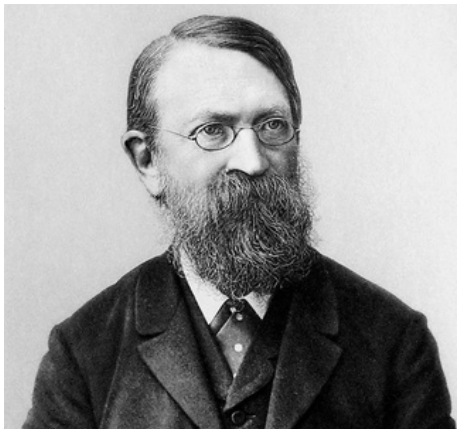
ESCAMPIG HERALD

ERNST MACH(*1838 †1916) LORD OF THE SOUND

Ernst Waldfried Joseph Wenzl Mach was a famous physicist born on 18th February 1838 in Chrlice. Nowadays, Chrlice is part of Brno. He studied at a high school in Kroměříž and graduated at the age of 17.

In 1855, he enrolled at the University of Vienna and graduated with his work on electric discharges and induction. He stayed at the University of Vienna as an assistant to Albert von Ettingshausen. He became an associate professor with a habilitation thesis on the Doppler effect.

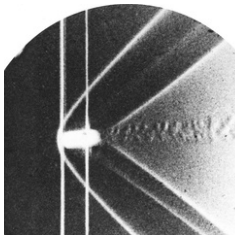


wikipedia.org

Mach became a professor of experimental physics at Charles University in Prague in 1867. At that time, it was called Karl-Ferdinand University.

His lectures, accompanied by well-premeditated experiments, soon gained a reputation for their excellence and pedagogical brilliance. Mach was elected as a rector of the university two times. However, during his second rectorship, he resigned after disapproving of the administrative procedures of the statutory division of the university into Czech and German parts in 1882.

In Prague, he worked on acoustic and optical experiments and invented new experimental methods in stroboscopy and photography. His advanced development led him to manufacture a device capable of photographing a flying bullet. It made the visualization of the sound waves of a supersonic bullet flight possible.



1888 photography of a supersonic bullet
wikipedia.org

Mach determined the angle of the wavefront relative to the direction of projectile motion by the ratio of the projectile's velocity to the speed of sound propagation in the environment. Since 1929, this ratio has been referred to as the Mach number.

One of his most significant scientific achievements was the experimental proof of the Doppler effect. He also wrote a renowned book on mechanics entitled 'Die Mechanik in ihrer Entwicklung,' published in 1883, where he criticized the foundations of Newtonian mechanics. He refused to accept the general theory of relativity and the concept of the molecular and atomic structure of substances.

WANTED

JURAJ ORSZÁGH
08:30

FILIPPO CICHOCKI
09:15

CROOKES PRIZE TALK

Plasma Catalysis for Sustainable Production of Fuels and Chemicals: Challenges and Perspectives

XIN TU 09:45

Xin Tu is a Chair Professor of Plasma Catalysis in the Department of Electrical Engineering and Electronics at the University of Liverpool, UK.

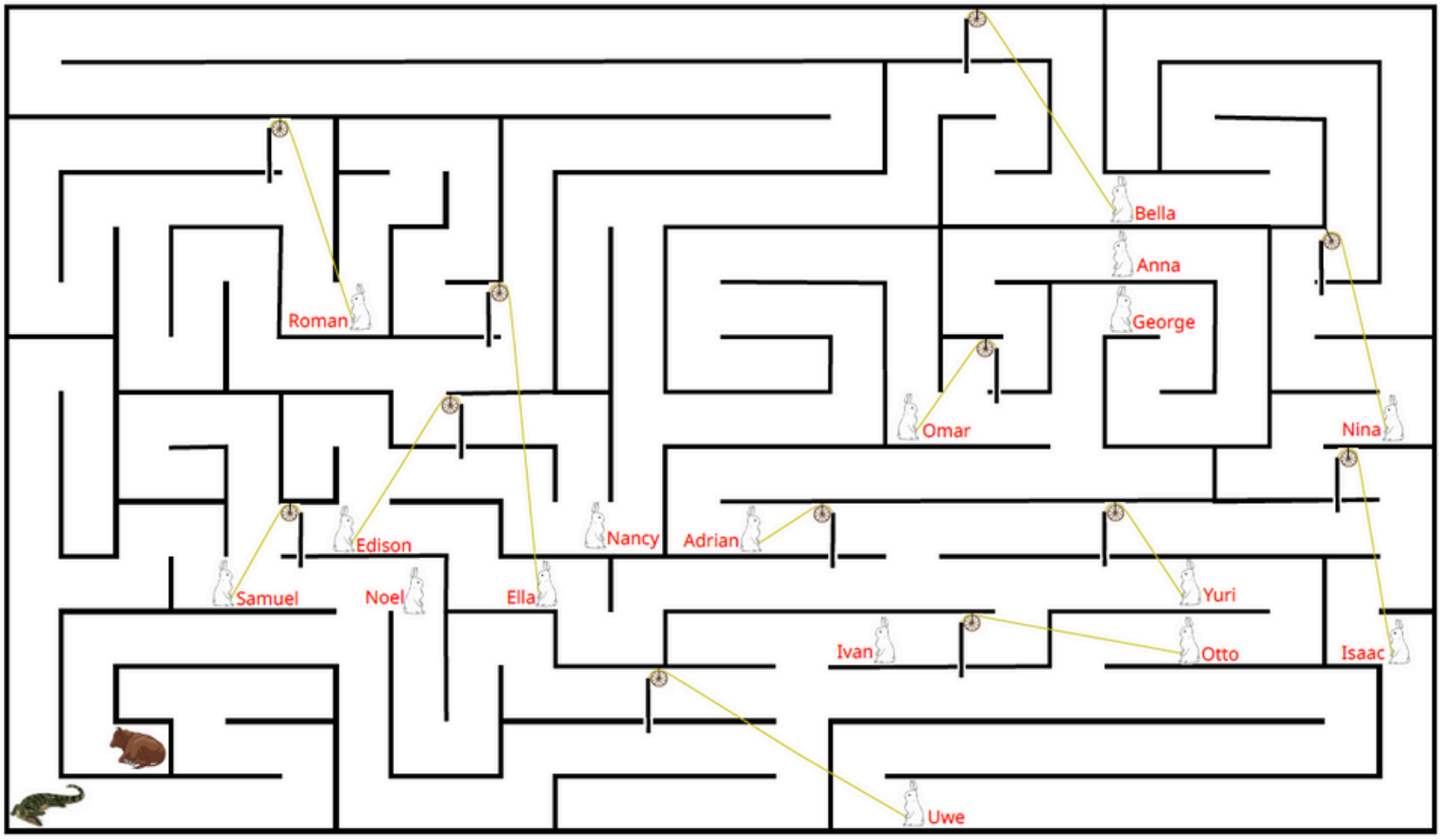
He has published over 220 research papers. He is the inventor of 5 PCT patents and is the Co-Founder of Plasma2X Ltd. (https://p2xinnovations.com).

THE LAST CIPHER

A wheel and a crocodile are two symbols of Brno, which remind us of two local legends. The second - the crocodile - resembles a dragon, which is said to have once terrorized Brno and its wide surroundings.

The dragon was defeated by a clever man, who fed dragon with a fake cow - a burnt lime was sewn into a cowhide. After the dragon gobbled the cow up and drank water from the Svratka river, the exothermic reaction of the burnt lime and water killed the dragon.

To say goodbye to Brno, show that you are as smart as the bygone savior of Brno and solve the following puzzle. The very last ESCAMPIG 2024 enigma was prepared by Pavel Dvořák.



CHESS CORNER

CAN YOU OUTTHINK THE ENGINE?

Computers are incredibly good at chess. It is unlikely that any human will ever beat a top computer in chess again. Even achieving a draw would be a tremendous achievement.

However, in special cases, a human can still play chess better than a computer.

In this position, White can probably win by force with a beautiful concept; the main line results in a checkmate in ten moves. However, Stockfish, the best chess engine in the world, can't find it.

Will you find it? Hint: the key is a beautiful queen and rook sacrifice. This chess piece puzzle was again prepared by Petr Bílek.