



Contribution ID: 31

Type: Oral

## Study of gamma irradiated p-type silicon diodes with different resistivities

*Tuesday 28 February 2023 14:45 (20 minutes)*

This study focuses on radiation damage caused by gamma irradiation in standard float zone p-type silicon diodes. We were able to study bulk damage in detail thanks to the separation of bulk and surface currents. The study includes three types of diodes with different resistivities by CNM, HPK and IFX manufacturers. The diodes were irradiated by Cobalt-60 gamma source up to 8.28 MGy in approximate charged particle equilibrium and then annealed for 80 minutes at 60 °C. Electrical properties of diodes were characterized by measuring IV and CV curves of each diode before and after irradiation and annealing. Surface and bulk currents were separated by contacting the guard ring of each diode during all measurements. The measurements of n-in-p type diodes show increasing linear dependence of leakage current and decreasing dependence of full depletion voltage and effective doping concentration on TID that starts to increase again at irradiation dose specific for each type of diode.

**Primary authors:** ZATOILOVA, Iveta (Albert Ludwigs Universitaet Freiburg (DE)); MIKESTIKOVA, Marcela (Czech Academy of Sciences (CZ)); LATONOVA, Vera (Czech Academy of Sciences (CZ))

**Co-authors:** KROLL, Jiri (Czech Academy of Sciences (CZ)); PRIVARA, Radek (Palacky University (CZ)); NOVOTNY, Patrik (Czech Academy of Sciences (CZ)); DUDAS, Denis (Czech Technical University (CZ)); KVASNICKA, Jiri (Czech Academy of Sciences (CZ))

**Presenter:** ZATOILOVA, Iveta (Albert Ludwigs Universitaet Freiburg (DE))

**Session Classification:** Planar sensors

**Track Classification:** Planar sensors