

Theoretical and Applied Physics

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Theoretical, Experimental and Computational Physics

The branch of physics that uses mathematical models and abstractions of physical things and systems to justify, explain, and predict natural events is known as theoretical physics. It is an attempt to comprehend the rules that govern nature. All of the physics disciplines involved with data collection, data-acquisition methodologies, and the specific conceptualization and implementation of laboratory experiments are grouped together as experimental physics. Computational physics is the study of scientific issues *via* the use of computational methods; it combines computer science, physics, and applied mathematics to create scientific answers to complex problems.

Condensed Matter Physics

Condensed matter physics is the biggest sub-turf of current physics and is a vibrant, active subject of study. It investigates matter's macroscopic and microscopic features, as well as how matter is formed by a huge number of cooperating atoms and electrons. The hunt for novel materials with extraordinary characteristics is a driving force in condensed matter physics. Because of the wide range of subjects and phenomena that may be studied, condensed matter is regarded one of the broadest and most diverse fields of physics.

Spintronic

The utilisation of a basic characteristic of particles known as spin for information processing is known as spintronics. Spintronics is similar to electronics in many aspects, except that it employs the electrical charge on an electron instead. The ability to carry information in both the charge and spin of an electron might provide devices with a wider range of capabilities. Spintronic devices have the potential to overcome key issues with today's electronic computers, such as the usage of enormous quantities of electricity and the generation of heat, which necessitates even more energy for cooling. Spintronic devices, on the other hand, produce very little heat and utilise very little power.

Thermodynamics and Statistical Physics

Thermodynamics is the branch of physics concerned with the management of heat and temperature, as well as its relationships with work, radiation, energy, and matter qualities. Statistical physics is a branch of physics in which statistical approaches, probability theory, and, in particular, mathematical tools are utilised to solve huge populations, approximations, and physical issues.

Quantum Physics

Quantum theory is the theoretical foundation of contemporary physics, explaining the nature and behaviour of matter and energy on an atomic and subatomic scale. Quantum physics is the study of the nature and behaviour of matter and energy at that level. Quantum physics is the study of tiny objects that are affected by quantum reality. Quantum is a term that refers to a distinct quantity or part. One of the most surprising and contentious elements of quantum physics is that the outcome of a single experiment on a quantum system cannot be predicted with confidence.

Medical Physics

The Medical Physics section of Current Oncology's mission is to give information and assessments on these significant advances in image-guided adaptive radiation treatment. Critical assessment studies of the clinical application and effect of innovative and clinically established technologies are also published in Current Oncology. The application of physics principles, theories, and methodologies to medicine or healthcare is known as medical physics.

Market Analysis

Applied Physics is intended for technical and practical use. Applied Physics is established in the basic certainties and essential ideas of the Physical sciences and it utilizes the scientific principles in practical devices and in other related areas such as Lasers, Optics, Semiconductor devices and Nano photonics. Demand for Physics is always there in the market because of its applications.

In the past market analysis, it was suggested that the worldwide market for Physics was expected to reach around£3.4 billion by2015. As indicated by later gauges by market forecasters BCC research, the global market for Physics based industries was worth significantly more, about £4.3 billion more in 2010 and is expected to increase around£6.2 billion by2015, proportionate to the annual growth of 7.7%.Extending applications in the Cardiac, Breast MRI and Neurologic areas are expected to drive the world market which was anticipated to increase from£770 million in 2010 to reach around £1.2 billion by 2015 which is equivalent to yearly development 9.3% a year.