

## **Radiation damage induced by 800 MeV protons in silicon pad diodes**

*Monday 3 June 2013 11:00 (20 minutes)*

Pad sensors made of n-type Magnetic Czochralski (MCz), Float Zone (FZ) and Epitaxially (Epi) grown silicon of different thicknesses (150  $\mu\text{m}$  to 300  $\mu\text{m}$ ) were irradiated with 800 MeV protons at the LANSCE proton facility (Los Alamos). The change of the effective doping concentration resulting from the radiation damage was analyzed and Space Charge Sign Inversion (SCSI) to a p-type-like sensor was observed. The influence of the beneficial annealing on the effective doping concentration and the sign of the space charge were investigated in detail. Electrical properties were characterized before and after irradiation and during a subsequent isothermal annealing treatment at 80 C. Depletion voltages and leakage currents were extracted from Capacitance-Voltage and Current-Voltage (CV-IV) measurements and the results were analyzed by means of the "Hamburg Model".

**Primary author:** SAGIR, Sinan (Brown University (US))

**Co-authors:** GARABEDIAN, Alex Edward (Brown University (US)); JUNKES, Alexandra (Brown University); NARAIN, Meenakshi (Brown University (US)); HEINTZ, Ulrich (Brown University (US)); MAO, Zaixing (Brown University (US))

**Presenter:** SAGIR, Sinan (Brown University (US))

**Session Classification:** Session I