PHYSICIST

What is a physicist?

Physics is the most fundamental of all the sciences. It involves the experimental and theoretical study of matter and energy and their interactions, ranging from the domain of elementary particles, through nuclear and atomic physics, to the physics of solids and ultimately to the development of the universe itself. A physicist studies how the universe works.

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What do they do?

Physics lies at the heart of most of science and technology. From the Big Bang to nanotechnology, physics is central to understanding our world. Physics explores the nature and origin of the universe and underpins the technological advances of the modern world. Physicists work in a broad range of fields including astrophysics, condensed matter physics, molecular physics, nanoscale physics, nuclear and particle physics as well as theoretical physics. Astrophysics is the study of the universe on a large scale from stars and planets to black holes and galaxies. Theoretical physics is concerned with describing the universe and its fundamental laws mathematically while experimental physicists do laboratory work to discover or verify laws of nature. Physicists use experiments, mathematical models and computer simulation to propose, test, evaluate and develop theories which explain phenomena in the natural world. More importantly, this depth of understanding allows us to predict behaviour and apply this knowledge to improve the quality of life both for individuals and for society as a whole. Physics is at the forefront of most developments which characterise life in the 21st Century. It is the scientific basis for technologies that have had, and will continue to have, a profound influence on almost all aspects of modern life.

As a physicist you could...

design and build space hardware

research and develop nuclear technology design and manufacture electronic and optical devices

model the atomic-scale structure of a new engineering material

research into the origins of the universe

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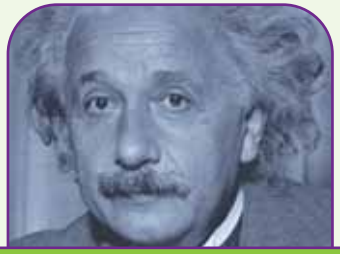
Career opportunities

A physics degree equips you for a very wide range of careers and employment prospects for physics graduates are excellent. Many pursue a higher degree and are subsequently employed in academic and industrial research areas. Graduates can also go on to become an astronomer, a medical or radiation physicist, engineer, actuary, teacher, science journalist, patent lawyer, or a manager in industry. There are opportunities for careers in information technology, communications, environmental sciences, weather and atmospheric sciences. Physicists play a vital role in research and development, forever pushing forward the frontiers of knowledge and providing the basis for the innovations that revolutionise our world.

Did you know?

Energetic types

A supernova is the most energetic single event known in the universe. Material is exploded into space at about 10,000 kilometres per second. All the stars in our galaxy (about 100,000,000,000) would have to shine for six months to produce the amount of energy released by just one supernova.



Theory time

One hundred years ago Albert Einstein had what is known as his "miraculous year". He published several papers (on light quanta, Brownian motion and the special theory of relativity). 2005 - announced as Einstein Year - marks the centenary of the publication of Albert Einstein's equation $E=mc^2$ where E is energy, m is mass and c is the speed of light. The equation stems, from the relationship between energy and momentum that Einstein developed to ensure that the speed of light was the same for everyone no matter what they were doing. The equation tells us that energy and mass can be changed from one to the other - that they are equivalent.

At the end of the...

Every rainbow is unique - each rainbow is formed from light hitting your eye at a very precise angle. Someone standing next to you will see light coming from a slightly different angle than you and therefore see a different rainbow