

# Defects in $\gamma$ Irradiated Cz-Si Annealed under High Pressure

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The effect of uniform stress on creation of oxygen - related defects in annealed Czochralski grown silicon, with point defects introduced by  $\gamma$  irradiation, is investigated. The (111) oriented Cz-Si samples with interstitial oxygen concentration,  $c_o = 9.5 \times 10^{17} \text{ cm}^{-3}$  were irradiated by  $\gamma$  rays ( $E=1.2 \text{ MeV}$ , dose 1000 Mrad). Next the samples were treated for 5 h or 10 h at 920, 1270 and 1400 K under hydrostatic Ar pressure (HP) equal to 1.1 GPa. The kind, dimension and concentration of defects were estimated from X-ray diffuse scattering data. While the concentrations of point defects were similar for irradiated and non irradiated Cz-Si, X-Ray diffuse scattering was stronger after the HP treatment of  $\gamma$  irradiated samples. The temperature dependent effect of HP at annealing is specific for  $\gamma$  irradiated Cz-Si. The changes in diffuse scattering intensity are accompanied by the changed concentration and dimension of point defects conglomerates; the average defect dimension is below 100 nm. HP affects oxygen precipitation in  $\gamma$  irradiated Cz-Si mostly through its effect on the creation and transformation of  $VO$  and  $V_mO_n$  complexes, the last ones acting as the nuclei for oxygen precipitation.

**Keywords:** Cz-Si,  $\gamma$  irradiation, annealing stress