Surface Leakage Current (SLC) Minimization in high resistance samples of (Cd,Mn)Te

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The purpose of this study was finding a method to minimalize SLC and to minimalize time-dependent degradation of SLC. Samples of (Cd,Mn)Te used in this study were compensated by doping and annealed in cadmium vapours, and have the same size 5x5x2 mm^3.

The preliminary characterization of the resistivity of the plates was made with the use of EU-ρ-SCAN. Semi-insulating samples had resistivity in the range of 10^8-10^9 Ωcm. The ohmic contacts were made both on the lower and the upper surface. After the contacts protection, lateral surfaces were subjected to reaction with various chemical substances in order to optimize the passivation process of these surfaces. The control measurements of the resistivity of the samples (I-V characteristics) have been carried out repeatedly at hourly and daily intervals. The best combination of chemical substances for lateral surface passivation was chosen. It was based on $(NH_4)_2S$.