

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



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## Calibrating the PAU Survey's 46 Filters

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The Physics of the Accelerating Universe (PAU) Survey, being carried out by several Spanish institutions, will image an area of 100-200 square degrees in 6 broad and 40 narrow band optical filters. The narrow band filters will each cover 100 Angstroms, with the set spanning 4500-8500 Angstroms. The broad band set will consist of standard ugrIZy filters. The team is building a camera (PAUCam) which will be installed in the 4 meter William Herschel Telescope at La Palma in 2013. PAUCam's focal plane holds 18 CCDs; the 46 filters are arranged in a jukebox-like system of filter trays inside the cryostat, such that one filter typically covers one CCD. The narrow band filters will provide low-resolution ( $R \sim 50$ ) photometric "spectra" for all objects observed in the survey, which will reach a depth of  $\sim 24$  mag in the broad bands and  $\sim 22.5$  mag (AB) in the narrow bands. Such precision will allow for galaxy photometric redshift errors of  $0.0035(1+z)$ , which will facilitate the measurement of cosmological parameters with precision comparable to much larger spectroscopic and photometric surveys. Accurate photometric calibration of the PAU data is vital to the survey's science goals, and is not straightforward due to the large and unusual filter set. We describe the photometric calibration strategy for the PAU Survey, and the tools we are developing to test the calibration quality.

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