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Studying Cosmic Acceleration with the Dark Energy Survey

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The Dark Energy Survey (DES) will use a new massive imaging instrument, the Dark Energy Camera (DECam), to study the properties of the mysterious, presently-dominant source of energy that is causing the universe to go through an accelerating expansion. The camera will be installed on the 4-meter Blanco telescope at the Cerro Tololo Inter-American Observatory and commissioning is expected to start in the end of 2011. Over five years, DES will carry out a high-precision photometric survey of 5000 square degrees to detect and study the properties of over 300 million galaxies in the southern sky. Repeat observations of a smaller patch in the sky will discover thousands of Type Ia supernovae for precision distance measurements. We will describe how the four complementary probes of dark energy – weak lensing, galaxy clusters, baryon acoustic oscillations, and supernova – will help improve our understanding of the nature of the mysterious dark energy.

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