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Performance of the High Level Trigger System at CMS in LHC Run-2

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The CMS experiment at the LHC selects events with a two-level trigger system, the Level-1 (L1) trigger and the High Level trigger (HLT). The HLT reduces the rate from 100 kHz to about 1 kHz and has access to the full detector readout and runs a streamlined version of the offline event reconstruction. During LHC Run-2 the peak instantaneous luminosity reached values up to $2 \times 10^{34} \text{ cm}^{-2} \cdot \text{s}^{-1}$, posing a challenge to the online event selection. An overview of the HLT system, trigger selections for the online physics object reconstruction, and the main triggers using those physics objects used in the 2016-2018 proton collision data-taking period will be presented. The performance of the main trigger paths using the physics objects in a representative set of physics triggers will also be discussed.

Minioral

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