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Modification of CMOS APS detectors for use in the UV

With attractive features such as low power consumption, high dynamic range and increased in-pixel functionality, Active Pixel Sensors (APS) have begun to rival charge-coupled devices (CCD) for use as imaging sensors. Recently work has been undertaken in order to produce APS devices with enhanced performance and extended wavelength sensitivity as an alternative to so-called science grade CCD devices used in a variety of applications. Undertaken as part of the MI-3 project, this work will show how modifications were made to a Startracker chip – a 525x525 array of 25 μ m square pixels - for use in the imaging of UV signals. Using photolithographic and wet etching techniques, windows were removed in the passivation layers of each pixel, permitting the sensor to be sensitive to an extended UV range. The selective opening of windows on the sensitive surface maintains the integrity of the interconnect layers of the CMOS process.

Improvements in spectral response measurement will be shown after the introduction of the oxide windows and the performance of the device pre and post processing discussed.

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