Contribution ID: **1** Type: **not specified**

Dynamical system with anisotropic tachyon field

Thursday 15 September 2022 11:25 (25 minutes)

We study a dark energy (DE) model based on a tachyon field ϕ coupled to a vector field in a Bianchi-I anisotropic background. We consider that the potential of the tachyon field V and the coupling function f satisfy the differentials equations $\alpha = M_{pl}V_{,\phi}/V^{3/2}$ and $\beta = (M_{pl}f_{,\phi}) / \left(f\sqrt{V}\right)$ respectively, where M_{pl} is the reduced Planck mass, α and β are constants. A dynamical analysis of the differential equations that describe the dynamics of the Universe is performed to identify the parameter window compatible with an anisotropic or isotropic model of dark energy. Due to the complexity of differential equations, it is necessary to employ a numerical approach to find an approximation of the available region of parameters α and β. The field equations and the equations of motion are solved numerically in order to verify that our model reproduces the proper expansion history of the universe. We find that the late anisotropic hair predicted by our model is within the observational bounds.

Authors: GARCIA SERNA, SANTIAGO; Dr ORJUELA QUINTANA, JOHN BAYRON (Universidad del Valle); Prof. VALENZUELA TOLEDO, CESAR ALONSO (Departamento de Física, Universidad del Valle)

Co-author: Prof. OCAMPO DURAN, Hernan (Universidad del Valle)

Presenter: GARCIA SERNA, SANTIAGO