

Performance of the X-ray CCD coated with Optical Blocking Layer for SXI onboard ASTRO-H

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We have developed the back-illuminated X-ray CCD camera (BI-CCD) for Soft X-ray Imager (SXI) onboard ASTRO-H. Since the X-ray CCD, especially BI-CCD has a high sensitivity not only for in X-ray but also in both visible light and UV light, X-ray CCD for SXI is directly coated the 100nm thick aluminum on the surface of the CCD in order to block visible light, and we name this aluminum layer OBL (Optical Blocking Layer). We will install Contamination Blocking Filter (CBF) in front of the CCD to protect the CCD from contaminants adsorbed onto the CCD. This CBF is made from 30nm thick aluminum and 200nm thick polyimide, and CBF can also cut off visible light as well as UV light.

We have developed the prototype CCD for SXI coated with OBL and we have measured the energy resolution, dark current, quantum efficiency, and so on by irradiating the soft X-ray at KEK-PF and the X-ray from ^{55}Fe . We have also measured the optical transmission of OBL and confirmed the optical transmission of OBL is an order of 10^{-5} which was the same order of our expected value.

We will show the performance of the proto-type CCD for SXI, mainly focusing on QE at soft X-ray range below 2keV, as well as the optical transmission of OBL.

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