

TITLE: Cosmological Models of the Universe
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The current Standard Model of the Universe proposes an initial hot Big Bang explosive nucleosynthesis followed by continuous expansion. It is successful at explaining the CMB radiation artifact, the void-and-cluster large-scale structure, and a uniform Hubble constant in all directions. It is unsuccessful in explaining the accelerated expansion.

The Lambda-CDM and Quintessence cosmological models are investigated as extensions of the Standard Model, since these models propose the accelerated expansion of the universe as a consequence of the intrinsic dark energy content of the universe.

We compared the Lambda-CDM and Quintessence models by means of scientific literature review. The Lambda-CDM model incorporates the both components but has the negative pressure scalar field as a constant. The Quintessence model utilizes the negative pressure scalar field as dynamic.

We have found that current available observational data supports both a spatially flat, homogenous and isotropic universe filled with a pressure-less cold dark matter and a negative pressure scalar field as non-interacting components of the universe.