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Photosensitive element architectures for cooled CdHgTe photodetectors

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The parameters of CdHgTe photosensitive elements have been evaluated for two-layer p+/n, three-layer p+/v/n+ and barrier nBn architectures. Each of these architectures leads to understanding to an ultimate photon detector materials technology that will enable background-limited detector performance at high operating temperature. It was shown that a decrease of a dark current is achieved in bandgap-engineered devices with reduced thermal generation absorber n-layer. The analysis has been confirmed the possibility of CdHgTe FPAs operation at high-temperature.

Keywords: CdHgTe, Photosensitive element architecture, photodetector, dark current, detectivity D*.

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