

# The comparison of the defect generation during the proton irradiation in situ and afterwards in silicon

*Monday 16 November 2009 14:45 (20 minutes)*

It was performed the measurement of the photoconductivity decay in MCZ silicon during the irradiation by protons in Helsinki Accelerator Laboratory. It was found the difference of defect generation in the “fresh” samples in comparison with the preirradiated samples. The main difference was observed in the low irradiation region and becomes similar at high fluences, except of the cases of the irradiation at low temperature (50 K).

The cluster model was analyzed by the density functional method and the deformation of the bandgap in the environment of the cluster was found.

## Summary

It was shown the main defects contributing in the free carrier lifetime are related to the clusters. The trapping effects were observed in the shallow levels.

**Author:** Prof. VAITKUS, Juozas (Vilnius University)

**Co-authors:** Mr ULECKAS, Aurimas (Vilnius University); Dr ZASINAS, Ernestas (Vilnius University); Dr GAUBAS, Eugenijus (Vilnius University); Prof. RAISANEN, Jyrki (University of Helsinki)

**Presenter:** Prof. VAITKUS, Juozas (Vilnius University)

**Session Classification:** Defect Characterization