Efficiency Measurements at the CMS High Level Trigger

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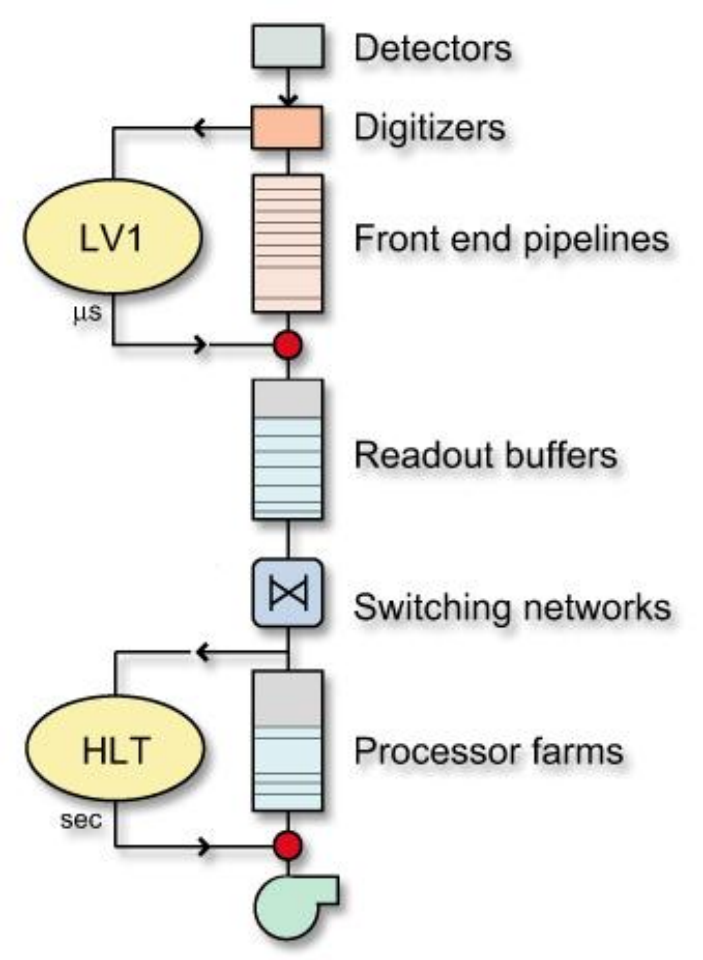
Overview

- CMS Trigger
- Update on missing transverse energy trigger
- Work in progress

CMS Trigger



- Level-1 Trigger (L1T) – Hardware – 40 MHz to 100 kHz
- High Level Trigger (HLT) – loose software reconstruction – 100 kHz to ~100 Hz

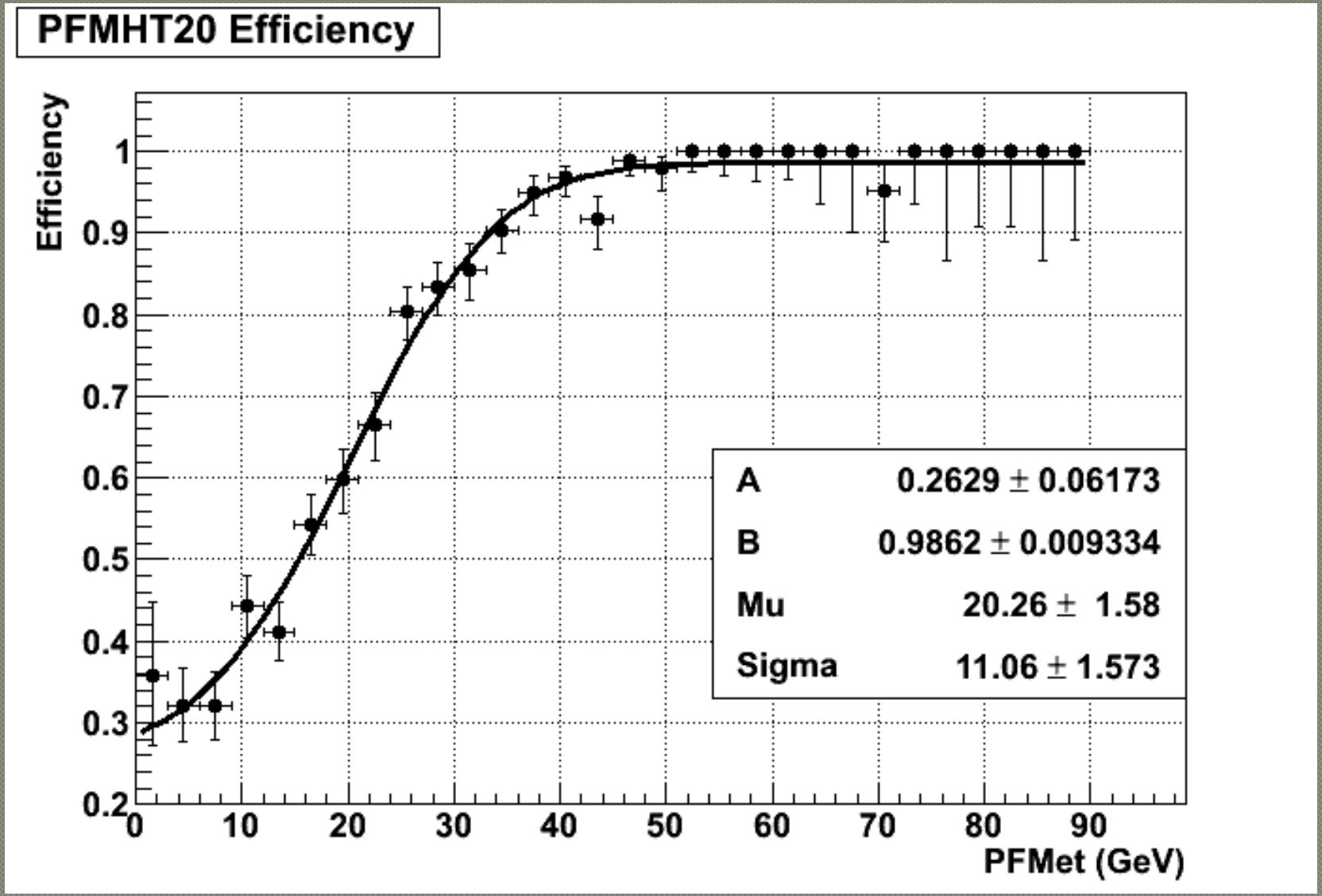
Trigger Efficiency of PFMHT20

- PFMHT – Missing transverse energy trigger (PF – particle flow; MHT – online measurement of missing E_T)
- Goal – save events with missing $E_T > 20$ GeV
- Suggests presence of neutrinos – good for our analysis

Trigger Efficiency of PFMHT20

- From ElectronHad dataset
- Offline Selection – Single electron Pt > 30 GeV
- Mu – Turn-on value
- Sigma – Trigger resolution width

Path:
HLT_Ele25_CaloIdVT_CaloIsoT_TrkIdT_TrkIsoT_CentralJet30_CentralJet25_PFMHT20



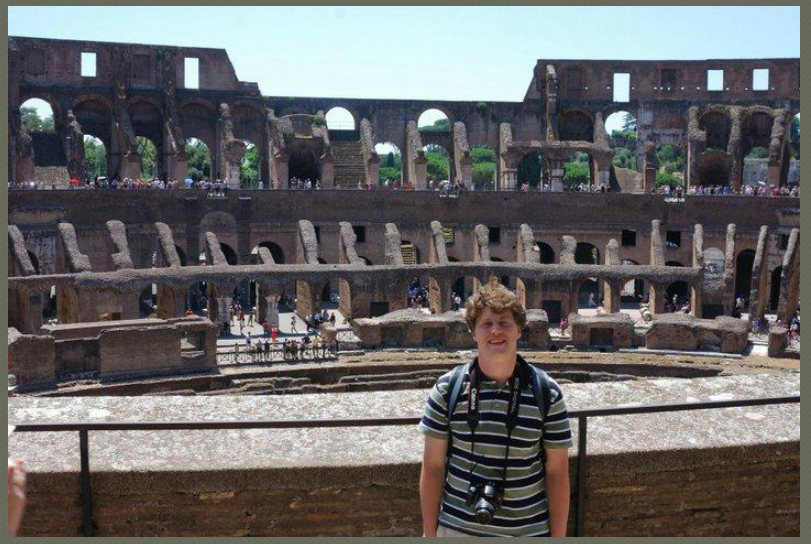
HLT_PFMHT20 Efficiency Analysis

- Broad turn-on curve (large trigger resolution width)
- Plateau reached around 55 GeV
- This is a problem – we make offline cuts at 30 GeV – need to account for this offline

Future Work

- Uncertainty measurement of PFMHT20 efficiency
- Efficiency measurement (with uncertainty) for central jets of Pt 30 and 25
- These measurements will also affect the performance of the trigger analyzed here

Rome/13 hour train ride



Questions?