Contribution ID: **341** Type: **Poster**

# The Large Synoptic Survey Telescope Corner Raft Readout Electronics

*Friday, 29 May 2015 10:07 (0 minutes)*

The Large Synoptic Survey Telescope (LSST) instrument consists of a main science array of 189 4K x 4K CCDs and four guiding and wavefront sensing subsystems located at the four corners of the instrumented field of view. Each wavefront/guiding subsystem comprises a pair of 4K x 4K guide CDDs and a pair of offset 2K x 4K wavefront curvature sensors. The guide CCDs read a region of interest (ROI) of 50 x 50 pixels with a rate of 9Hz, whereas the wavefront curvature CCDs are read at the same cadence of the main camera system, providing 15 sec integrations with 2 sec readout. The corner raft readout electronics is located directly behind the CCDs inside the camera vacuum vessel and includes ASICs for readout and clock generation, multiple 18bit ADCs for the video signal chain and an FPGA for sequence generation, data capture and communication. One PCB will serve the guide functionality and another PCB will serve the wavefront functionality. All communication with the corner raft readout electronics is performed via a high speed serial link to keep the necessary vacuum penetrations. For the same reason the power interface is designed to operate from a minimum of external voltages. An overview of the hardware and electronics of this LSST subsystem will be given.

**Primary author:** HERRMANN, Sven (SLAC)

**Co-authors:** FREYTAG, Mark (SLAC); DOHERTY, Peter (Department of Physics, Harvard University); VINCENT, Riot (LLNL); OSIER, Shawn (SLAC); RUSSO, Stefano (LPNHE)

**Presenter:** HERRMANN, Sven (SLAC)

**Session Classification:** Detector Techniques for Cosmology, Astroparticle and General Physics - Poster Session

**Track Classification:** S8 - Detector Techniques for Cosmology, Astroparticle and General Physics