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Micron n-in-p analogue SCA pixel detector fine neutron radiation characterization

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The charge sharing between adjacent segmented electrodes is an important parameter for the spatial resolution of tracking silicon sensors. Hadron irradiation is though known to decrease charge sharing by mean of trapping of the signal charge carriers

generated by the ionising event, to eventually reduce the resolution of the sensor to binary. The study of the degradation of charge collection and charge sharing of pixel detectors as a function of hadron irradiation is presented. These pixel sensors were specially conceived for analogue readout with electronics designed for microstrip sensors. This approach allows measuring the detector properties with much higher sensitivity with respect to the electronics currently used for reading out pixilated sensors thanks to the analogue output signal digitised by a 12 bit ADC.

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