. The Institute gathered professors – mathematicians who had been members of the Academy. Both homonymous

Institutes work closely together. A collaborative computing center appeared because of common work, in which the computer *Vitosha* has created later on.

During 1971 – 1988 the two Mathematical Institutes, united as Center of Mathematics and Mechanics, provided the full integration between science and education.

Inhabitations. The Mathematical Institute began as mathematical office but enlarged to a few professors' rooms and classrooms. The place of the Institute varied in the time:

- 1889 – 1904 its place was on 13, Moskovska Str., the house of foundation Vasiliadis
- 1904 – 1912 the address was 49, Moskovska Str., the first old building of the High School
- 1912 – 1931 the address was 17 San Stefano Str.
- 1931 – 1934 (or 1941) back to 49 Moskovska Str.
- 1934 (or 1941) – 1944 on the third floor in the *Students' Home*, 10 Narodno Sabranie Square.
- summer of 1944 – autumn of 1944 evacuated in the town of Stara Zagora
- the end of 1944 – 1948 professors' offices were in the building of Cinema Royal/Republic (now Theater of the Army) 98 Rakovski Str., classrooms were at 13 Moskovska Str., and 49 Moskovska Str.
- 1948 – 1951 professors' offices were moved in the building 2 (or 4) Stefan Karadja Str., on the fourth floor, the classrooms were left at 13 Moskovska Str., and 49 Moskovska Str.
- 1951 – 1960 classrooms and offices had moved in the new North part of the main building – the Rectorat of the University 15 Ruski Blvd.
- 1960 – 1971 in the building at 1 James Bourchier Blvd., and after 1971 in building at 5 James Bourchier Blvd.

Conclusion. The History of Science was one of the principal topics in the Educational program of the High School (the University). With this report we want to promote a project of digital presentation at the history of mathematics in Bulgaria including personal engagements, bibliography, high quality scanned publications and documents.

Acknowledgments. *The work on the paper was partially supported by appropriated State Funds for research allocated to Sofia University (contract No 204/2011), Bulgaria.*

References

1. Д. Христов (ред.), *Алманах на завършилите Софийския университет 1892 – 1963*, v. 1, София (2003).
2. *Алманах на Софийския университет (1888 - 1928)*, София, Университетска библ. **91** (1929).
3. Л. Илиев, *Сто години математика в Софийския университет*, СМБ, София (1990).
4. И. Чобанов, П. Русев (ред.), *Български математици*, Народна просвета, София (1981).
5. R. Стойков, Live and lifework of Vladislav Shack, *In the steps of the Czech Teachers in Bulgaria*, <http://for.sliven.info/teachers/shaken.htm>.
6. История, Факултет по математика и информатика, Софийски университет “Св. Климент Охридски”, <http://www.fmi.uni-sofia.bg/about/history>.