

Defect spectroscopy on 23 GeV Proton-Irradiated CZ Pad Diodes

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This study focuses on investigating radiation-induced defects in CZ p-type silicon pad diodes by subjecting them to irradiation with 23 GeV protons at various fluences.

Two different diode thicknesses were used: 100 μm and 350 μm . The irradiation fluences applied were $1\text{E}+13$, $7\text{E}+13$, and $4\text{E}+14$ p/cm².

The macroscopic (IV & CV) and microscopic (TSC) radiation-induced changes in the sensors were measured and analyzed.

The presented results include IV and CV measurements taken before and after irradiation, as well as the determination of defect concentrations and defect introduction rates through TSC measurements, utilizing electrical and optical filling techniques.

Additionally, the presence of a not yet understood negative peak spectrum observed in TSC measurements will be reported.

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