

# Nikola Tesla

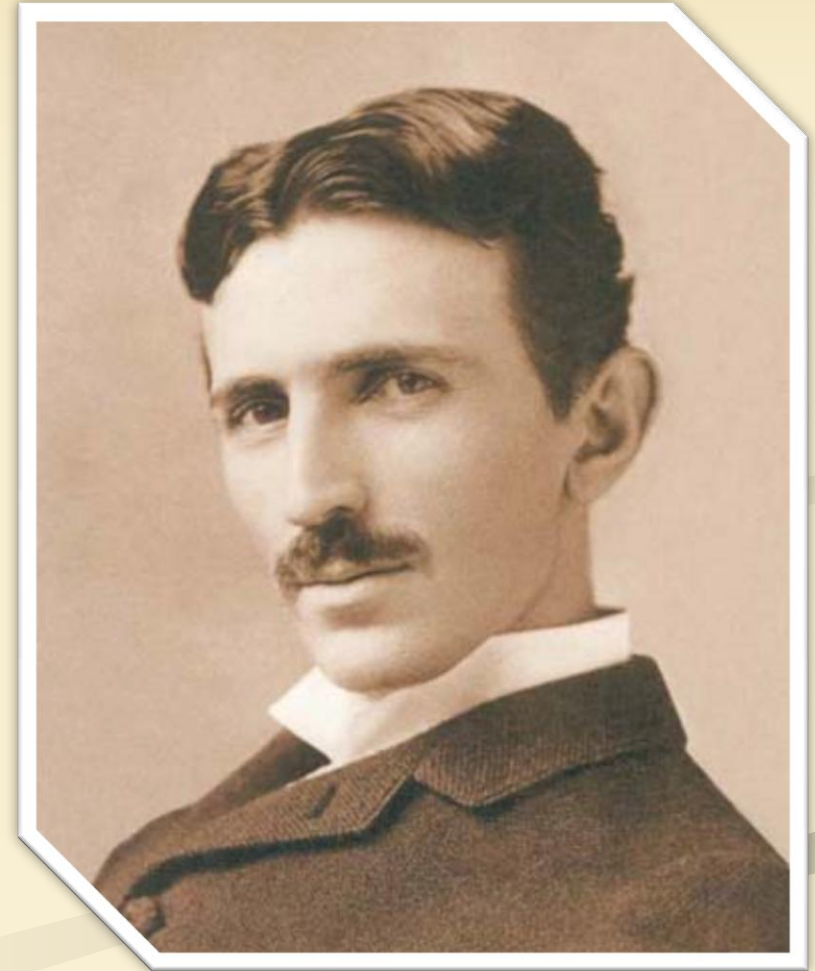
Alena Šolcová, CTU in Prague

*Nikola Tesla*



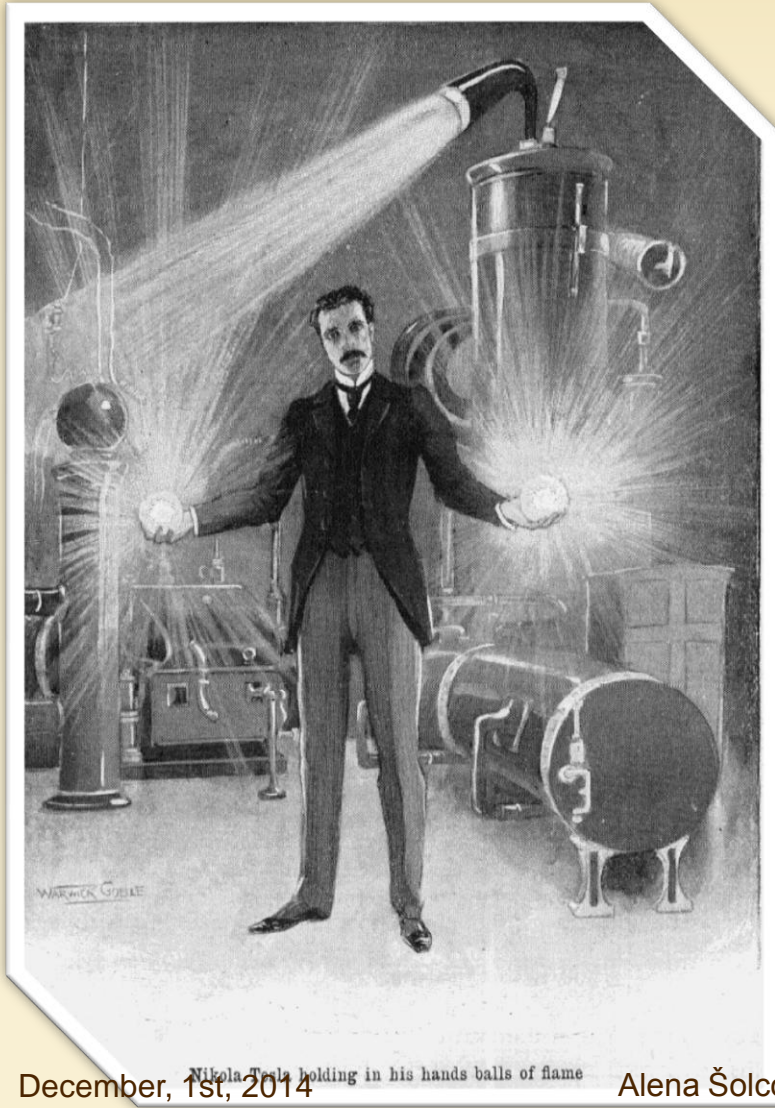
# Basic Facts

- Born on 10 July 1856 in Smiljan, Croatia.
- He was an inventor, mechanical engineer, and electrical engineer.
- Prague visited 2 times.
- Died on 7 January 1943 in New York.



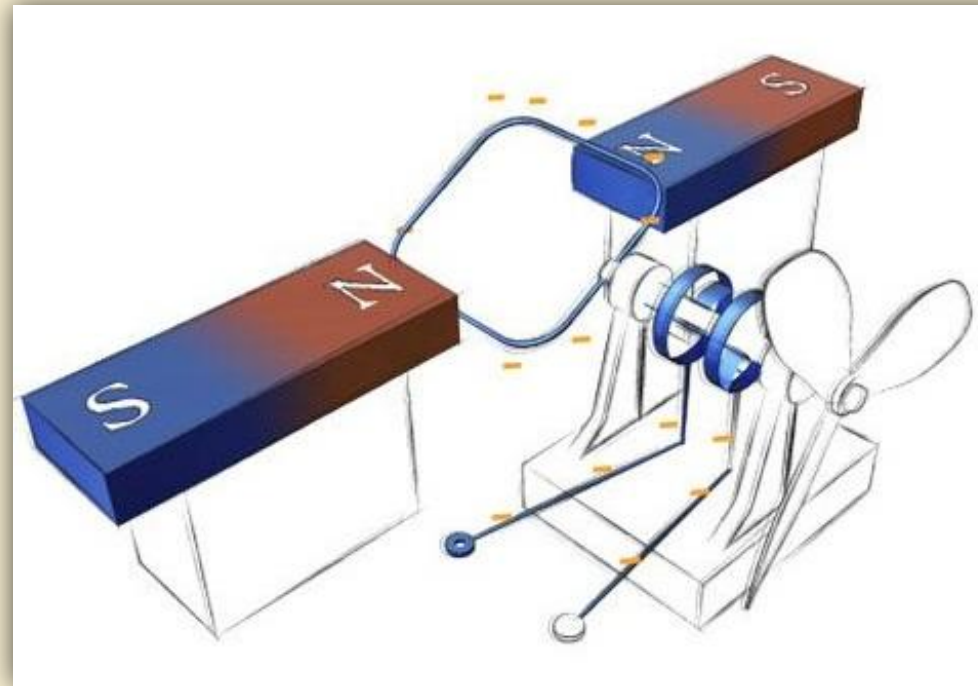
# About his work

- In addition to his work on electromagnetism and electromechanical engineering.
- Tesla contributed in varying degrees
  - to the establishment of robotics:
  - remote control,
  - radar,
  - computer science,
  - to the expansion of ballistics,
  - nuclear physics,
  - and theoretical physics.



# Inventions

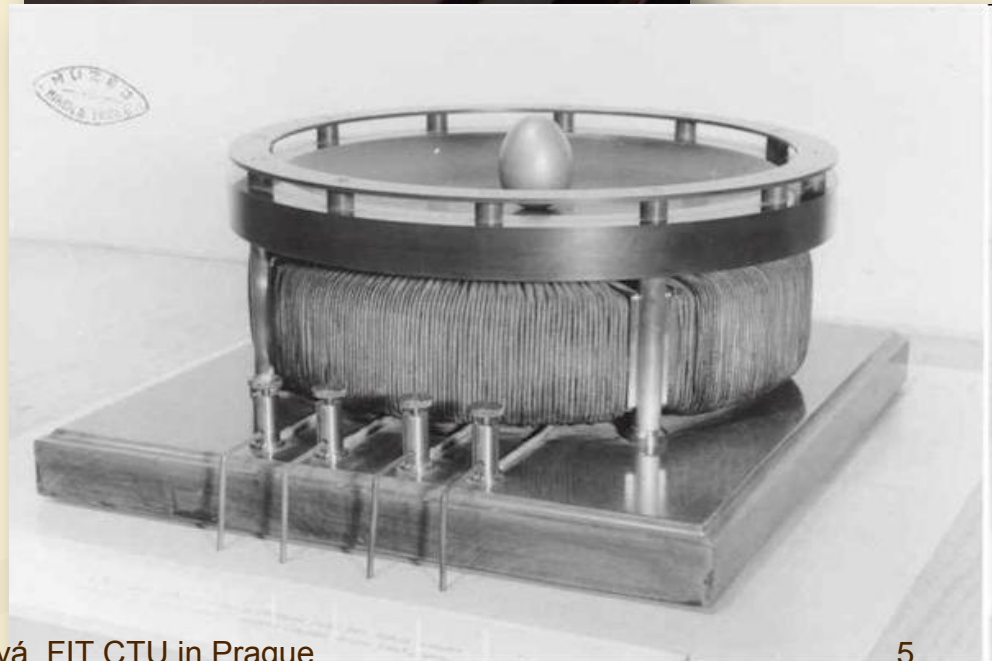
- He invented a rotating magnetic field and polyphase system of alternating currents.
- He had a theoretical invention of ion-propeller aircraft.



# Tesla's egg of Columbus

It was used to demonstrate and explain the principles of the rotating magnetic field model and the induction motor.

The egg spins on its major axis, standing on end due to gyroscopic action.





# Tesla's biggest invention

- **Wardenclyffe Tower** (1901–1917)  
also known as the **Tesla Tower**,  
was an early wireless  
telecommunications tower  
**designed by Nikola Tesla**  
and intended for commercial  
trans-Atlantic wireless  
telephony, broadcasting,  
and to demonstrate  
the transmission  
of power without  
interconnecting wires.  
The core facility was  
not completed due  
to financial problems  
and was never fully operational.



# Tesla's parents

- Tesla's **father Milutin** was an Orthodox priest, his **mother Georgina** Mandić (called Đuka) was uneducated but very intelligent.
- His family's first last name was **Draganić**.  
One of the assumptions was that Tesla's family carries a **name after a Roman settlement *Tesleum*** located near the place called *Raduč*.



# Tesla children

- One older brother **Dane**, who was killed in a horse-riding accident when Nikola was five.
- Three sisters –  
**Milka, Angelina, Marica**).





# Tesla's education

- He attended a german Primary school in **Smiljan**, and ended it in **Gospić**.  
Then he attended school at Higher Real Gymnasium in **Karlovac**.  
He finished a four-year term in the span of three years.  
Tesla then studied electrical engineering at the **Austrian Polytechnic in Graz** (1875).  
While there, he studied the uses of alternating current.  
Some sources say he received Baccalaureate degrees from the university at Graz. However, the university says that he did not receive a degree and did not continue beyond the first semester of his third year, during which he stopped attending lectures.

# Tesla and Prague

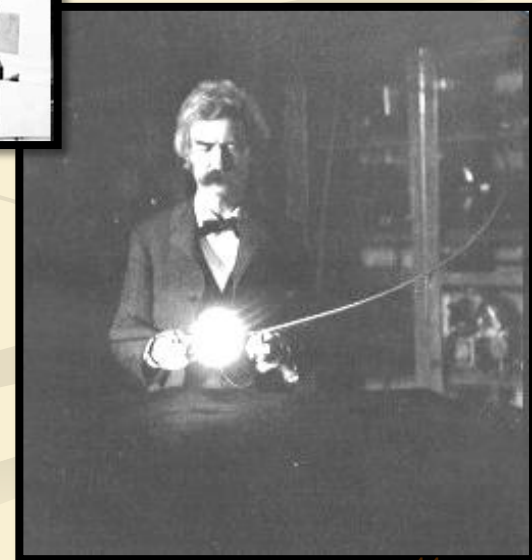
Tesla was later persuaded by his father to attend the Charles-Ferdinand University in Prague, which he attended for the summer term of 1880. Here, he was influenced by **Ernst Mach**.

However, after his father died, he left the university, having completed only one term.



# Tesla's friend

- In middle age, Tesla became close friends with **Mark Twain**.
- They spent a lot of time of time **together** in Tesla's lab and elsewhere.



# Animal-lover



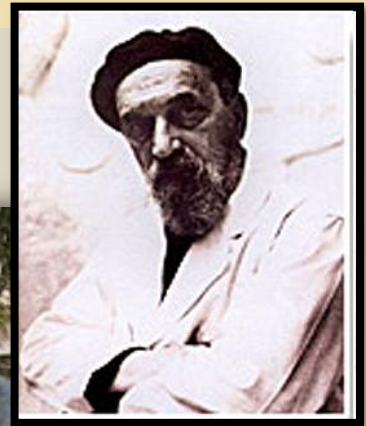
- Tesla was obsessed with pigeons, ordering special seeds for the **pigeons** he fed in Central Park and even bringing injured ones into his hotel room to nurse them back to health.



Tesla was an animal-lover, often reflecting contentedly about a childhood cat, **"The Magnificent cat"**.

# Tesla Statue

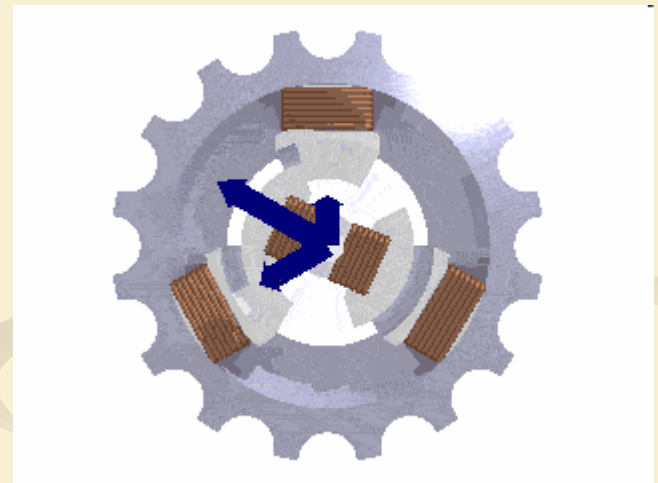
- He did not like posing for portraits, he did it only once for princess Vilma Lwoff-Parlaghy. His wish was to have a **sculpture** made by his friend, Croatian sculptor **Ivan Meštrović**, who was at that time in United States, but he died before getting a chance to see it.





# Tesla's life in France

- In 1882 he moved to Paris, to work as an engineer for the *Continental Edison Company*, designing improvements to electric equipment brought overseas from Edison's ideas.
- According to his autobiography, in the same year he conceived the induction motor and began developing various devices that use rotating magnetic fields for which he received patents in 1888.



# Tesla's life in the US

- On 6 June 1884, Tesla first arrived in the United States, in New York City with little besides a letter of recommendation from Charles Batchelor, a former employer. In the letter of recommendation to Thomas Edison, Batchelor wrote, *"I know two great men and you are one of them; the other is this young man."*

Edison hired Tesla to work for his *Edison Machine Works*. Tesla's work for Edison began with simple electrical engineering and quickly progressed to solving some of the company's most difficult problems. Tesla was even offered the task of completely redesigning the Edison company's direct current generators.

# Tesla's company

- **The Tesla Electric Light & Manufacturing** was a company formed by Nikola Tesla in 1886.

Located in Rahway, New Jersey, the company was formed after Tesla left Thomas Edison's employment, after a contractual disagreement.

Tesla planned to sell and license his patent and innovations. **Tesla invented an arc lamp of high efficiency;**

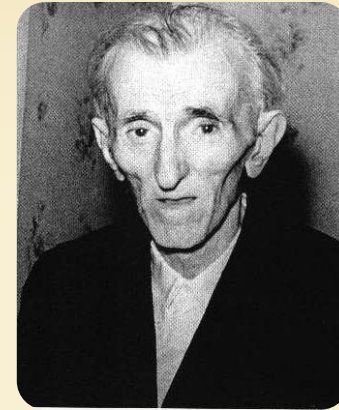
the carbon electrodes were controlled by electromagnets or solenoids and a clutch mechanism and had an automatic fail switch.

The company earned money, but most of the capital gained went to the investors.



# Tesla's Death

**Tesla** died of heart failure alone in room 3327 of the New Yorker Hotel, on 7 January 1943. Despite having sold his AC electricity patents, Tesla died with significant debts. Later that year the US Supreme Court upheld Tesla's patent number 645576 in a ruling that served as the basis for patented radio technology in the United States.



The urn with Tesla's ashes in Nikola Tesla Museum in Belgrade

# Magnetic Induction and othe honours

- From 1960  
the unit of magnetic induction – tesla.
- His name has one crater on the Moon.
- Minor planet No. 2244 is named Tesla.
- The Street in Prague





# Statues

- Serbia and USA - some monuments
- International airport **Beograd – Nikola Tesla's Airport & Museum**
- Tesla's monument - Niagara Falls (state New York).
- Queen Victoria Parc closed Niagara Falls (Canadian Ontario).
- **2014 - Prague 6 - memorial of Nikola Tesla**

# Tesla in Czechoslovakia

- Tesla lived in the former Czechoslovakia from 1936 to 1937.
- President Edvard Benesh decorated him with the Order of the White Lion, First Class.
- Tesla also received an honorary doctorate from the Czech Technical University in 1936.

# Prague

- From 1936 Doctor honoris causa (Dr.h.c.) of the Czech Technical University in Prague



# Where Tesla lived in Prague?

- The house at **79 Ve Smečkách** in Prague in which Nikola Tesla lived during his study in Prague.





# Not so far from our school





# The monument of Nikola Tesla unveiled in Prague, the biggest in the world

- On the initiative of the Croatian-Czech Society in Zagreb, the world's biggest monument of Nikola Tesla was unveiled in Nikola Tesla Street in Prague at the beginning of September 2014.
- The authors are the Czech sculptor **Stefan Milkov** and the Czech architect **Jiri Trojan**.
- The monument was set up by the City district Prague 6, and the City of Zagreb donated a part of the funds.



# Prague



December, 1st, 2014

Alena Šolcová, FIT CTU in Prague

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# Tesla's Monument

- The monument, weighing 5.4 tons and measuring 6x3x3 meters, is the work of two sculptors and architects, Stefan Milkov and Jiri Trojan, the release said.



# TESLA Company



- **TESLA** (originally named after Nikola Tesla, later explained as abbreviation from "***TE**chnika **SLA**boproudá*" - which means "weak-current technics") was a large, state-owned electrotechnical conglomerate in the former Czechoslovakia.



# Elektra

- The company was established as *Elektra* on 18 January 1921 and renamed TESLA on 7 March 1946. TESLA had a state-sponsored monopoly on electronics production in Czechoslovakia, and produced nearly all electronic products in the country until 1989. Many subsidiaries were created, including those at Liptovský Hrádok, Hradec Králové, Pardubice, Žďár nad Sázavou, Bratislava, and Nižná. Later, some of them were transformed into independent state-owned companies.



# One particular diode

- While the company's wide range of production was impressive, quantity usually did not meet the needs of industrial customers.

Many products gradually became obsolete simply because they were not updated; e.g. one particular type of diode was manufactured for over 30 years without modifications.

# Other products of company TESLA

- Other products, e.g. some kinds of SCRs or Power-Transistors were competitive with the world market and so TESLA was the supplier for all eastern Europe Countries.
- Some high quality products were even exported to western countries for example turntables NC 470 or NC 500 under mark Lenco.

- TESLA had to contend with both foreign and new domestic competition after the fall of communistic era in Czechoslovakia, and had difficulty competing effectively, which resulted in dramatic downsizing and privatization of the majority of its stores and production facilities.

**TESLA's logo** is a rare sight in the present-day Czech Republic and Slovakia, as only a few of its subsidiaries have survived. One of its former subsidiaries, JJ Electronic is known for its manufacture of vacuum tubes and TESLA Litovel is known for its manufacture of high end turntables known as Pro-Ject.

# American inventor E. Armstrong:

*"The World, I think,  
will wait a long time  
for Nikola Tesla's equal  
in achievement and imagination."*

