

Spectrometric Performance of 4H-SiC Detectors after Neutron Irradiation

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Abstract. In this work the radiation hardness of 4H-SiC detectors based on epitaxial layer were studied. In the experiment two thicknesses of the epitaxial layer 25 and 50 μm were used. Structures with Ni/Au Schottky contact of 3 mm diameter were prepared in a high vacuum apparatus. At first the spectrometric performance was tested using α -particle ^{226}Ra radiation source. Detectors demonstrate high resolution α -particle spectroscopy. Following detectors were divided into three groups and each was irradiated with different fluencies of neutrons up to $3.4 \times 10^{15} \text{ cm}^{-2}$. We observed the charge collection efficiency decreasing with a neutron fluence increasing.