

Pages from the History of Education on Physics in Ruse

Nadezhda Nancheva

Angel Kanchev University of Ruse, Bulgaria
nancheva@uni-ruse.bg



Abstract. Ruse is the first town in Bulgaria with European vision in the 19th century. Unique Bulgarian newspaper was published in Ruse in that time. Agricultural and marine schools were appeared. The first Balkan railway from Ruse to Varna was built. Private bank, insurance agency and first chamber of commerce and industry were launched. First Bulgarian technical society and first professional teacher's club were created. Bookshop and Bulgarian weather service have opened. Metallic vessel has built. Moving pictures appeared in Ruse for the first time. Education on physics has long history in Ruse. Many generations of teachers taught physics there. It started in 1870, when municipality elaborated new curriculum. Many prominent physicists and mathematicians originated from Ruse. They distributed and developed physics in Bulgaria. Some of them are Stefan Lafchiev, Lazar Simidchiev, Dr. Michail Georgiev, Ruska Dragneva and Stoyan Petrov.

Keywords: Education, Physics, Ruse, Teachers.

"The history of a man is his memory". D. Talev

History of education on physics in Ruse is the history of organization of the educational process, creation and enrichment of physics laboratories and multi-sided out-of-school activities. It is inseparable part of the history of the town.

Education on physics started in Ruse when Bulgarian municipality introduced new curriculum in 1870. The teachers Tsani Ginchev, Dimitar Enchev, and Nestor Markov elaborated the program [1]. The curriculum determined physics to be taught in the last school year. Tsani Ginchev (1835 – 1894) was the first teacher on physics in Ruse. He taught physics only two years. He was Renaissance teacher, folklorist, writer, politician, and author of textbooks. He taught also natural philosophy, Bulgarian and ecclesiastical-Slavonic language. He was teacher in the male and female schools. Tsani Ginchev left Ruse in July 1872. The names of the teachers on physics are unknown after that.

Kuni Kutinchev (1852 – 1927) is one of the possible teachers on physics. He graduated of the agricultural school in Czech town Tabor by the expenditure of the Bulgarian municipality in Ruse. Since 1873, he was a teacher in the male school in Ruse. Later on, he became founder of the Physical and Mathematical Society in Sofia constituted on 2 February 1898, and treasurer-librarian of its first trusteeship.

Ivan Mavrov taught physics in Ruse in the period 1879 – 1882. He graduated from the Bolgrad secondary school (1876) and in the New Russian University in Odessa (1879) [2].

First professional schools opened in Ruse also. These were secondary agricultural school in Obratsov Chiflik (1883), state practical female school (1895) and private professional school for woman and children dressing (1895). The female school grew up into secondary school (1894 – 1895). Teachers on physics in that time (for two or three years) were Dimitar Berov (1889 – 1891), Stefan Lafchiev (1892 – 1894), Atanas Chakarov (1895 – 1898), and two Czechs. Carl Milde (1879 – 1887) and Vaclav Emler (1886 – 1909) graduated from the Prague Polytechnics [3]. They taught physics and mathematics. In 1900 Emler equipped physics laboratory for demonstration. New apparatuses came from Vienna [3].

Textbooks in physics used in the beginning were different. Some of them were French textbook *Experimental Physics* written by A. Ganot (1869) and Austrian textbook *Physics* written by D. Schubert (1872). Translator of the both textbooks was eminent schoolmaster

Yoakim Gruev (1828 – 1912). Christo Gruev Danov published them [4]. Method of education on physics was descriptive in the first years. The school year finished by examination. The excellent students received gift. Many authors wrote textbooks on the physics after the Liberation. Spas Vatsov (1856 – 1928) wrote one of the first textbook on physics for third grade (7 class now) (1884). It has five editions. Ludvig Lucash (1858 – 1902) and Pavel Jilkov wrote textbooks in physics for IV and V grade. Dimitar Berov (1889 – 1891) wrote textbooks in physics for IV and V grade too. Russian textbook in physics for VII grade, written by Kovalevski has translated in Bulgarian language. Michail Boyadjiev wrote textbook in physics for III grade. Lazar Simidchiev and Michail Boyadjiev wrote textbooks in physics for VI, VII and VIII grade on the Bulgarian secondary school. Todor Kolev, Kiril Seizov and Stefan Kozarov were authors of textbooks in physics during the next years [5].

Stefan Lafchiev, Lazar Simidchiev, Michail Georgiev, Ruska Dragneva and Stoyan Petrov left the most vivid traces among the many outstanding teachers in physics and mathematics. They contributed to the spread and development of physics, not only in Ruse but also in all country.

Stefan Lafchiev (1863 – 1941) was the teacher who has exclusively large merits in the development of education on physics in Bulgaria. He graduated from the Aprilov secondary school in Gabrovo and the University of Odessa where he studied physics and mathematics. He was schoolmaster consecutively in secondary schools in Sliven, Varna, Turnovo and Ruse. He taught physics in the secondary male school in Ruse two years (1892 – 1894) and was its director one year (1894 – 1895). He was vice-president of the permanent board of education and inspector on physics and mathematics in the Ministry of Education since the autumn of 1895. During the period from September 1897 to the end of 1899, he was first secretary of the Ministry, and since 1906 to 1909, he was chief of the school department of the Bulgarian exarchate in Tsarigrad [6].

Stefan Lafchiev was one of the founders of the Bulgarian Physical and Mathematical Society in Sofia (14th of February 1898). He was its president more than 30 years. The founders of the Society understood how important is the popularization of physics. In that reason, Society began to publish Bulletin six years after its establishment. Stefan Lafchiev was first editor and head of the editorial board for many years. His articles about application of mathematical methods in the education; relation between knowledge, skills, theory and experiment; about demonstration and individual practical investigations are interesting up to now [7]. He used scientific news in his lessons [8].

Lazar Simidchiev (1876 – 1926) graduated mathematics and physics from the Sofia University. He taught mathematics and physics in male school in Ruse 20 years (1901 – 1920) and headed also its laboratory on physics (from 1904/1905 to 1920). Special attention he gave to demonstration and considered to teach physics as an experimental science. For this purpose he initiated and equiped physics laboratory with 129 apparatuses (Coloumb's balances, accumulator, ammeter for constant current, microphone and telephone receiver) [3, 9].

Simidchiev often hold popular lectures and organised excursions. He supplied over 40 popular books on physics and astronomy in the school library. According to him, textbooks

on physics have the main importance for students preparation. He thought that the textbooks must reply to the pedagogical requirements. Together with Michail Boyadjiev, teacher in the third male school in Sofia, he wrote textbooks for VI, VII and VIII grade of the secondary school (1911). Several generations students used their textbooks up to 1927. The first two textbooks had six editions, the third textbook had four editions. His textbooks were “*very detailed and strong scientific course on physics*” [3] without defects [10]. His interest in mathematics was permanent. He compiled and published textbook on analytical geometry for the secondary school too (1912).

Dr. Michail Georgiev (1892 – 1978) graduated PhD from the Berlin University (1925). He obtained doctoral degree (4 August 1925) [11]. The topic of his dissertation was “*Über die plastische Dehnung von Bi-Kristallen*”. Max Planck and Walter Nernst were his referees. They gave very favorable response about the dissertation. He published his result named “*Bi monocystals*” in Bulgarian language later [12]. Because there were no vacancy for assistant professor in the Sofia University, Dr. Michail Georgiev could not realize his dream to consecrate himself to science. He was appointed for a teacher in male school in Ruse and taught physics there from 1927 to 1942. After one year break (when he was on a mission in the secondary school in Kavala, 1942/1943), he was a teacher again in the male school (1943 – 1944 as a schoolmaster), in the female school (1944 – 1954) and in the Evening secondary school up to going in pension (1958). Several years he was supplementary lecturer in the Technical University in Ruse [13]. Dr. Michail Georgiev consecrated to the teacher profession more than 30 years. He used epidiascope to show slides, photos, pictures and diagrams. Overcoming many difficulties, he introduced practical exercises on physics in the laboratory as part of the learning process for the first time in Ruse (1931), and perhaps in the country [3]. For his colleagues, he gave reports and lessons, published popular and educational papers, and wrote textbooks on physics for VIII grade (1956). He proposed differential and integral calculation to be used in the secondary physics [14]. Up to 1976, Michail Georgiev was the only doctor of physics in Ruse. Several doctoral dissertations of physics have defended in the Ruse University during the next years [15].

Ruska Dragneva (1914 – 1996) is eminent teacher, honorary member of the Union of Physicists in Bulgaria and honorary citizen of the town Ruse. More than 50 years she devoted to the educated of the young generation. Graduating physics in the Sofia University in 1939, she became a teacher in the Plovdiv male school. Two years later, she went in the Burgas female school and in 1943, she settled down in the male school of her native town Ruse. She was assistant professor on physics in the Technical University in Ruse (1947). When it was closed, she became a vice-director of the Technical school. Ruska Dragneva was a teacher in the Second polytechnic school from 1950 up to her retirement (20 years later). She posed the beginning of the systematic solution of problems on physics. Laboratory on physics has created in the school with her help. Several years she was methodologist on physics. Ruska Dragneva created first specialization in the country for excellent students on physics and headed this school quarter century after his retirement in 1970. She created her own methodology for development the students cognitive interests. Her methodology impart to the students skills for independent learning on physics. The results were 35 students in the National competition on physics, 17 students in the

International competitions in London, Moscow, Helsinki; 2 students were awarded first prize in Balkan competitions on physics. These successes are due to the hard work of students and her methodology to work with talented students. Ruska Dragneva is the author of articles, manuals and methodical collection of physical tasks. She popularised physics and astronomy. Her book “*Typical mistakes in solving problems and overcoming them*”, Ruse (1994) is very interesting. She was awarded “*Distinguished Teacher*” and “*National Teacher*” prizes. She has an unique dedication and love in physics.

Stoyan Petrov (1905 – 1991) studied secondary school in Kyustendil (1925) and graduated physics from the Sofia University (1929). He was assistant professor in the department of experimental physics under acad. Georgi Nadjakov leadership (1929 – 1932). Together with many other assistant professors he left the University because the world crisis. During the following two years he was teacher in Lom and Plovdiv, and later, after a competition, he was elected in male school in Sofia, which is the basic school of the probationer’s institute (1934). Simultaneously with his teacher’s work he gave lectures for teachers, wrote scientific popular papers, and papers devoted to the physical experiments and history of education on physics. He became member of the Editorial board of the Buletine of the Physical and Mathematical Society in Sofia since 1940. He was co-author of the textbook on physics for X grade [10]. By recommendation of the Faculty of Physics and Mathematics he has Humboldt specialization in Göttingen (1943 – 1944) under Robert Wihard Pole’s leadership. The “*Colour centers of alkaline-halogen crystals*” was the topic of his specialization. In the following years, he was associate (1945) and ordinary professor (1948) in Varna State University. When the University was closed down (1954), he went in the Ruse Univeristy. He headed the department of physics for 20 years up to his retirement in 1975. S. Petrov and his wife were the first ordinary lecturers and creators of the physics department there. Stoyan Petrov was a dean of the Mechanical Engineering Faculty and vice-rector of the University. The main field of his research were so called color centers in ionic crystals, which made him a notable scientist both in our country and abroad. The investigations of Stoyan Petrov in this field began in Germany, where he discovered new aggregate centers, called by him A, B, and C centers. The family Elisabeth and Stoyan Petrov created first spectral photometric installation for absorption lines in visible and infrared spectrum. The department became a center with international reputation where different properties of ionic crystals were studied for many years. The properties of color centers in alkali halides and their potential use as photochromic materials for information storage were investigated in wide spectral and temperature range and different intensities using recording and reading light. In fact, the first cycle read-write-delete based on $M \rightarrow F$ transition was accomplished by Stoyan Petrov in 1950. This method proposed by him for purification of water-soluble salts has implemented in production by agreement with the Ministry of Chemical Industry. Crystallization installation for especial pure substances above world level was created using this method. Stoyan Petrov has also a certain merit for the creation of the thermo-copying apparatus “*Infra 66*”, produced in Orgtechnics – Silistra.

Everybody who has the privilege to know him will remember Stoyan Petrov as an excellent pedagogue, founder of the branch of the Union of the Scientists in Ruse (1954) and long-time its president (up to 1974). His public activity was familiar with the democratic

ideas. He has active public life in Ruse with interesting lectures for students and citizens dedicated to the latest achievements in physics.

Translated by A. Karastoyanov

References

1. *Главна книга на Русенското класно училище за учебната 1879 – 1880 година, III и IV клас, Архив на СОУ “Христо Ботев”, Русе.*
2. *Годишен отчет за състоянието на Държавната мъжка гимназия “Княз Борис” (1896 – 1897), Русе (1897).*
3. *Юбилейна книга на Русенската народна мъжка гимназия “Княз Борис” по случай 50-годишнината на първия абитуриентски випуск, Русе (1935) 71-73.*
4. **М. Борисов, А. Ваврек, Г. Камишева**, *Основоположници на обучението по физика в България*, Изд. Народна просвета, София (1988).
5. **Х. Христов**, *Обучението по физика в гимназия “Баба Тонка”, Русе (2004).*
6. **Х. Христов**, Стефан Лафчиев и приносът му за обучението по физика – по случай 130-годишнината от рождението му, *Физика (1) 56-58 (1993).*
7. **С. Лафчиев**, Рапорт по ревизията на гимназиите по обучението по математика и физика направена през 1896 година, *Училищен преглед (4) (1897).*
8. **С. Лафчиев**, За преподаване на физиката, *Списание на ФМД в София (1) (1927).*
9. *Годишник на Русенската държавна мъжка гимназия “Княз Борис” за 1904 – 1905 година, Русе (1905) с. 47.*
10. **С. Петров**, Обучението по физика в нашите училища, *Юбилеен сборник на физико-математическото дружество в София* по случай 40-годишния му юбилей, София (1939) с. 40.
11. **М. Georgiev**, *Ueber die plastische Dehnung von Bi Kristallen*, Dissertation zur Erlangung der Doktorwürde genehmigt von der Hohen philosophischen Fakultät der Friedrich, Wilhelm, Universität zu Berlin (1925).
12. **М. Георгиев**, Пластичното деформиране на металните еднокристали, *Юбилеен сборник на физико-математическото дружество в София* по случай 40-годишния му юбилей, София (1939) 176-183.
13. **Х. Христов**, Д-р Михаил Георгиев – носител на европейски дух, *Физика (4) 58-60 (1993).*
14. **М. Георгиев**, Диференциално и интегрално смятане в гимназиалната физика, *Списание на физико-математическото дружество в София (7-8) с. 252 (1939).*
15. **Н. Нанчева**, Докторски дисертации по физика защитени от българи, свързани с обучението по физика в град Русе, Сб. доклади от 28 Национална конференция по физика, Свищов (2000) 338-344.