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Radiation Hardness Materials Article Review

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Abstract : Semiconductor detectors are widely used in nuclear physics and high-energy physics experiments. The application of semiconductor detectors could be limited by their ultimate radiation resistance. The increase of radiation defects concentration leads to significant degradation of the working parameters of semiconductor detectors. The investigation of radiation defects properties in order to enhance the radiation hardness of semiconductor detectors is an important task for the successful implementation of a number of nuclear physics experiments; we presented some information about radiation hardness materials like diamond, sapphire and CdTe. Also, the results of measurements I-V characteristics, charge collection efficiency and its dependence on the bias voltage for different doses of high resistivity (GaAs: Cr) and Si at LINAC-200 accelerator and reactor IBR-2 are presented.

Keywords : semiconductor detectors, radiation hardness, GaAs, Si, CCE, I-V, C-V
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