



Contribution ID: 841

Type: **Parallel**

Cosmology with largest camera ever built: Dawn of Vera Rubin Observatory's LSST

Tuesday 8 July 2025 08:30 (25 minutes)

The Vera C. Rubin Observatory's Legacy Survey of Space and Time (LSST) is set to begin survey operations by the end of this year.

This groundbreaking facility will transform our understanding of the universe across a broad range of science cases in optical astronomy. LSST will perform a comprehensive inventory of Solar System objects, including the identification of potentially hazardous asteroids.

The survey's deep, wide-field imaging will reveal the properties of galaxies and their associated dark matter halos, and enable precise measurements of cosmic shear through weak gravitational lensing.

In the time domain, LSST will trace the cosmic expansion history using several thousand newly discovered Type Ia Supernovae (SNe Ia), offering the most accurate constraints to date on the nature of dark energy and its possibly evolving equation of state, w .

In this talk, we will present an overview of the observatory's ongoing commissioning phase, including the status of LSSTCam—the largest astronomical camera ever built.

We will also highlight the transient detection system, describe how its performance is evaluated using synthetic sources, and discuss the implications of its performance for cosmological analyses with SNe Ia.

Secondary track

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Session Classification: T01 (Astroparticles, Gravitation and Cosmology)

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