

CERTAIN COSMOLOGICAL MODELS WITH VARIATION OF HUBBLE PARAMETER

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Abstract: The present paper deals with the FRW-Cosmological Model of universe for W_2 flat perfect fluid space time. Einstein field equations with variable cosmological constant (Λ) has been obtained for such spacetime and in order to get the complete cosmological solution the law of variation for Hubble's parameter is considered. A new class of solution have been discussed for the Einstein field equations with variable cosmological constant in which the pressure, energy density, and cosmological constant Λ are found to be decreasing function of cosmic time. The physical and kinematical properties of models are also discussed.

Keywords and Phrases: W_2 flat spacetime, FRW- spacetime, Perfect fluid spacetime.

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1. Introduction

The study of W_2 curvature tensor in differentiable manifolds and general relativity has attracted attention of researchers from many years. Pokhariyal and Mishra [32] have introduced this new curvature tensor and studies its properties. This (0,4) type tensor denoted by W_2 , For the shake of convenience, we shall denote this tensor by W and is defined as

$$W_{hijk} = R_{hijk} + \frac{1}{(n-1)}[g_{hj}R_{ik} - g_{ij}R_{hk}] \quad (1)$$