

Image Sensors for Precision Astronomy (ISPA 2024)



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Detector Technologies for Future Astrophysics and Other Applications

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Astro2020 Decadal Survey study for Astrophysics articulated a number of exciting science ranging from exoplanet characterization to general astrophysics including galactic and stellar science that require high-efficiency, high throughput instrumentation ranging from ultraviolet through visible and near infrared. A major contributing factor to the throughput is determined by the efficiency and signal to noise ratio of the detectors used at the focal plane of the instruments. At the same time, there has been exciting developments in detector architectures especially in silicon-based image sensors.

I will briefly discuss some of the science motivations for UV/Optical/NIR instruments, followed by an overview of some of the promising current and emerging technologies under development. I will also describe the work performed at JPL on high efficiency ultraviolet detectors and the detector-integrated filters that enable high efficiency UV detection and high out of band rejection.

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