Abstract Submitted
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Application of Diodes to Measure Particle Beam Fluences Relevant to HL-LHC Requirements by Cooling and Current Reduction[1]
ROBERT REYNA, University of New Mexico — The University of New Mexico ATLAS group has developed a device used for real-time monitoring of particle beam profile and fluence up to 10^{15} n_{eq}/cm^2. The device is based on an array of OSRAM BPW34 PIN diodes, the forward voltage of which increases linearly with fluence over the range $2x10^{12}$ to $1x10^{15}$ n_{eq}/cm^2 at room temperature, before reaching saturation. The aim of my project is to explore the possibility of extending this linear range to a higher limit for consistency with silicon tracker upgrade requirements at the HL-LHC. We examine both cooling the diodes and decreasing the applied forward current used to measure forward voltage.

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