The Big Bang and the Universe

Overview

The Big Bang Model describes the 13.8-billion-year history of the universe from an initial state to present day. Why do we think there was a Big Bang? In the beginning the universe was incredibly hot, dense and rapidly expanding. The Big Bang Model describes how the universe evolved; forming the elements, stars and galaxies we see today. The model does not say anything about how the universe came to be. We have no idea about what happened before the Big Bang.

Lecture Topics

1. What Was the Big Bang?
2. The First Moments of the Universe
3. Early Galaxies, Stars and Dark Matter
4. How Loud Was the Big Bang?
5. Questions That Shaped the Big Bang Model
6. Inflation During the First Fraction of a Second
7. The Scalar Field Drove Inflation
8. The Multiverse – More than One Big Bang
9. Other Dimensions and Other Universes
10. Why the Constants of Nature Have the Values They Do
11. The Fate of the Universe
12. The Open Questions Cosmologists Are Researching