



Contribution ID: 51

Type: **Oral presentation (20 minute)**

LSST Teledyne e2v CCD Characterization Under Varying Operating Conditions

Wednesday, 13 March 2024 15:45 (25 minutes)

The Vera C. Rubin Observatory will perform the 10-year Legacy Survey of Space and Time using the 3.2-gigapixel LSST Camera that consists of 189 science CCDs. Each of the back-illuminated deep depletion 16-megapixel CCDs consists of 16 segments corresponding to independent video channels that are readout in parallel. Using the LSST Beam Simulator at UC Davis, we characterized the electro-optical properties of single Teledyne e2v CCD under different timing parameters associated with the readout electronics board (REB) ADC and the CCD operating voltages. We calculated the gain, read noise, dark current, amplitude of tearing and photon-transfer curves using the LSST Science Pipelines analysis tasks and compared the results between operating conditions. Measurements of the linear and non-linear crosstalk between pairs of segments sourced by projected streaks with a range of brightness levels were performed to study the effect of changes to the timing parameters. Finally, we studied persistence in flat field images and images of spots as a function of clock voltages was also performed. We report on the results of these measurements and discuss possible optimizations of the REB operating conditions to improve the CCD performance.

contribution subject matter

CCD sensors

Keywords for your contribution subject matter (this will assist SOC in accurately characterizing your contribution)

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