INVESTIGATION OF CHANGES IN THE X-RAY SCATTERING BY ORDERED DISLOCATION STRUCTURES DURING THE STRAIN AGEING PROCESS

M.M. Novikov, P.O. Teselko

Taras Shevchenko Kyiv National University,
Faculty of Physics
(*6, Academician Glushkov Ave., Kyiv 03022, Ukraine*)

S u m m a r y

For the first time, we have used triple-crystal X-ray diffractometry for the investigation of the strain ageing of parallel dislocations specially entered into Czochralski-grown silicon samples. The experimental results that testify to a change in the X-ray scattering intensity with ageing are given. Values of the Debye-Waller static factor, sizes, and concentration of X-ray scattering coagulants and changes of these characteristics with the ageing of crystals are determined. The appropriate equal-intensity contours near to (111) node of the reciprocal lattice are constructed. The conclusion about the dislocation-stimulated processes of disintegration of a solid solution of oxygen in silicon is drawn.