Engineering Physics 1st Year Experiment

National Spherical Torus Experiment

Torus Experiment (NSTX) is a magnetic fusion device based on the spherical tokamak concept. It was constructed by the Princeton Plasma Physics Laboratory

The National Spherical Torus Experiment (NSTX) is a magnetic fusion device based on the spherical tokamak concept. It was constructed by the Princeton Plasma Physics Laboratory (PPPL) in collaboration with the Oak Ridge National Laboratory, Columbia University, and the University of Washington at Seattle. It entered service in 1999. In 2012 it was shut down as part of an upgrade program and became NSTX-U, U for Upgrade.

Like other magnetic confinement fusion experiments, NSTX studies the physics principles of thermonuclear plasmas—ionized gases with sufficiently high temperatures and densities for nuclear fusion to occur—which are confined in a magnetic field.

The spherical tokamak design implemented by NSTX is an offshoot of the conventional tokamak. Proponents claim that spherical tokamaks...

History of physics

quantum era Physics portal Science portal List of experiments in physics List of important publications in physics List of Nobel laureates in Physics List of

Physics is a branch of science in which the primary objects of study are matter and energy. These topics were discussed across many cultures in ancient times by philosophers, but they had no means to distinguish causes of natural phenomena from superstitions.

The Scientific Revolution of the 17th century, especially the discovery of the law of gravity, began a process of knowledge accumulation and specialization that gave rise to the field of physics.

Mathematical advances of the 18th century gave rise to classical mechanics, and the increased used of the experimental method led to new understanding of thermodynamics.

In the 19th century, the basic laws of electromagnetism and statistical mechanics were discovered.

At the beginning of the 20th century, physics was transformed by the discoveries...

Michelson–Morley experiment

Kennedy–Thorndike experiments, Michelson–Morley type experiments form one of the fundamental tests of special relativity. Physics theories of the 19th

The Michelson–Morley experiment was an attempt to measure the motion of the Earth relative to the luminiferous aether, a supposed medium permeating space that was thought to be the carrier of light waves. The experiment was performed between April and July 1887 by American physicists Albert A. Michelson and Edward W. Morley at what is now Case Western Reserve University in Cleveland, Ohio, and published in November of the same year.

The experiment compared the speed of light in perpendicular directions in an attempt to detect the relative motion of matter, including their laboratory, through the luminiferous aether, or "aether wind" as it was sometimes called. The result was negative, in that Michelson and Morley found no significant difference between the speed of light in the direction of...

Timeline of fundamental physics discoveries

Democritus: Atomism via thought experiment 384–322 BCE – Aristotle: Aristotelian physics, earliest effective theory of physics c. 300 BCE – Euclid: Euclidean

This timeline lists significant discoveries in physics and the laws of nature, including experimental discoveries, theoretical proposals that were confirmed experimentally, and theories that have significantly influenced current thinking in modern physics. Such discoveries are often a multi-step, multi-person process. Multiple discovery sometimes occurs when multiple research groups discover the same phenomenon at about the same time, and scientific priority is often disputed. The listings below include some of the most significant people and ideas by date of publication or experiment.

Academy for Mathematics, Science, and Engineering

The Academy for Mathematics, Science, and Engineering (AMSE) is a four-year magnet public high school program intended to prepare students for STEM careers

The Academy for Mathematics, Science, and Engineering (AMSE) is a four-year magnet public high school program intended to prepare students for STEM careers. Housed on the campus of Morris Hills High School in Rockaway, in the U.S. state of New Jersey, it is a joint endeavor between the Morris County Vocational School District and the Morris Hills Regional District.

AMSE is one of 17 vocational academies under the Morris County Vocational School District, which administers the admissions process for prospective AMSE students. The program started in 2000 with an initial class size of 26, but in 2017, the class size was increased to 48 students.

As of the 2023–24 school year, the school had an enrollment of 180 students.

Time in physics

In physics, time is defined by its measurement: time is what a clock reads. In classical, non-relativistic physics, it is a scalar quantity (often denoted

In physics, time is defined by its measurement: time is what a clock reads. In classical, non-relativistic physics, it is a scalar quantity (often denoted by the symbol

t

{\displaystyle t}

) and, like length, mass, and charge, is usually described as a fundamental quantity. Time can be combined mathematically with other physical quantities to derive other concepts such as motion, kinetic energy and time-dependent fields. Timekeeping is a complex of technological and scientific issues, and part of the foundation of recordkeeping.

Theory of relativity

astronomy. The theory transformed theoretical physics and astronomy during the 20th century, superseding a 200-year-old theory of mechanics created primarily

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

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...

List of unsolved problems in physics

unsolved problems grouped into broad areas of physics. Some of the major unsolved problems in physics are theoretical, meaning that existing theories

The following is a list of notable unsolved problems grouped into broad areas of physics.

Some of the major unsolved problems in physics are theoretical, meaning that existing theories are currently unable to explain certain observed phenomena or experimental results. Others are experimental, involving challenges in creating experiments to test proposed theories or to investigate specific phenomena in greater detail.

A number of important questions remain open in the area of Physics beyond the Standard Model, such as the strong CP problem, determining the absolute mass of neutrinos, understanding matter–antimatter asymmetry, and identifying the nature of dark matter and dark energy.

Another significant problem lies within the mathematical framework of the Standard Model itself, which remains...

Glossary of engineering: M–Z

account departures from the ideal. Mechanical engineering is an engineering branch that combines engineering physics and mathematics principles with materials

This glossary of engineering terms is a list of definitions about the major concepts of engineering. Please see the bottom of the page for glossaries of specific fields of engineering.

Timeline of gravitational physics and relativity

JSTOR 106988. Clotfelter, B.E. (1987). "The Cavendish Experiment as Cavendish Knew It". American Journal of Physics. 55 (3): 210–213. Bibcode:1987AmJPh..55..210C

The following is a timeline of gravitational physics and general relativity.

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