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Cosmological evolution of Scalar Field Dark Matter with an Axion-like potential

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In this talk we will review the cosmological implications of a scalar field dark matter model when considering an Axion-like potential. We will analyze some cosmological observables such as the 3D and 1D matter power spectrum, as well as how some physical quantities such as the growth factor of the perturbations and its velocity depend explicitly on the wavenumber in this type of models. We will show the prediction of our model in regards to the halo mass function for small-scale structures, and we will end with the results of the statistical analysis that we carried out using data from both the Cosmic Microwave Background radiation and Lyman-alpha forest in order to constraint the parameters of our model.

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