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Charge collection in proton irradiated HV-CMOS sensors

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Active silicon sensors produced in CMOS technology are commonly manufactured on substrates of intermediate resistivity and are usually operated under partial depletion. Irradiation and consequent effective acceptor removal changes the depletion depth and therefore the amount of collected charge.
We will present a study of proton irradiation effects in the fluence range of 4e14 - 4e15 neq/cm2 on passive test structures on samples produced by AMS. Wafers of different initial resistivity ranging between 20 and 1000 Ohm-cm were tested. The depletion depth was estimated by Edge-TCT and MIPs from a Sr90 source were used to measure the collected charge.
The measurements will be compared to an earlier neutron irradiation study and the effects on charge collection will be discussed.

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