

Albert Einstein (1879-1955)

Albert Einstein was a German-born theoretical physicist who developed the theory of relativity, one of the two pillars of modern physics (alongside quantum mechanics). Born on March 14, 1879, in Ulm, Germany, Einstein is widely acknowledged as one of the greatest physicists of all time.

Key Contributions

- **Theory of Relativity**: In 1905, Einstein published his special theory of relativity, and expanded it to his general theory of relativity in 1915. These theories revolutionized our understanding of space, time, gravity, and the universe. - **Mass-Energy Equivalence**: Formulated the famous equation $E=mc^2$, which demonstrates the relationship between mass and energy. - **Photoelectric Effect**: Explained the photoelectric effect in 1905, proposing that light consists of discrete quantized packets (photons), which contributed significantly to quantum theory and earned him the 1921 Nobel Prize in Physics. - **Brownian Motion**: Provided empirical evidence for the existence of atoms through his work on Brownian motion.

Personal Life

Einstein was born to a Jewish family but was not religiously observant. He attended school in Munich and later in Switzerland, where he graduated from the Swiss Federal Polytechnic in Zurich in 1900. After struggling to find academic employment, he worked at the Swiss Patent Office while pursuing his research.

Einstein married twice, first to Mileva Marić, with whom he had three children, and later to his cousin Elsa Löwenthal. His personal letters revealed complex relationships and the challenges of balancing family life with scientific pursuit.

Later Years and Legacy

In 1933, while visiting the United States, Einstein decided not to return to Germany due to the rise of the Nazi party. He accepted a position at the Institute for Advanced Study in Princeton, New Jersey, where he worked until his death.

Despite being a pacifist, Einstein famously wrote to President Roosevelt warning about the possibility of Germany developing atomic weapons, which influenced the creation of the Manhattan Project. However, he later advocated for nuclear disarmament and international cooperation.

Einstein died on April 18, 1955, in Princeton, New Jersey. His brain was preserved for scientific study. Beyond his scientific contributions, Einstein's name has become synonymous with genius. His disheveled appearance, humanitarian outlook, and quotable wisdom have made him an iconic figure in popular culture.

His work continues to influence physics research, and his theories have been repeatedly confirmed through numerous experimental tests. The discovery of gravitational waves in 2015, a century after Einstein predicted them, stands as a testament to his extraordinary scientific vision.