

Abstract Submitted
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A Method to Measure Real-Time Charged Beam Fluence Above 10^{16} 1-MeV-neutron equivalent/cm² using 3D Silicon Diodes IVAN RAJEN, Univ of New Mexico - Albuquerque — The Pixel detector in the ATLAS Experiment at the Large Hadron Collider at CERN is exposed to extremely high radiation over the lifetime of its use. Upgrades to the Pixel detector for the High Luminosity Large Hadron Collider (HL-LHC) require components that have demonstrated performance at the relevant radiation levels. New technologies proposed for the upgrades are irradiated by our UNM group at the 800 MeV proton LANSCE facility in Los Alamos National Laboratory to verify their operation and radiation hardness up to HL-LHC fluences. I am developing the hardware and software required to measure the profile and fluence of the charged particle beam in real time. The hardware uses 3D silicon particle sensors because of their proven operation at the fluence levels relevant to the HL-LHC. The instrument I am developing and its operation will be described.

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