

PHYSICS AND ASTRONOMY COLLOQUIUM 11/14/2024

STUDYING THE ACCELERATED EXPANSION OF THE UNIVERSE WITH THE DARK ENERGY SPECTROSCOPIC INSTRUMENT (DESI)



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Some of the open questions in fundamental physics can be addressed by looking at the distribution of matter in the Universe as a function of scale and time (or redshift). We can study the nature of dark energy, causing the accelerated expansion of the Universe. We can measure the sum of the neutrino masses, and determine its hierarchy. We can test the standard model at energies higher than those accessible at the laboratory, by studying the primordial density perturbations.

The Dark Energy Spectroscopic Instrument (DESI) started in 2021 a five-years program to generate the largest and most accurate 3D map of the distribution of galaxies and quasars. By measuring the statistical properties of these catalogs, DESI will be able to reconstruct the expansion history of the Universe over the last 11 billion years, while making precise measurements of the growth of structure.

In this talk I will present the first cosmological results from DESI, in particular the measurements of the expansion of the Universe using the first year of DESI data. I will discuss the cosmological implications of these measurements, in particular in terms of dark energy and massive neutrinos.



GRAD 2:30 PM
STUDENT MEET
N' GREET
(PHYSICS 3051)



COFFEE: 3:00 PM
BARKAS LOUNGE
(3049 PHYSICS)



COLLOQUIUM: 3:40 PM
WINSTON CHUNG HALL
(ROOM 138)



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