

Image Sensors for Precision Astronomy (ISPA 2024)



Contribution ID: 8 Type: **Poster presentation (90 second oral summary, 90 minute poster session & free presentation times over 3x 40m coffee breaks)**

The Dual-Sided CCD

Tuesday, 12 March 2024 14:30 (1h 30m)

Existing Charge-Coupled Devices (CCDs) operate by detecting either the electrons or holes created in an ionization event. We propose a new type of imager, the Dual-Sided CCD, which collects and measures both charge carriers on opposite sides of the device via a novel dual-buried channel architecture. This dual detection strategy provides exceptional dark-count rejection and enhanced timing capabilities. These advancements have wide-ranging implications for dark-matter searches, near-IR/optical spectroscopy, and time-domain X-ray astrophysics.

contribution subject matter

CCD sensors

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

CCDs, X-ray detection, Optical Spectroscopy, Dark Matter Detectors

Primary authors: EGANA UGRINOVIC, Daniel (Perimeter Institute); FERNANDEZ MORONI, Guillermo (Fermilab); TIFFENBERG, Javier (Fermilab); SOFO HARO, Miguel (Fermilab and Centro Atomico Bariloche); DU, Peizhi (Rutgers University); ESSIG, Rouven (Stony Brook University); UEMURA, Sho (Fermilab)

Presenter: EGANA UGRINOVIC, Daniel (Perimeter Institute)

Session Classification: Poster Session

Track Classification: Major ISPA Workshop Tracks: New Detector Technologies