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## New Science with the Dark Energy Survey

*Tuesday, 4 August 2015 14:00 (30 minutes)*

The Dark Energy Survey (DES) is a large imaging survey of the southern sky designed to shed new light on the nature of the dark physics behind the accelerated expansion of the Universe. The DES collaboration built and participated in the installation and commissioning of DECam, a 570 mega-pixel optical and near-infrared camera with a large  $3 \text{ deg}^2$  field of view, set at the prime focus of the Víctor M. Blanco 4-meter telescope in at the Cerro Tololo Inter-American Observatory in Chile. Using DECam, DES will map  $5000 \text{ deg}^2$  to a typical depth  $I_{AB} \sim 24$ . These data will allow DES to make precision measurements for 300 million galaxies, the light-curves of several thousand supernovae, and the masses of tens of thousands of galaxy clusters. With these data, DES will use four main probes to study the properties of dark energy: galaxy clustering on large scales, weak gravitational lensing, galaxy-cluster abundance, and supernova distances.

I describe the early progress of the survey and provide highlights of the science analyses that have been completed so far. These include large-scale galaxy clustering measurements; significant detection of a cross-correlation with South Pole Telescope CMB lensing maps; galaxy-shear and shear-shear correlation function measurements; discoveries of super-luminous supernovae, dozens of strong lenses, and redshift  $> 6$  quasars; and characterization of DES galaxy clusters and SNe1a light-curves.

### Oral or Poster Presentation

Oral

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