

# MYSTERY OF DARK ENERGY

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## Introduction

The Universe is huge, brimmed with secrecy, and mysteries. One of the greatest mysteries of modern astronomy is dark energy unseen force-pushing the universe apart at accelerating speeds. Dark energy was discovered in the late 1990s and challenges the basis of physics and cosmos lore. This paper discusses dark energy, how it was discovered, and why its process is so important for understanding the universe.

Dark energy is the mysterious form of energy composing approximately 68% of the universe. In direct contrast to matter, which attracts objects due to gravity, dark energy exerts a repulsive effect by apparently pushing galaxies apart. Scientists surmise that it is responsible for the accelerated expansion of the universe. What it is, however, is still a

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mystery. Some think it is just an intrinsic property of space, often termed the cosmological constant; others think it arises due to an effective dynamic field called quintessence.

## **The Discovery of Dark Energy**

It was in 1998 that astronomers studying distant supernovae made a shocking discovery. They expected that the expansion of the universe was slowing under the influence of gravity. On the contrary, data showed that the universe was speeding up. Some unexplainable force—dark energy—was said to counterbalance gravity and accelerate the expansion. This astounding discovery earned the researchers the 2011 Nobel Prize in Physics.

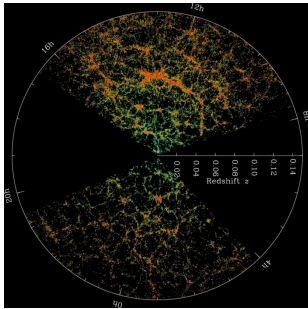
Some evidence that have been seen and noted are:-

**Supernova Observations:** Distant supernovae appear dimmer than expected, indicating that the universe is expanding faster over time.



**Cosmic Microwave Background(CMB):** The afterglow of the Big Bang, called the CMB, provides information about the universe's composition, including the presence of dark energy.

**Large-Scale Structures:** The distribution of galaxies and galaxy clusters also supports the existence of dark energy.



Dark energy influences the universe's destiny. Under its sway, the universe will continue to flourish apace, leading to the "Big Freeze," where galaxies flee one another and stars sputter out. An understanding of dark energy may also assist in reconciling the laws of physics, mainly the rift between quantum mechanics and general relativity.

Dark energy is among the deepest mysteries of science. What we do know is that it exists and plays a role in determining how a universe functions: what it is, however, is still a mystery to be solved. Solving the mystery of dark energy could offer insight into unifying the laws of physics with particular emphasis on the dispute between quantum mechanics and general relativity. As young adults, we students stand on the verge of discoveries that could forever change how the universe is perceived.