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## Cadmium Telluride (CdTe) X-ray detectors with different passivation dielectrics

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We report a fabrication process and characterization of detectors made of bulk Cadmium Telluride (CdTe) crystals. Prior the processing the quality and defect density in CdTe material was characterized by infrared (IR) spectroscopy. The chip-scale semiconductor detector and related interconnection processing was carried out in clean room premises of Micronova center in Espoo, Finland. We have compared low temperature passivation layer processes of aluminum oxide (Al<sub>2</sub>O<sub>3</sub>) Atomic Layer Deposition (ALD) and sputtered aluminum nitride (AlN). The metallizations of detectors were made by titanium tungsten (TiW) metal sputtering depositions and an electroless Nickel growth. The CdTe crystals the size of 10 × 10 × 0.5mm<sup>3</sup> were patterned with proximity-contactless photo-lithography techniques. The detector properties were characterized by IV-CV and Transient Current Technique (TCT) methods. The active edge sensitivity of detectors passivated by AlN or Al<sub>2</sub>O<sub>3</sub> was especially emphasized in this study.

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