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Bias effects in highly irradiated n+-p silicon microstrip detectors after long term annealing

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Effects of long term applied bias on charge collection properties in highly irradiated and annealed FZ n+-p silicon microstrip detectors were examined using the Alibava read-out system and Edge-TCT. A significant drop of both collected charge and the leakage current is observed after keeping the detectors under bias for longer periods of time (>1000 min). The time pattern is found to be fully repeatable under any bias or temperature and obviously seem to influence charge multiplication only. Applying sufficient bias voltage however (>1000 V), results in high enough SNR even after this fall to the stable level (after ca. 2000 min). Both CCE and the leakage current recover after keeping the detectors at room temperature and no bias for more than 24h.

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