

Comparative Studies of Irradiated 3D Silicon Strip Detectors on p-type and n-type Substrate

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Double-sided 3D silicon strip detectors, manufactured by CNM on p-type and n-type substrate, were measured after irradiation with sLHC strip- and pixel fluences. The device irradiations were performed at the proton cyclotron in Karlsruhe with 25 MeV protons. Results of measurements with a beta source and an infrared laser will be shown. After a radiation fluence of $2E16 \text{ n}_{\text{eq}}/\text{cm}^2$, the highest fluence studied, the detector on n-type substrate (p+ in n) yields a signal comparable to that of the detector processed on p-type substrate (n+ in p). A relative CCE of more than 50 % can be reached. The influence of different temperatures on signal, noise and charge multiplication will be discussed.

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