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Title: Wide Band Proton sensor using Diamond Detector

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**Abstract:** The aim of current high energy experiments is to better understand the fundamental structure of universe by studying the properties of fundamental particles as given by the standard model. With the recent discovery of Higgs boson in 2012 it has provided us with more confidence to go beyond the standard model and search for similar heavier particles as proposed by various theories which were unable to be confirmed because such particles belong in the TeV range. For the same reason the experiments at LHC and other high energy labs are shifting to newer phase of particle accelerators. Currently most of the particle detector sensors are made of silicon and the change in the energy levels of the experiments have lead to a very harsh radiation environment for the detector systems. The incident particles damage the silicon crystalline structure. Hence there is a need for new sensor material which can withstand such levels of radiations. Diamond serve as a excellent replacement for the current situation since it has a huge band gap, high carrier mobility and it is extremely dense. Our goal will be to better understand how the diamond detector works and how we can improve its signal detection.

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