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Reconstruction and identification of Electrons or Photons by the Level 1 Trigger of CMS

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The LHC machine collides proton-on proton every 25 ns. In the recently started operation of Run-3, the peak instantaneous luminosity delivered is about $2 \times 10^{34} \text{ s}^{-1} \text{ cm}^{-2}$. This results in about $\sim 40 \text{ TB/s}$ of data flow from the detector, all of which cannot be stored offline for detailed analysis. The most interesting events are selected quickly via a 2-tier trigger in real time. The first one, called Level -1 trigger, is a hardware based trigger and the second one uses a computer farm for detailed event analysis. For identification of interesting events with photons and electrons in their final state the Level 1 hardware trigger implements various algorithms that weed out mundane processes. In this talk we present the reconstruction of electron/photon for Level 1 trigger along with an overview of the Electron/Photon trigger setup for Run 3. We will also present the performance of the Level 1 Electron/Photon trigger in the latest Run 3 data.

Session

Future Experiments and Detector Development

Primary authors: THACHAYATH SUGUNAN, Aravind (Tata Institute of Fundamental Research); BARADIA, Sweta (Saha Institute of Nuclear Physics (IN))

Presenter: THACHAYATH SUGUNAN, Aravind (Tata Institute of Fundamental Research)

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