KINETICS OF DEFECTS ACCUMULATION IN CONDUCTING MATRIX OF n-Si, IRRADIATED BY FAST-PILE NEUTRONS FLUENCE

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High-resistivity neutron-transmutation-doped n-Si (NTD) have been grown by a method of a floating-zone melting in the atmosphere of argon after irradiation with different doses of fast-pile neutrons is investigated. The temperature dependences of effective concentration of carriers after irradiation are calculated. The calculation was carried out in the framework of Gossick`s model taking into account the recharges of defects both in conducting matrix of n-Si and in the space-charge region of defect clusters. It is shown that the average radius of defect clusters increases with irradiation dose growth. The introduction rate of divacancies in the conducting matrix of n-Si (NTD) is five times less than in n-Si (FZ). During the repeated transmutation doping of such silicon to concentration of carriers ~ 10^{14} cm^{-3}, the repeated irradiation by fast-pile neutrons has shown that the introduction rate of divacancies has decreased approximately for two times. It is possible to assume that in neutron-transmutation-doped n-Si after recovery annealing recombination centres of divacancies are remained.