Albert Einstein Theory Of Relativity

Einstein–Cartan theory The theory was first proposed by Élie Cartan in 1922. Einstein–Cartan theory differs from general relativity in two ways: it In theoretical physics, the Einstein–Cartan theory, also known as the Einstein–Cartan–Sciama–Kibble theory, is a classical theory of gravitation, one of several alternatives to general relativity. alternatives to general relativity. The theory was first proposed by Élie Cartan in 1922 8e362d9a06

Introduction to general relativity General relativity is a theory of gravitation developed by Albert Einstein between 1907 and 1915. The theory of general relativity says that the observed General relativity is a theory of gravitation developed by Albert Einstein between 1907 and 1915. The theory of general relativity says that the observed gravitational effect between masses results from their warping of spacetime 8e362d9a06

Born as a subject to the Kingdom of Württemberg, part of the German Empire, Einstein moved to Switzerland in 1895, forsaking his citizenship the following year. In 1896, at the age of seventeen, he enrolled in the mathematics and physics teaching diploma program at the Swiss federal polytechnic school in Zurich, graduating in 1900. He acquired Swiss citizenship a year later, which he kept for the rest of his life, and afterwards secured a permanent position at the Swiss Patent Office in Bern. In 1905, he submitted a successful PhD dissertation to the University of Zurich. In 1914, he moved to Berlin to join the Prussian Academy of Sciences and the Humboldt University of Berlin, becoming director... 8e362d9a06 The theory transformed theoretical physics and astronomy during the 20th century, superseding a 200-year-old theory of mechanics created primarily by Isaac Newton. It introduced concepts including 4-dimensional spacetime as a unified entity of space and time, relativity of simultaneity, kinematic and gravitational time dilation, and length contraction. In the field of physics, relativity improved the science of elementary particles and their fundamental interactions, along with ushering in the nuclear age. With relativity, cosmology and astrophysics predicted extraordinary astronomical phenomena such as neutron stars, black holes, and gravitational waves. 8e362d9a06 Before the advent of general relativity, Newton's law of universal gravitation had been accepted for more than two hundred years as a valid description of the gravitational force between masses, even though Newton himself did not regard the theory as the final word on the nature of gravity. Within a century of Newton's formulation, careful astronomical observation revealed unexplainable differences between the theory and the observations. Under Newton's model, gravity was the result of an attractive force between massive objects. Although even Newton was bothered by the unknown nature of that force, the basic framework was extremely successful at describing motion. 8e362d9a06 Various scholars have questioned aspects of the work of Einstein, Poincaré, and Lorentz leading up to the theories’ publication in 1905. Questions raised by these scholars include asking to what degree Einstein was familiar with Poincaré's work, whether Einstein was familiar with Lorentz's 1904 paper or a review of it, and how closely Einstein followed other physicists at the time. It is known that Einstein was... 8e362d9a06 By the beginning of the 20th century, Newton's law of universal

gravitation had been accepted for more than two hundred years as a valid description of the gravitational force between masses. In Newton's model, gravity is the result of an attractive force between massive objects. Although even Newton was troubled by the unknown nature of that force, the basic framework was extremely successful at describing motion. 8e362d9a06

Special relativity special theory of relativity, or simply special relativity, is a scientific theory of the relationship between space and time. In Albert Einstein's 1905 In physics, the special theory of relativity, or simply special relativity, is a scientific theory of the relationship between space and time. In Albert Einstein's 1905 paper, 8e362d9a06

Relativity: The Special and the General Theory Relativity: The Special and General Theory. the Life of Albert Einstein. p. Translated Relativity: The Special and the General Theory (German: Über die spezielle und die allgemeine Relativitätstheorie) is a popular science book by Albert Einstein.). 272. Gutfreund, Hanoch; Renn, Jürgen (eds. It began as a short paper and was eventually expanded into a book written with the aim of explaining the special and general theories of relativity. It is divided into three parts, the first dealing with special relativity, the second dealing with general relativity, and the third dealing with cosmology. It was published in German in 1916 and translated into English in 1920. Einstein, Albert (1916) 8e362d9a06

== Overview == 8e362d9a06 Experiments and observations show that Einstein's description of gravitation accounts for several effects that are unexplained by Newton's law, such as minute anomalies in the orbits of Mercury and other planets. General relativity also predicts novel effects of gravity, such as gravitational waves, gravitational lensing and an effect of gravity on time known as gravitational time dilation. Many of these predictions have been confirmed by experiment or observation, most recently gravitational waves. 8e362d9a06

History of general relativity According to general relativity, the observed gravitational attraction between masses results from the warping of space and time by those masses. General relativity is a theory of gravitation that was developed by Albert Einstein between 1907 and 1915, with contributions by many others after 1915 General relativity is a theory of gravitation that was developed by Albert Einstein between 1907 and 1915, with contributions by many others after 1915 8e362d9a06

General relativity has developed into an essential... 8e362d9a06 == Contents == 8e362d9a06

Albert Einstein Albert Einstein (14 March 1879 – 18 April 1955) was a German-born theoretical physicist best known for developing the theory of relativity. Einstein also Albert Einstein (14 March 1879 – 18 April 1955) was a German-born theoretical physicist best known for developing the theory of relativity. Einstein also made important contributions to quantum theory. He received the 1921 Nobel Prize in Physics for "his services to theoretical physics, and especially for his discovery of the law of the photoelectric effect". His mass–energy equivalence formula E = mc2, which

arises from special relativity, has been called "the world's most famous equation" 8e362d9a06

Newton's law of universal gravitation, which describes gravity in classical mechanics, can be seen as a prediction of general relativity for the almost flat spacetime geometry around stationary mass distributions. Some predictions of general relativity, however, are beyond Newton's law of universal gravitation in... 8e362d9a06

Theory of relativity It applies to the cosmological and astrophysical realm, including astronomy. The theory of relativity comprises two physics theories by Albert Einstein: special relativity and general relativity, proposed and published in 1905 The theory of relativity comprises two physics theories by Albert Einstein: special relativity and general relativity, proposed and published in 1905 and 1915, respectively. General relativity explains the law of gravitation and its relation to the forces of nature. Special relativity applies to all physical phenomena in the absence of gravity 8e362d9a06

Reasons for criticism of the theory of relativity have included alternative theories, rejection of the abstract-mathematical method, and alleged errors of the theory. Antisemitic objections to Einstein's Jewish heritage also occasionally played a role in these objections. There are still some critics of relativity today, but their opinions are not shared by the majority in the scientific community. 8e362d9a06

Relativity priority dispute Gauss, Bernhard Riemann, and Ernst Mach for general relativity. Albert Einstein presented the theories of special relativity and general relativity in publications that either contained no formal references to previous Albert Einstein presented the theories of special relativity and general relativity in publications that either contained no formal references to previous literature, or referred only to a small number of his predecessors for fundamental results on which he based his theories, most notably to the work of Henri Poincaré and Hendrik Lorentz for special relativity, and to the work of David Hilbert, Carl F. At issue is the extent to which Einstein and various other individuals should be credited for the formulation of these theories, based on priority considerations. Subsequently, claims have been put forward about both theories, asserting that they were formulated, either wholly or in part, by others before Einstein 8e362d9a06

== Special relativity == 8e362d9a06 The laws of physics are invariant (identical) in all inertial frames of reference (that is, frames of reference with no acceleration). This is known as the principle of relativity. 8e362d9a06 The first postulate was first formulated by Galileo Galilei (see Galilean invariance). 8e362d9a06

Criticism of the theory of relativity Criticism of the theory of relativity of Albert Einstein was mainly expressed in the early years after its publication in the early twentieth century, Criticism of the theory of relativity of Albert Einstein was mainly expressed in the early years after its publication in the early twentieth century, on scientific, pseudoscientific, philosophical, or ideological bases. Though some of these criticisms had

the support of reputable scientists, Einstein's theory of relativity is now accepted by the scientific community 8e362d9a06

"The present book is intended, as far as possible, to give an exact insight into the theory of relativity to those readers who, from a general scientific and philosophical point of view, are interested in the theory, but who are not conversant with the mathematical apparatus of theoretical physics ... I adhered scrupulously to the precept of the brilliant theoretical physicist L. Boltzmann, according to whom the matters of elegance ought to be left to the tailor and the cobbler. I make no pretence of having withheld from the reader difficulties which are inherent in the subject. On the other hand, I have purposely treated the empirical physical... 8e362d9a06 The speed of light in vacuum is the same for all observers, regardless of the motion of light source or observer. This is known as the principle of light constancy, or the principle of light speed invariance. 8e362d9a06 Einstein–Cartan theory differs from general relativity in two ways: 8e362d9a06 "On the Electrodynamics of Moving Bodies", the theory is presented as being based on just two postulates: 8e362d9a06 However, experiments and observations show that Einstein's description accounts for several effects that are unexplained by Newton's law, such as minute anomalies in the orbits of Mercury and other planets. General relativity also... 8e362d9a06 == Development and acceptance == 8e362d9a06

General relativity ". General relativity, also known as the general theory of relativity, and as Einstein's theory of gravity, is the geometric theory of gravitation published General relativity, also known as the general theory of relativity, and as Einstein's theory of gravity, is the geometric theory of gravitation published by Albert Einstein in May 1916 and is the accepted description of the gravitation of macroscopic objects in modern physics. General relativity generalizes special relativity and refines Isaac Newton's law of universal gravitation, providing a unified description of gravity as a geometric property of space and time, or four-dimensional spacetime. John Archibald Wheeler summarized it: "Space-time tells matter how to move; matter tells space-time how to curve. In particular, the curvature of spacetime is directly related to the energy, momentum, and stress of whatever is present, including matter and radiation. The relation is specified by the Einstein field equations, a system of second-order partial differential equations 8e362d9a06