

Abstract Submitted
for the APR05 Meeting of
The American Physical Society

CMS HCAL Detector Upgrade Studies for SLHC Conditions

FIRDEVS DURU, The University of Iowa, UGUR AKGUN, The University of Iowa, AHMET AYAN, The University of Iowa — Super Large Hadron Collider (SLHC) will have reduced bunch spacing, increased interactions and crossings compared to LHC. These changes will increase the integrated luminosity to $1000 \text{ fb}^{-1}/\text{yr}$. Under such high radiation conditions the scintillators used for hadron calorimeter (HCAL) of the CMS detector will not survive. As a solution to this problem we propose to use quartz plates along with waveshifting fibers. In this talk we summarize the tests performed and methods developed to increase the efficiency of the quartz plates as well as radiation damage tests done by University of Iowa CMS group.

Firdevs Duru
The University of Iowa

Date submitted: 26 Jan 2005

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