

Big Bang Theory

The Big Bang Theory presents a model that can be perceived by humans. The theory elaborates on the origin of the universe. The forces such as gravitation and electromagnetic forces emerged after the Big Bang theory. The cosmological astrophysical theory was brought forth by Georges Lemaitre. It includes numerous stages such as the heavy particle era, light particle era, radiation era, and matter era.

Big Bang Theory Features

The Big Bang Theory is the most widely acknowledged cosmological scenario used to study the universe's beginning. The majority of cosmologists think the universe began 13.8 billion years ago. The features of the big bang theory are as mentioned herein-

- The Big Bang theory claims that at some time in the past, all of space was enclosed in a single point of extremely high density and heat, from which the cosmos has continued to inflate in all directions ever since.
- The cosmos cooled sufficiently after its initial expansion (inflation) to allow the development of subatomic particles and, eventually, basic atoms.
- The Big Bang produced a large number of hydrogen and helium atoms, including trace quantities of lithium and beryllium.
- Giant clouds of these primordial elements (hydrogen and helium) eventually merged to create stars and galaxies due to gravity.
- According to the hypothesis of the Big Bang Theory, the cosmos has been extending in all directions from its genesis.

Stages of the Big Bang Theory

The Big Bang theory states that everything was simply energy at the beginning. This energy was transformed into tiny particles (like photons). These early photos were dispersed by early electrons because there were earlier free electrons. Subsequently, atoms were generated when electrons were mixed with protons and neutrons (atomic nuclei). The Big Bang Theory is divided into four stages:

- Heavy Particle Era
- Light Particle Era
- Radiation Era
- Matter Era

Evidence Supporting the Big Bang Theory

Three pieces of evidence support the Big Bang theory. The list of the pieces of evidence has been presented here which lead to the confirmation of the Big Bang theory.

- The measured abundances of elements

- The observable expansion of space
- The introduction of the Cosmic Microwave Background (CMB)

Assumptions of the Big Bang Theory

This principle only applies to the universe's large-scale features, but it does indicate that there is no edge to the cosmos, implying that the big bang occurred not at a single spot in space but rather all over space at the same moment. The Big Bang theory is in accordance with the following assumptions:

- The first is that Albert Einstein's general theory of relativity accurately captures how all matter interacts with gravity.
- The second assumption, known as the cosmological principle, holds that an observer's vision of the cosmos is unaffected by his location or the direction in which he looks.

The Emergence of Primary Forces After the Big Bang

The formation of protons and neutrons also began just after the Big Bang. The four fundamental forces of nature evolved after the Big Bang Theory:

- Gravitation
- The strong force
- The weak force
- The electromagnetic force

