

Abstract Submitted  
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**The FPGA based L1 track finding Tracklet approach SAVVAS**  
KYRIACOU, Rutgers Univ, CMS COLLABORATION — The High Luminosity upgraded LHC is expected to deliver proton-proton collisions per 25ns with an estimated 140-200 pile up interactions per bunch crossing. Ultrafast track finding is vital for handling trigger rates in such conditions. An FPGA based road search algorithm is developed, the Tracklet approach one of a few currently under consideration, for the CMS L1 trigger system. Based on low/high transverse momentum track discrimination and designed for the HL upgraded outer tracker, the algorithm achieves microsecond scale track reconstruction in the expected high track multiplicity environment. The Tracklet method overview, implementation, hardware demonstrator and performance results are presented and discussed.

Savvas Kyriacou  
Rutgers Univ

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