

UCLA Mani L. Bhaumik Institute for Theoretical Physics

Location: Bhaumik Collaboratory, Chemistry Department

Date: Friday, November 8th, 2024

Time: 11am

Refreshments will be served at 10:30am at PAB 3rd Floor Patio

Speaker:

Professor David Spergel

President of Simons Foundation

**Our Simple Strange Universe:
New Data and New Physics**



The universe seems to be remarkably simple and remarkably strange. The LCDM 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 “H0 tension” and the “S8 tension” as well as tests of alternative gravity theories that obviate the need for dark matter.

Undergraduates welcomed!