



University of Crete
Department of Physics



FORTH
INSTITUTE OF ASTROPHYSICS



2024 Nick Kylafis Lecture

Joint Physics & IA/FORTH Colloquium

Friday, 27 September 2024 | 14:00 – 16:00, Amphitheater “G. Lianis” & Online

The Current State of Cosmology

Prof. David N. Spergel

Simons Foundation & Princeton University, USA

ABSTRACT

The universe seems to be remarkably simple and remarkably strange. The Λ CDM model, our now “standard” cosmology, fits an ever-improving set of microwave background data and measurements of large-scale structure, element abundances, and measurements of the expansion history of the universe. While mostly successful, the model implies that baryons and electrons make up only 5% of the energy density of the universe with the mysterious dark matter and even more mysterious dark energy comprises the bulk of the universe. I will review some of the recent observations with a focus on CMB measurements.

I will discuss some of the existing tensions between some of the measurements and this model, the “ H_0 tension” and the “ S_8 tension” as well as tests of alternative gravity theories that obviate the need for dark matter.

Join via ZOOM at:

<https://uoc-gr.zoom.us/j/81841397728?pwd=LMoybqe3CQV37tN7eE9ZB68wUn4jay.1>