

EFFECT OF THE INTENSITY OF ELECTRON
IRRADIATION ON THE GENERATION
AND ANNEALING OF VO-CENTERS
IN SILICON AT HIGH TEMPERATURES

*M.M. Kras'ko¹, A.M. Kraichinskyi¹, A.G. Kolosiuk¹,
V.B. Neimash¹, V.A. Makara², R.V. Petrunya²,
V.Yu. Povarchuk¹, V.V. Voitovych¹*

¹Institute of Physics, Nat. Acad. of Sci. of Ukraine
(46, Nauky Ave., Kyiv 03650, Ukraine)

²Taras Shevchenko National University of Kyiv
(2, Academician Glushkov Ave., Kyiv 03680, Ukraine)

S u m m a r y

The kinetics of accumulation of vacancy-oxygen (VO) complexes in Czochralski-grown (Cz) *n*-Si is studied at different intensities of a pulsed 1-MeV electron irradiation at 360 °C. It is shown that, in the case of the irradiation accompanied by the simultaneous generation and annealing of VO complexes, the kinetics of their accumulation is nonlinear and has the form of a saturated curve due namely to the annealing. It is found out that there exists a limiting (maximum) VO concentration determined both by the irradiation intensity and by the temperature of samples under irradiation. It is also established that the intensity of high-temperature irradiation of silicon by 1-MeV electrons can essentially stimulate the annealing of the VO complexes created by them. At 360 °C, the variation of the pulse irradiation intensity from 1.25×10^{15} to 1.25×10^{16} electrons/(cm²s) does not noticeably influence the efficiency of generation of VO centers in *n*-Si, but accelerates their annealing by approximately two orders of magnitude.