

TSC measurements on 200 μm pad diodes, irradiated with 23 MeV protons [Wednesday]

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Future HEP experiments will have to face neutron equivalent fluences up to $2 \cdot 10^{16}$ neq/cm² and an ionizing dose in the order of a few MGy. Thin n+p Si sensors are potential candidates for coping with such radiation environment, but more experimental data are essential in order to: firstly, get a deeper understanding of the properties of hadron induced defects, and secondly develop a radiation damage model based on microscopic measurements such as the Thermally Stimulated Current (TSC) measurements.

In view of this and as a first step, TSC measurements were performed on 200 μm thick Float-Zone (FZ) p- and n-type pad diodes, irradiated with 23 MeV protons. The samples were irradiated in the fluence range $(0.3-1) \cdot 10^{14}$ neq/cm², so that the maximal temperature at which the TSC signal is still sharply distinguishable from the background is 200 K.

During the talk special focus will be given on the newly developed analysis tool for TSC spectra, in order to e.g. calculate defect introduction rates and investigate their annealing behaviour.

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