

PECULIARITIES OF FORMATION OF IMPLANTED ATOM DENSITY DISTRIBUTION BEYOND ION RANGE

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Modeling of diffusion processes of implanted atoms in crystal and point defects, created by irradiation, beyond ion range is fulfilled. The processes of recombination of implanted atoms with thermal vacancy play the key role. It is shown, that a region strong depleted by vacancies beyond the ion range arises. In the end of this region a spike of the probabilities of the recombination processes and also the spike of density of complexes of the vacancies with implanted atoms appear. The sizes of the region rise with increasing density of the flux of implanted ions and the number of defects in crystal. The sizes can significantly exceed the ion range and reach several tens of micrometers. Possible manifestations of effect are analyzed.

Keywords: ion irradiation, defects, thermal vacancy, diffusion, long-range interaction.