APR14-2014-000158

Abstract for an Invited Paper for the APR14 Meeting of the American Physical Society

## Supernovae<sup>1</sup> MARISA MARCH, University of Pennsylvania

We live in a Universe that is getting bigger faster. This astonishing discovery of Universal acceleration was made in the late 1990s by two teams who made observations of a special type of exploded star known as a 'Supernova Type Ia'. (SNeIa) Since the discovery of the accelerating Universe, one of the biggest questions in modern cosmology has been to determine the cause of that acceleration - the answer to this question will have far reaching implications for our theories of cosmology and fundamental physics more broadly. The two main competing explanations for this apparent late time acceleration of the Universe are modified gravity and dark energy. The Dark Energy Survey (DES) has been designed and commissioned to find to find answers to these questions about the nature of dark energy and modified gravity. The new 570 megapixel Dark Energy Camera is currently operating with the Cerro-Tololo Inter American Observatory's 4m Blanco teleccope, carrying out a systematic search for SNeIa, and mapping out the large scale structure of the Universe by making observations of galaxies. The DES science program program which saw first light in September 2013 will run for five years in total. DES SNeIa data in combination with the other DES observations of large scale structure will enable us to put increasingly accurate constraints on the expansion history of the Universe and will help us distinguish between competing theories of dark energy and modified gravity. As we draw to the close of the first observing season of DES in March 2014, we will report on the current status of the DES supernova survey, presenting first year supernovae data, preliminary results, survey strategy, discovery pipeline, spectroscopic target selection and data quality. This talk will give the first glimpse of the DES SN first year data and initial results as we begin our five year survey in search of dark energy.

<sup>1</sup>On behalf of the Dark Energy Survey collaboration.