FEATURES OF LOW-TEMPERATURE ANNEALING OF DIVACANCY DEFECTS IN Si

A. M. Kraitchinskii, S. O. Putselik, I. S. Rogutskii

Institute of Physics, Nat. Acad. Sci. of Ukraine
(*46, Prosp. Nauky, Kyiv 03028, Ukraine*)

S u m m a r y

We investigate peculiarities of annealing of radiation defects in *n*-type silicon at 100 – 160 K. It is established that the annealing pattern depends essentially on characteristics of the source material and irradiation dose. As a whole, the 100 – 160 K annealing stage consists of not two processes, as was earlier found [1, 2], but of three ones: disappearance of V_2Si_i defects and appearance of free vacancies; motion of vacancies and their interaction with oxygen atoms which results in creation of VO_{100} defects (precursors of *A*-centers); transformation of VO_{100} defects in *A*-centers. Kinetic parameters for each process are obtained. It is shown that the activation energy for the process of creation of VO_{100} defects is reduced in comparison with the activation energy for diffusion of vacancies. This decrease is equal to the value of the electron level for a twice negative vacancy.