Status Report

2015. 11. 18

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Action Item

- Dimuon plots
  - pT > 25GeV, $|\eta|$ < 2.4
  - Dimuon pT, eta, invariant mass
  - Include Ratio plot (data/DY)
  - M60to120
  - Log scale

- Calculate Z$\rightarrow \mu\mu$ Cross Section
  - $\sigma = \frac{N}{A\epsilon L}$
  - N = $350665 \times (1 - 0.03)$ (exclude γ^* 3%)
  - L = 569.017 pb^{-1}
  - A, ϵ
  - Error propagation

Acceptance

- Fraction of muon events with
- $p_T^{gen} > 25 GeV$, $|\eta^{gen}| < 2.4$
- $60 < m_{inv}^{gen} < 120\ GeV$

$$\rightarrow N_{gen}^{acc} = 14{,}326{,}358$$

- Total number of muon events in the same mass range.

$$\rightarrow N_{gen}^{tot} = 19{,}119{,}769$$

$$\therefore A = \frac{N_{gen}^{acc}}{N_{gen}^{tot}} = 0.749?$$

Efficiency

- Fraction of selected events with
- $60 < m_{inv}^{reco} < 120 GeV$
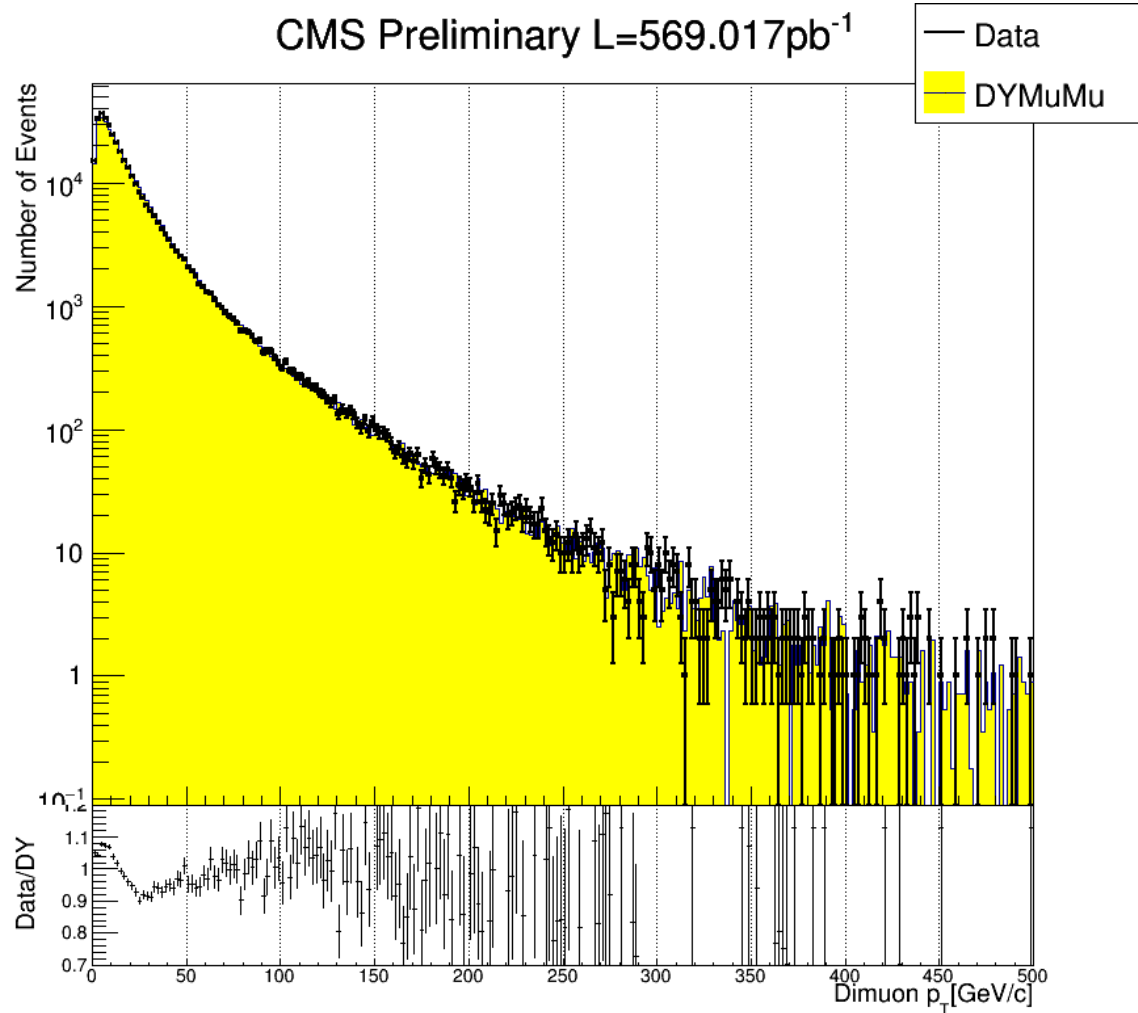
$$\rightarrow N_{reco}^{sel} = 2{,}504{,}640$$

- Divided by $N_{gen}^{acc} = 14{,}326{,}358$

$$\therefore \epsilon = \frac{N_{reco}^{sel}}{N_{gen}^{acc}} = 0.1748?$$
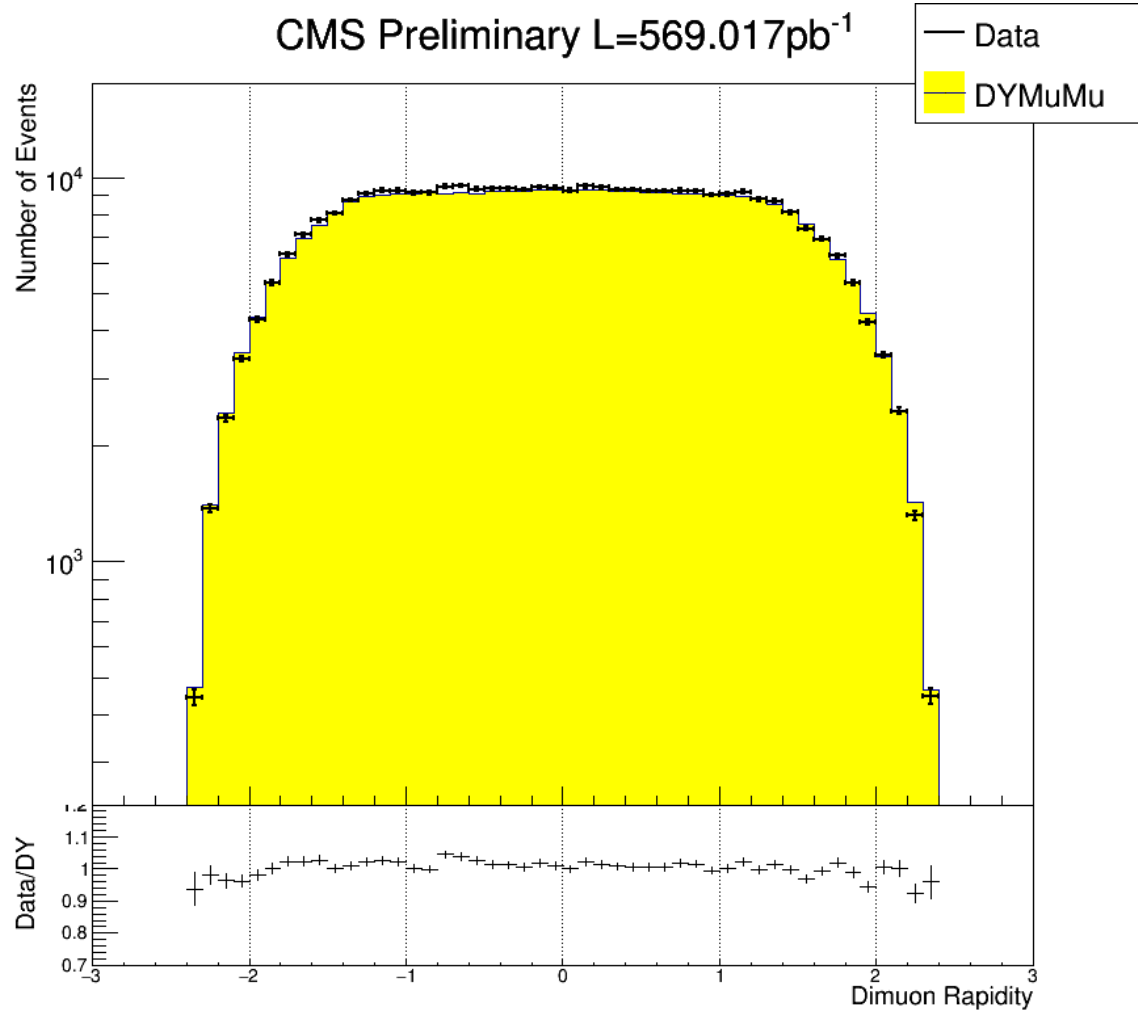
Cross Section

- $\sigma = \dfrac{N}{A\epsilon L}$
    - N = $350{,}665 \times (1 - 0.03)$ (exclude γ^* 3%)
    - L = 569.017 pb^{-1}
    - A = 0.749
    - ϵ = 0.175
- $\therefore \sigma(Z \rightarrow \mu\mu) = 4560.569 \ pb$?

Dimuon pT

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Dimuon Rapidity

Dimuon Invariant mass

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