Measurement of the acceptor removal rate in silicon pad diodes

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Measurements were made on the depletions voltages of pad diodes of different thickness and resistivity irradiated with protons and neutrons up to 7E15 n_{eq}/cm^2 .

Two sets of diodes were used.

Epitaxial diodes with a thickness of 50 μ m and different resistivities (10, 50, 250 and 1000 Ohm cm).

Float zone diodes with a resistivity of more than 10 kOhm cm with different thicknesses (100, 150, 200, 285 um).

The depletion voltage is used to extract the effective doping concentration of these devices.

A fit to the data is then done to extrapolate the acceptor removal rate.

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