**Albert Einstein**

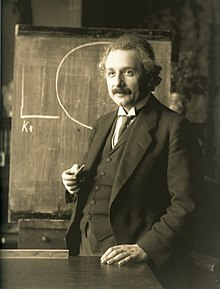
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Albert Einstein (14 March 1879 – 18 April 1955) was a German-born [theoretical physicist](https://en.wikipedia.org/wiki/Theoretical_physics), widely acknowledged to be one of the greatest physicists of all time. Einstein is known for developing the [theory of relativity](https://en.wikipedia.org/wiki/Theory_of_relativity), but he also made important contributions to the development of the theory of [quantum mechanics](https://en.wikipedia.org/wiki/Quantum_mechanics).



Throughout his life, Einstein published hundreds of books and articles. He published more than 300 scientific papers and 150 non-scientific ones. On 5 December 2014, universities and archives announced the release of Einstein's papers, comprising more than 30,000 unique documents. Einstein's intellectual achievements and originality have made the word "Einstein" synonymous with "[genius](https://en.wikipedia.org/wiki/Genius)".

In 1905, a year sometimes described as his [*annus mirabilis*](https://en.wikipedia.org/wiki/Annus_mirabilis) ('miracle year'), Einstein published four groundbreaking papers. These outlined the theory of the photoelectric effect, explained [Brownian motion](https://en.wikipedia.org/wiki/Brownian_motion), introduced [special relativity](https://en.wikipedia.org/wiki/Special_relativity), and demonstrated mass-energy equivalence. Einstein thought that the laws of [classical mechanics](https://en.wikipedia.org/wiki/Classical_mechanics) could no longer be reconciled with those of the [electromagnetic field](https://en.wikipedia.org/wiki/Electromagnetic_field), which led him to develop his special theory of relativity.

These four works contributed substantially to the foundation of [modern physics](https://en.wikipedia.org/wiki/History_of_physics#Modern_physics) and changed views on [space](https://en.wikipedia.org/wiki/Space), time, and [matter](https://en.wikipedia.org/wiki/Matter). The four papers are:

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| **Title (translated)** | **Significance** |
| "On a Heuristic Viewpoint Concerning the Production and Transformation of Light" | Resolved an unsolved puzzle by suggesting that energy is exchanged only in discrete amounts ([quanta](https://en.wikipedia.org/wiki/Quantum)). This idea was pivotal to the early development of quantum theory. |
| "On the Motion of Small Particles Suspended in a Stationary Liquid, as Required by the Molecular Kinetic Theory of Heat" | Explained empirical evidence for the [atomic theory](https://en.wikipedia.org/wiki/Atomic_theory), supporting the application of [statistical physics](https://en.wikipedia.org/wiki/Statistical_physics). |
| "On the Electrodynamics of Moving Bodies" | Reconciled Maxwell's equations for electricity and magnetism with the laws of mechanics by introducing changes to mechanics, resulting from analysis based on empirical evidence that the speed of light is independent of the motion of the observer. Discredited the concept of a "[luminiferous ether](https://en.wikipedia.org/wiki/Luminiferous_ether)". |
| "Does the Inertia of a Body Depend Upon Its Energy Content?" | Equivalence of matter and energy, ***E = mc2*** (and by implication, the ability of gravity to "bend" light), the existence of "[rest energy](https://en.wikipedia.org/wiki/Rest_energy)", and the basis of nuclear energy. |

He then extended the theory to gravitational fields; he published a paper on [general relativity](https://en.wikipedia.org/wiki/General_relativity) in 1916, introducing his theory of gravitation. In 1917, he applied the general theory of relativity to model the structure of the universe. He continued to deal with problems of [statistical mechanics](https://en.wikipedia.org/wiki/Statistical_mechanics) and quantum theory, which led to his explanations of particle theory and the [motion of molecules](https://en.wikipedia.org/wiki/Brownian_motion). He also investigated the thermal properties of light and the quantum theory of radiation, which laid the foundation of the [photon](https://en.wikipedia.org/wiki/Photon) theory of light. However, for much of the later part of his career, he worked on two ultimately unsuccessful endeavors. First, despite his great contributions to quantum mechanics, he opposed what it evolved into, objecting that nature "does not play dice". Second, he attempted to devise a [unified field theory](https://en.wikipedia.org/wiki/Unified_field_theory) by generalizing his geometric theory of gravitation to include electromagnetism. As a result, he became increasingly isolated from the mainstream of modern physics.

Source: Wikipedia ([Albert Einstein](https://en.wikipedia.org/wiki/Albert_Einstein))