TEMPERATURE INFLUENCE ON THE FORMATION OF DEFECTS IN n-Si IRRADIATED WITH ELECTRONS

A.G. Kolosyuk, A.M. Kraitchinskii, M.M. Kras'ko, V.B. Neimash, V.V. Voitovych, V.Yu. Povarchuk, O.M. Kabaldin

Institute of Physics, Nat. Acad. Sci. of Ukraine
(*46, Nauka Ave., Kyiv 03680, Ukraine*)

S u m m a r y

The kinetics of formation and annealing of A-centers in silicon with n-type conductivity grown by the Czochralski method (Cz n-Si) under irradiation with 1-MeV electrons have been studied. The irradiation was carried out either at room temperature, with the following annealing at 360 °C, or immediately at 360 °C. The revealed difference between the corresponding kinetics of A-centers was demonstrated to be associated with the difference between the conditions of defect accumulation and annealing. Irradiation does not affect the mechanism of A-center annealing. The reason may be an insufficient excitation degree of the crystal electron subsystem for the given concentration of equilibrium charge carriers. It has been found that the increase of the irradiation temperature within the interval from room temperature to 360 °C practically does not influence the generation rate of free vacancies λ_V, in contrast to the interval from 100 K to room temperature, where λ_V grows with the temperature.