

CURRENT STATUS AND FUTURE GOALS OF THE DARK ENERGY SURVEY

Dr. Kyler Kuehn,
Argonne National Laboratory

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Recent observations have shown that the cosmos is dominated by a mysterious “dark energy” that drives the accelerated expansion of the universe. The Dark Energy Survey (DES), set to achieve first light on the Blanco Telescope at Cerro Tololo InterAmerican Observatory (CTIO) by the end of this month, will repeatedly observe 5000 deg^2 of the southern sky over the next five years. Using four independent probes (baryon acoustic oscillations, galaxy clusters, weak gravitational lensing and Type Ia supernovae), the DES will significantly improve upon existing measurements of the time-independent and time-dependent parameters of the dark energy equation of state.

We describe the science goals of the Survey, as well as the details of the Dark Energy Camera (DECam) that was constructed to fulfill the Survey goals (and to serve as a facility instrument for the Blanco telescope). We also include details of PreCam, the precursor survey undertaken in 2010-2011 to calibrate the DES dataset, as well as some other auxiliary science that we expect to perform with the Dark Energy Survey.