

Calibration and Standardization of Large Surveys and Missions in Astronomy and Astrophysics



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DECal: A Spectrophotometric Calibration System For DECam.

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DECal is a new spectrophotometric calibration system for the CTIO Blanco 4 meter telescope. It is currently being installed as part of the Dark Energy Survey. The system uses a tunable light source to measure the wavelength-dependent instrumental response function of the total telescope+instrument in the range $300 < \lambda < 1100 \text{ nm}$. The calibration will be performed regularly to monitor changes in telescope throughput during the 5 year Dark Energy Survey project. DECal consists of a monochromator-based tunable light source that is projected on a Lambertian flat field screen using a broadband "line to spot" fiber bundle and an engineered diffuser. Several calibrated photodiodes positioned along the beam monitor the telescope throughput as a function of wavelength. DECal has a peak output power of 2 mW, equivalent to a flux of approximately 800 photons/s/pixel on DECam.

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