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Drift Mobility and Electric Field in Silicon Detectors Irradiated with Neutrons and Protons up to 1E17 n_eq/cm^2 [Thu/Friday]

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Electric field in silicon irradiated with neutrons up to 1e17 n_eq/cm^2 and PS protons up to 3e16 p/cm^2 was investigated by edge-TCT. Methods for absolute determination of electric field were developed and electric field profiles in the silicon bulk obtained. From the v(E) dependence mobility degradation with fluence was extracted. A 1/sqrt(Phi) dependence of mobility on fluence was obseved for both irradiations with protons provoking ~20 % more degradation at equal NIEL. The observed mobility degradation and the values of electric field indicate substantial reduction of trapping from linear extrapolation of low fluence values.

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