Abstract Submitted
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Quantum efficiency of Si Hybrid CMOS detectors in the soft X-ray band[1] ZACHARY PRIESKORN, Pennsylvania State University, STEPHEN BONGIORNO, The John Hopkins University, DAVID BURROWS, ABRAHAM FALCONE, CHRISTOPHER GRIFFITH, Pennsylvania State University, JONATHAN NIKOLEYCZIK, University of Maryland, MARK WELLS, Pennsylvania State University, PSU X-RAY INSTRUMENTATION GROUP TEAM — X-ray sensitive Si Hybrid CMOS detectors (HCDs) will potentially replace X-ray CCDs in the focal planes of future X-ray observatories. HCDs improve on the performance of CCDs in numerous areas: faster read out time, windowed read out mode, less susceptibility to radiation & micrometeoroid damage, and lower power consumption. Understanding the detector quantum efficiency (QE) is critical for estimating the sensitivity of an X-ray instrument. We report on the QE for multiple energies in the soft X-ray band of four HCDs based on the Teledyne Imaging Sensors HyViSI^{TM} detectors. These detectors have Al optical blocking filters deposited directly on the Si substrate; these filters vary in thickness from 180 – 1000 Å. We estimate the QE with a 1D slab absorption model and find good agreement between the model and our results across an energy range from 0.677 – 8.05 keV.

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