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Triggering on muon showers in the Barrel Muon Trigger of the CMS experiment for the HL-LHC upgrades

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In view of the HL-LHC, the Phase-2 CMS upgrade will replace the entire trigger and data acquisition system. The readout electronics will be upgraded to allow a maximum L1 accept rate of 750 kHz, and a latency of 12.5 μs. The muon trigger is a multi-layer system designed to reconstruct and measure the momenta of the muons by correlating information across muon chambers on the so-called muon track finders. This is achieved with sophisticated pattern recognition algorithms that run on FPGA processors. The Layer-1 Barrel Muon Filter is the second layer of this system, it concentrates the stubs and hits from the barrel muon stations and runs dedicated algorithms to refine and correlate the information of multiple chambers before sending the information to the track finders. We describe the first version of an algorithm designed to detect and identify muon showers. The algorithm has been demonstrated in firmware and the physics performance is also assessed.

Alternate track

I read the instructions above

Yes

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