

## The Si/CdTe Semiconductor Camera of the ASTRO-H Hard X-ray Imager (HXI) (including an brief overview of semiconductor devices on satellites)

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The Hard X-ray Imager (HXI) is one of the instruments onboard ASTRO-H, which is scheduled for launch in 2015. The HXI is placed 12 m below the hard X-ray focusing mirrors, and performs imaging spectroscopy with the sensitivity for detecting point sources down to a brightness of 1/100,000 times fainter than the Crab nebula at  $> 10$  keV. The semiconductor camera in the HXI is realized as a stacked semiconductor detector system, which consists of silicon and cadmium telluride (CdTe) sensors. The flight model of the HXI camera has been fabricated and installed on the satellite. The sensor head has dimensions of 10 cm x 10 cm x 4 cm, consisting of 4 layers of Si and CdTe double-sided strip detectors, and front-end readout electronics. Adopting the cross-strip electrode configuration for Si/CdTe sensors, no inactive materials are required between the detectors. This multi-layer approach provides high detection efficiency up to 80 keV, and ensures a high sensitivity free from the activation background below 40 keV. The strip pitch of the Si/CdTe sensors is 0.25 mm, and the signals from all 1280 strips are processed by 40 ASICs developed for the HXI. In this contribution, we present the final design of the HXI camera, and results from the performance verification tests.

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