



R08-23 Different surface contacts on CdTe and CdZnTe radiation detectors

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Introduction and Theory

➔ In the first part of this work we present the study of various chemical etching and surface passivation, before metal-semiconductor contact preparation, on four CdTe/CZT samples. The real MS contact contains the interlayer or a certain density of surface states (e.g. metal-oxide-semiconductor – the MOS structure). These surface states affect the electrical properties of the detector. In addition, dangling bonds and non-stoichiometric surface species produce defects responsible for high surface leakage current [1]. We compare two samples with almost homogenous linear inner field (CZT1, 2) and two samples with greater slope of inner electric field (CdTe1, 2) which also shows the waveforms with dead layer under low biases. Transport properties, gamma spectrum and I-V characteristic are used to characterize their quality.

