11. DEPENDENCE OF THE DEFECT INTRODUCTION RATE ON IRRADIATION DOSE OF p-Si BY FAST-PILE NEUTRONS

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It has been studied the high-resistance samples of p-Si ($p_{00} = (3,3 \pm 0,5) \cdot 10^{12}$ cm^{-3}) and n-Si ($n_0 = (2,0 \pm 0,3) \cdot 10^{12}$ cm^{-3}), grown by the floating-zone technique, after irradiation by the fast-pile neutrons at 287 K. The dose and temperature dependences of the effective concentration of carriers have been measured. Calculation has been carried out in the framework of Gossick's corrected model. It was shown that the radiation hardness of n- and p-Si is defined, on one hand, by clusters, on the other hand – by the vacancy defects (acceptors) in n-Si and by interstitial defects (donors and acceptors) in p-Si. It was determined that during the irradiation process of p-Si by small doses of neutrons the change of charge state of interstitial defects leads to the annealing of these defects and to decrease of their introduction rate.