

In the present work we studied an influence of different types of surface etching and surface passivation of high resistivity CdZnTe-based semiconductor detector material. The aim was to find the optimal conditions to improve the properties of metal-semiconductor contact. The main effort was to reduce the leakage current and thus get better X-ray and gamma-ray spectrum, ie to create a detector operating at room temperature based on this semiconductor material with sufficient energy resolution and the maximum charge collection efficiency. Individual surface treatments were characterized by volt-ampere characteristics, spectral analysis and by determination of the profile of the internal electric field.