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## **Development of CdTe Pixel Detectors Combined with an Aluminum Schottky Diode Sensor and Photon-Counting ASICs**

We have been developing CdTe pixel detectors combined with a Schottky diode sensor and photon-counting ASICs. On the CdTe sensor device the front side was deposited with aluminum to form pixelated electrodes and the back side was covered with a single platinum-electrode. This electrode configuration has the advantage of providing a high Schottky barrier formed on the Al/CdTe interface, and, hence, a benefit to operate the CdTe as an electron-collecting pixelated diode. The 2D-detector module was designed with a pixel pitch of 0.2 mm x 0.2 mm and an area of 19 mm x 20 mm or 38.2 mm x 40.2 mm. The SP8-04F10K ASIC has a preamplifier, a shaper, 3-level window-type discriminators and a 24-bits counter in each pixel. The single-chip detector with 100 × 95 pixels successfully operated with a photon-counting mode selecting X-ray energy with the window comparator. We have performed a feasibility study for white X-ray microbeam experiment. Laue diffraction patterns were measured during the scan of the irradiated position in a silicon steel sample. The grain boundaries were identified by using the differentials between adjacent images at each position. In this talk, we will present the specification and performance of CdTe pixel detectors with the SP8-04-F10K ASICs.

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