

Optimal and accurate cosmology from the Dark Energy Survey and beyond

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We are in the midst of an exciting time for understanding the dark sector of the Universe. Current and upcoming projects, including DES, LSST, and Euclid are observing an unprecedented number of galaxies and other astrophysical objects. It is critical to develop robust strategies that fully utilize this statistical power to extract cosmological information. I will present recent work connecting these observations to the underlying cosmological and astrophysical processes. In particular, I will discuss an analytic framework that maps between the behavior of dark matter and dark energy and the observed positions and shapes of galaxies (or any other luminous tracer). I will describe how this framework can be used in joint analyses of multiple probes or data sets, highlighting recent results from DES as an example.

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