Contribution ID: **16** Type: **Oral presentation (20 minute)**

Preliminary results from the SuperBIT balloon-borne telescope

Wednesday, 13 March 2024 14:25 (25 minutes)

I will present preliminary results from the SuperBIT balloon-borne experiment - a 0.5 meter near-ultraviolet to near-infrared telescope with a Sony IMX 455 CMOS sensor designed to perform diffraction-limited imaging from the stratosphere. SuperBIT observed 30 galaxy clusters during its 45-night flight on a NASA superpressure balloon in the spring of 2023. I will discuss sensor characterization, photometric calibration, the impact of sky background on detected galaxy number density, pre-flight instrument bandpass estimation and post-flight bandpass verification. In particular, I will describe the pre-flight sensor characterization effort, including a setup to measure the quantum efficiency, read noise, conversion gain, and pixel-to-pixel sensitivity variations. Then, I will discuss challenges we faced during the flight, including the impact of hot pixels on fine guidance star trackers and the importance of a real-time image checker program during the flight.

contribution subject matter

CMOS sensors

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

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