Abstract Submitted
for the SES11 Meeting of
The American Physical Society

Analyzing Potential Tracking Algorithms for the Upgrade to the Silicon Tracker of the Compact Muon Solenoid[1] JOHN HARDIN, University of North Carolina - Chapel Hill, KEVIN MCDERMOTT, University of Notre Dame, CMS COLLABORATION — The research performed revolves around creating tracking algorithms for the proposed ten-year upgrade to the tracker for CMS, one of two main detectors for the LHC at CERN. The proposed upgrade to the tracker for CMS will use fast hardware to trace particle trajectories so that they can be used immediately in a trigger system. The additional information will be combined with other sub-detectors in CMS, enabling mostly the non-background events to be read-out by the detector. The algorithms would be implemented directly into the Level-1 trigger, the first trigger in a 2 trigger system, to be used in real time. Specifically, by analyzing computer generated stable particles over various ranges of transverse momentum and the tracks they produce, we created and tested various simulated trigger algorithms that might be used in hardware. As one algorithm has proved very effective, the next step is to test this algorithm against simulated events with an environment equivalent to SLHC luminosities.

[1]2011 NSF/REU Program Physics Department, University of Notre Dame

John Hardin
University of North Carolina - Chapel Hill

Date submitted: 24 Aug 2011 Electronic form version 1.4