Top to stop analysis update

Outline

- Inclusive jet trigger Jet_30, jet_3_mon, jet_50, jet_85 and jet_max
- QCD background estimate --- mEt spectrum fitting
- An alternative fitting

**jet trigger**

- jet_30 + jet_3_mon:
  \[0.356 + 0.867 = 1.223 \text{pb}^{-1} \text{ Ec}=40 \text{GeV}\]
  (heavy prescaled)
- jet_50:
  \[4.684 \text{ pb}^{-1} \text{ Ec}=75 \text{GeV}\] (heavy prescaled)
- jet_85:
  \[57.09 \text{ pb}^{-1} \text{ Ec}=115 \text{GeV}\] (small prescaled)
- jet_max:
  \[93 \text{ pb}^{-1} \text{ Ec}=135 \text{GeV}\] (mim prescaled)
QCD estimate: fitting mEt spectrum:

Make mEt spectrum at low range and use 3 functions to fitting:
normalized function: \( \text{abexp}(-\left(\sqrt{\text{bmEt}}-\sqrt{\text{bmEtc}}\right)/2(1+\sqrt{\text{bmEtc}}) \)
Gaussian: \( \text{c1exp}(-\left(\text{mEt-c2}\right)^2/2\text{c3}) \)
exponential function: \( \exp(\text{c1+mEtc2}) \)
Choose the fitting with min chi square as estimated QCD background
Because of the bigger difference in luminosity, there are big fluctuations
In order to remove the fluctuation in QCD, we use an exponential function to fit QCD background at low Et range and extrapolate to high Et range. We use jet_3_mon+jet_30 sample to get QCD at Et>40 GeV because at this range these two triggers are fully efficient.

Or get QCD at high Et range, the low range value is derived from this exponential function. We use jet_85+jet_max sample in order to have good efficiency and good statistics at Et>110 GeV.

Compare luminosities of the two methods, the latter is better.