X SPGF

X SEMANA DE PÓS-GRADUAÇÃO EM FÍSICA

De 19 a 23 de novembro 2018

DECAYING VACUUM AND SUPERNOVAE-CMB TENSION

G. J. M. Zilioti[1], J. A. S. Lima[2]
*[1]Universidade Federal do ABC (UFABC), Santo André, 09210-580, São Paulo, Brasil,
george.zilioti@ufabc.edu.br
[2]Departamento de Astronomia, Universidade de São Paulo, Rua do Matão 1226, 05508-900,
São Paulo, Brazil, limajas@astro.iag.usp.br*

Abstract
In this work we analyze some physical consequences of an accelerating cosmology endowed with interaction in the cosmic dark sector (dark energy + cold dark matter) where the dark energy component is represented by a time-dependent Λ-term. In this context we discuss the existing tension between Supernovas (which prefer a closed Universe) and CMB data favoring a spatially flat Universe. By considering that the variable Λ-term mimics a curvature term (since both terms have the same dependence on the scale factor), we show that its contribution helps to alleviate the tension SNe Ia-CMB existing in the standard cosmic concordance model. The present model solves the age of the Universe problem and also evolves to a de Sitter model as occur with the ΛCDM scenario. The contribution of the free parameter is limited through a joint statistical analysis involving Supernovas, CMB (shift parameter) and baryon acoustic oscillations (BAO).

Palavras-chave: Cosmology, Vacuum decay.