

# DARK UNIVERSE WITH LAGRANGE MULTIPLIERS: OBSERVATIONAL CONSTRAINTS

ANTONELLA CID

ABSTRACT. Cosmological models with Lagrange multipliers are appealing because they could explain the behaviour of the dark sector in a unified way, in this sense dark matter and dark energy are two limits of a single fluid which describes the late behaviour of our universe at large scales.

In this work we analyse extensions to the ‘Dust of Dark Energy model’ proposed in arXiv:1003.5751 by including spatial curvature and more general potentials of the scalar field. We perform dynamical system analysis and we determine the evolution of the equation of state parameter as a function of the scale factor, also we explore the fate of our universe in the context of this model. We present bayesian statistical analysis for the model using supernovae type Ia and  $H(z)$  data.

UNIVERSIDAD DE BÍO-BÍO, CHILE  
*E-mail address:* `acidm@ubiobio.cl`