

This Day in History... November 28, 1954

Death of Enrico Fermi

On November 28, 1954, Nobel Prize-winning physicist Enrico Fermi died in Chicago, Illinois. His passing marked the end of the life of one of the most influential scientists of the 20th century—a man whose ideas shaped modern physics and whose work helped usher in the Atomic Age.

Enrico Fermi was born in Rome, Italy, on September 29, 1901. From an early age he showed a rare talent for mathematics and physics. Even as a child, he studied advanced textbooks for fun and built small scientific instruments with his older brother. His skill and curiosity impressed his teachers, and by 1918 he earned a prestigious fellowship to the Scuola Normale Superiore in Pisa, one of Italy's elite universities. Fermi excelled there and completed his doctorate in physics in 1922, graduating with the highest honors.

The following year, Fermi received a scholarship from the Italian government that allowed him to study abroad. He spent time in Göttingen, Germany, working with the famous physicist Max Born, who later won a Nobel Prize for his work in quantum mechanics. After that, Fermi earned a Rockefeller Fellowship and traveled to Leyden in the Netherlands, a city known for scientific research. These experiences gave him a broader view of physics at a time when the field was undergoing dramatic discoveries.

Between 1924 and 1926, Fermi worked as a lecturer in mathematical physics and mechanics at the University of Florence. During these years, he developed key ideas that helped launch his rise in the scientific world. In 1926, he discovered a statistical rule describing how certain particles distribute themselves among energy states in a system. These particles, which include electrons, protons, and neutrons, are now known as fermions, named in his honor. The rule became known as Fermi–Dirac statistics, because the English physicist Paul Dirac discovered a similar idea around the same time. This breakthrough became a cornerstone of modern quantum physics.



Issued in honor of President Eisenhower's "Atoms for Peace" speech to the UN.

In 1927, Fermi became a professor of theoretical physics at the University of Rome, a position he held until 1938. During this important period, he led a group of young scientists who would later become famous themselves. At first, he focused on electrodynamics and spectroscopy, but he soon turned his attention to the atomic nucleus. His research on beta decay helped explain how certain radioactive atoms change into different elements. Fermi also discovered that almost any element could undergo nuclear transformation when bombarded with neutrons. This work led directly to the discovery of slow neutrons, which are crucial in producing nuclear fission. These discoveries opened the door to creating elements beyond the natural Periodic Table and laid the scientific foundation for nuclear power. For these achievements, Fermi received the 1938 Nobel Prize in Physics.

However, the late 1930s were a dangerous time in Italy. Fermi's wife, Laura, was Jewish, and Italy's fascist leader Benito Mussolini had begun to support anti-Jewish laws. Concerned for his family's safety and the country's direction, Fermi decided to leave Italy. After accepting his Nobel Prize in Sweden, he traveled to the United States and did not return to Europe.

In America, Fermi became a professor of physics at Columbia University in New York. His most famous achievement occurred on December 2, 1942, at the University of Chicago. There, in a squash court beneath the football stadium, Fermi led a team that produced the first controlled nuclear chain reaction. This experiment proved that nuclear energy could be released in a steady and controllable way. Fermi later became one of the leading scientists on the Manhattan Project, which developed the atomic bombs used on Hiroshima and Nagasaki during World War II.

Fermi became a US citizen in 1944. Two years later, he joined the newly created Institute for Nuclear Studies at the University of Chicago. In the final years of his life, he focused on high-energy physics, including the study of pion–nucleon interactions, and explored the mysteries of cosmic rays that reach Earth from outer space.

Sadly, Fermi was diagnosed with stomach cancer in 1954. After an exploratory operation in October, he died just weeks later, on November 28, at the age of 53.

Throughout his career, Fermi received many major scientific awards, including the Matteucci Medal, Hughes Medal, Franklin Medal, Rumford Prize, and the Medal for Merit. His legacy continues in the many institutions and discoveries named after him: the Fermilab particle accelerator in Illinois, the Fermi Gamma-Ray Space Telescope, several nuclear reactors and power plants, and even an element on the Periodic Table—fermium. Since 1956, the US Atomic Energy Commission's highest honor has been known simply as the Fermi Award, a fitting tribute to a scientist who changed the world.



Stamp issued on Fermi's 100th birthday.

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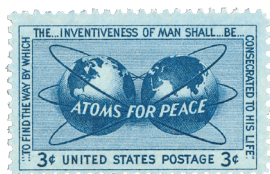
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