OPTICAL SURVEYS WITH DECAM AND LSST: ENGINES FOR EXTREMELY LARGE DATASETS AND STATISTICAL ANALYSES

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Abstract. The next generations of wide-field optical surveys with large mosaic CCD cameras will produce petabytes of data and associated data products. The 570-megapixel Dark Energy Camera (DECam) has just been commissioned on CTIO's Blanco 4m telescope. DECam will be used for the 5-year, 500 night Dark Energy Survey, which will map 5000 square degrees of the southern skies, producing a rich dataset for statistical analysis. Just after DES is completed, the Large Synoptic Survey Telescope (LSST) will open it's 3.2 gigapixel eye on the universe and start a 10-year survey to map the entire southern hemisphere. Given that these surveys will produce catalogs in the petabytes, the DES and LSST datasets will require advanced statistical analyses to reach their full scientific potential.

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