

Abstract Submitted
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Low Cost nIR/SWIR Detectors for Cosmological and Astrophysical Transient Research ROBERT STRAUSBAUGH, Arizona State Univ — The near-infrared (nIR) and shortwave infrared (SWIR) offer a unique and relatively unexplored region of the electromagnetic spectrum to study transient sources of cosmological and astrophysical significance. Available science grade instruments to study this spectrum have very high costs, in the range of hundreds of thousands of dollars. Military grade instruments capable of probing a similar parameter space are available at a fraction of this price, in the range of tens of thousands of dollars. One such instrument, an InGaAs camera from Goodrich has been tested and characterized for scientific use. The current capabilities of the camera offer a dark rate of $84000 e^-/s/pix$; the pixels in this camera are 5×5 microns in size. Taking the dark as the limiting factor, the faintest source detectable at a 3σ level would have an AB magnitude of about 10 in a one second integration, on an 18-inch telescope. Future efforts with the camera involve driving down this dark current by cooling with a thermo-electric cooler (TEC). With such a low cost, the final goal of this project is to have several of these cameras working on an array of small telescopes to rival the collecting area of large, expensive telescopes and detectors at a small fraction of the cost.

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