

Nikola Tesla from youth to age

He enrolled in the high Technical School in Graz 1875. In the first year he received a scholarship from the military Frontier, and the second year he was not given the scholarship because the military frontier was disarmed. He asked for a new scholarship in Novi Sad in 1876 and 1878, but he didn't get it. At the beginning of 1880 he went to Prague in a desire to continue his studies, but there was no record that he had completed his studies at which of the university. In 1881, he worked at the Central Telegraph office in Budapest, and then in the telephone company, in which he made a number of technical improvements. In the fall 1882. He took a job in Paris on Edison's phone branch. During his studies, he warned of the shortcomings of the DC electric motor. In Budapest he envisioned the application of multiphase alternating currents for the realization of a rotating magnetic field that would cause the rotation of the electric motor. In an effort to develop an imaginary system of alternating currents, he left 1884. In the United States, he received a recommendation from a director of Edison representation in Europe and was employed by the T. A. Edison, where he was presenting his ideas about production and cost-effective transmission of alternating currents, but did not encounter any understanding. In the year 1885. Tesla founded his own Tesla Electric Light and manufacturing Company in New York, and 1887. Tesla Electric Company, with a laboratory, in which he first constructed alternating current electromotors. In the autumn of the same year he reported the first patents on the production and transmission of multiphase alternating currents and their application for an efficient drive of alternating electromotors. These inventions showed that the alternating current is significantly more appropriate for most applications than DC. In order to create a rotating magnetic field in an electric motor, without the use of a commutator, it used a few pairs of coils, powered by alternating currents that were time-shifted, and differed in phases. For that, he had to construct a generator that produces a multiphase current. At first it was only two currents, but later it worked out systems with three, six, and more phased currents. The entire system included a two-phase alternating current generator and a motor with two coil-mounted pairs of coils, powered by such electricity. Tesla's electromotors for alternating currents (synchronous, asynchronous, and Cage) are easy to construct, and this means cheaper for the production and maintenance of those for direct current. American inventor and industrialist Mr. Westinghouse bought 1888 from Tesla to all patents of alternating currents. Tesla still performed experiments in the field of high frequency currents and their application for lighting. A noted lecture was held on 20th May 1891. At Columbia University in New York entitled experiments with currents with very high frequencies and their application in artificial lighting. Tesla's inventions were written by all the world's volumes, and Tesla held lectures throughout America and Europe. Almost everything he talked about was new, in every lecture he showed strange, always different experiments. In Paris he received news that his mother was dying, and he travelled to Gospic. On his way back, at the invitation of Mayor Mr. Amruš held on 24th May 1892, Tesla delivered his speech at the City Hall in Zagreb. The team raised the confidence of Engineers in Croatia to a high level and built and released the Hydro power plant for alternating current on the Krka just months after the one on the Niagara Falls. Tesla's multiphase electrical current system and its electric lighting showed Westinghouse at the Chicago 1893 World Exhibition, and proposed the Tesla system of alternating currents for the Niagara Falls plant. The plant was completed in 1896, and with it, a high-voltage power line (high voltage significantly decreased losses), it was supplied about 40 km away from the city of Buffalo, and then other cities followed the same example. At the same time, several hundred small power plants were deployed in New York, because it could only be transmitted for a distance of up to 3 km. In a few years, Tesla's system of multiphase alternating currents began to be used throughout the World, and over the course of more than a century it has basically not changed. Further investigations have taken Tesla into an area of electricity even higher frequencies, at even

higher voltage. By working with high-frequency currents, Tesla discovered, explored and applied many until then unknown phenomena and thus founded new branches of electrical engineering. In the year 1895 Tesla's lab had a fire, which destroyed all the devices, blueprints, archives and Tesla's personal belongings. In just a year he raised a new laboratory, in which with the transformer's very high ratio of transformation (later called the Tesla Transformer) he achieved very tall voltations and created very strong electric fields. In them, the electrical discharge was turbulent, similar to lightning, and the light pipes lit even though they were not connected to the conduits. In working with the high frequency currents, he found that they were not dangerous for humans with high volts, and predicted their application in treatment. Further investigations of Tesla have led to the idea that electric power can be transported over long distances without the use of electrical conductors using such strong high-frequency electromagnetic fields. The first step towards this goal was to wirelessly send the signal to remote places. He invented radiocommunications and remote control. He made a model of a ship using electrical signals to operate remotely, and it was showed to public in 1898 in New York. At that time, the other radio inventors transmitted signals at a distance of just a few kilometres. In basic patent, which reported 1897 and received 1900, the explanation states that the devices will have other useful applications such as signal transmission. As his attention was primarily focused on wireless electricity transmission, Tesla built in 1897 a large transmitter and reception station in Colorado Springs, and it perfected systems for wireless signal transmission and electricity, with the use of a voltage of several million volts. During the wireless transmission of remote electricity, the main difficulty was, and remained until today, a small system efficiency. For the imaginary World system, radio communications began in 1901 and a big radio station was built on Long Island, New York. A column 57 m high was built to replace antenna, at the top with a dome of wires, 20 m in diameter. All Tesla's inventions were free of charge. Due to the lack of understanding of investors for a system in which energy and signals would not be charged, construction in 1905 was suspended, and from the fear that the antenna would not have been used by German spies, it was blasted in 1917. The autobiography titled "My Inventions" wrote and published in 1919, and in the occasional conversation with the press, he had his ideas, among them the energy transfer was called Tesla's "rays of death".