Study of Drell-Yan Differential Cross Section

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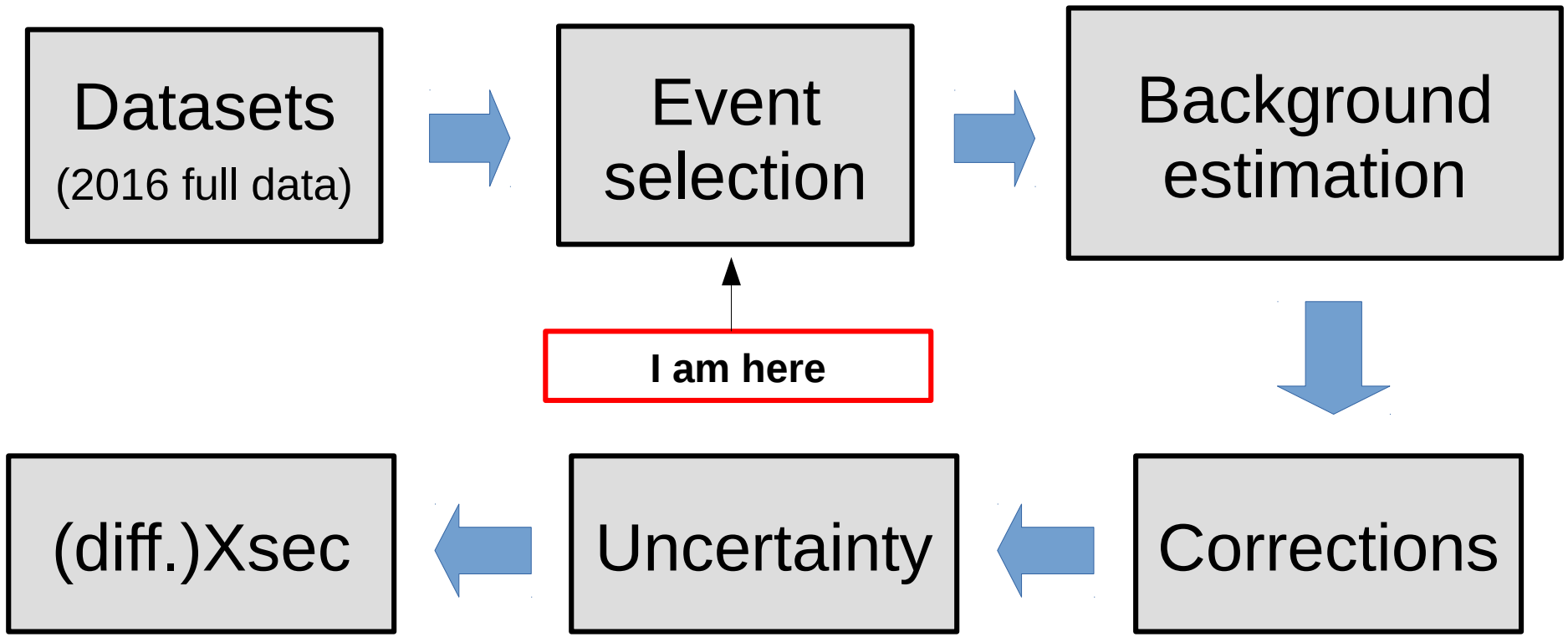
Introduction

- The study about the differential Drell-Yan cross section in the dilepton channel with the 2016 full data corresponding to an integrated luminosity of 35.9 fb^{-1}
- Study about the event selection was done, and the correction part is on going for both dilepton channels.
- Analysis strategy is same for previous analysis



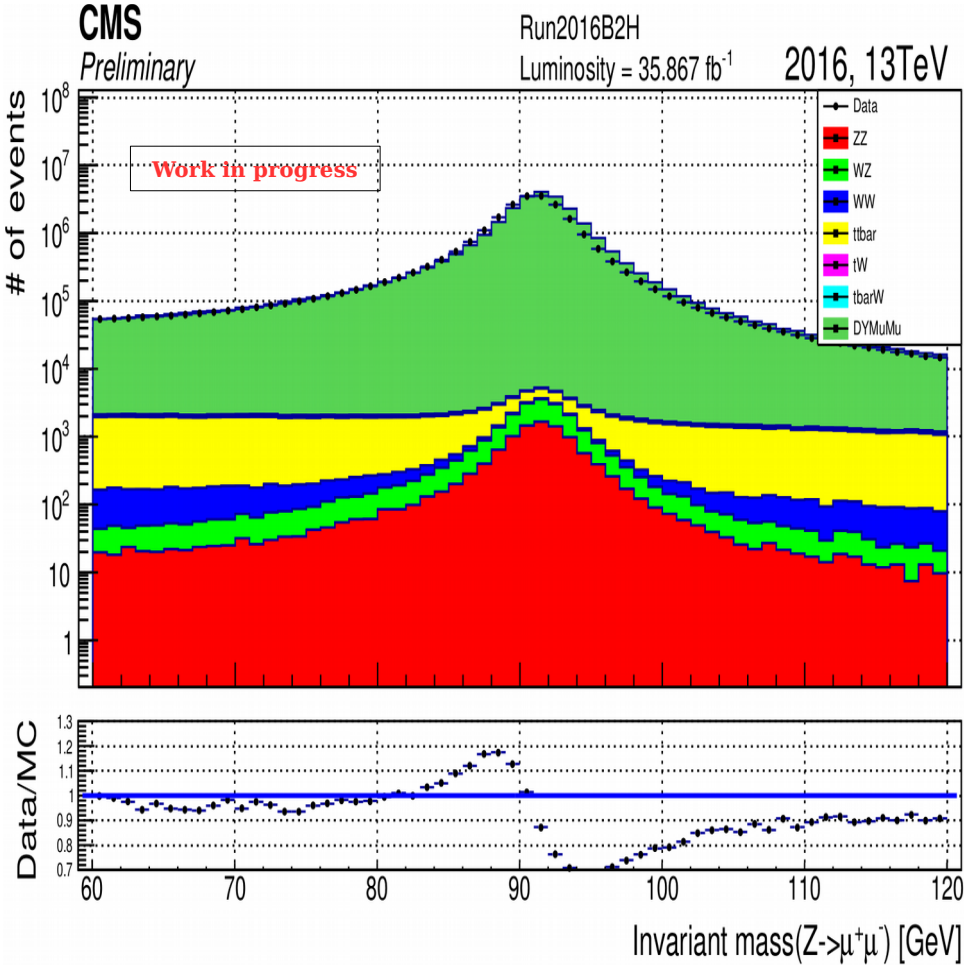
Analysis Status

- CMS standard event selections were studied
- Run and geometric dependencies were investigated
- Comparison of Data and Monte Carlo in all variables
- **Muon** channel :
  - Momentum and efficiency corrections were applied
    - ✔ Z peak region → full mass range
- **Electron** channel :
  - Currently the study about the energy scale correction is on going
  - Efficiency scale factor has been produced by T&P method
    - ✔ Especially focusing on electron ID

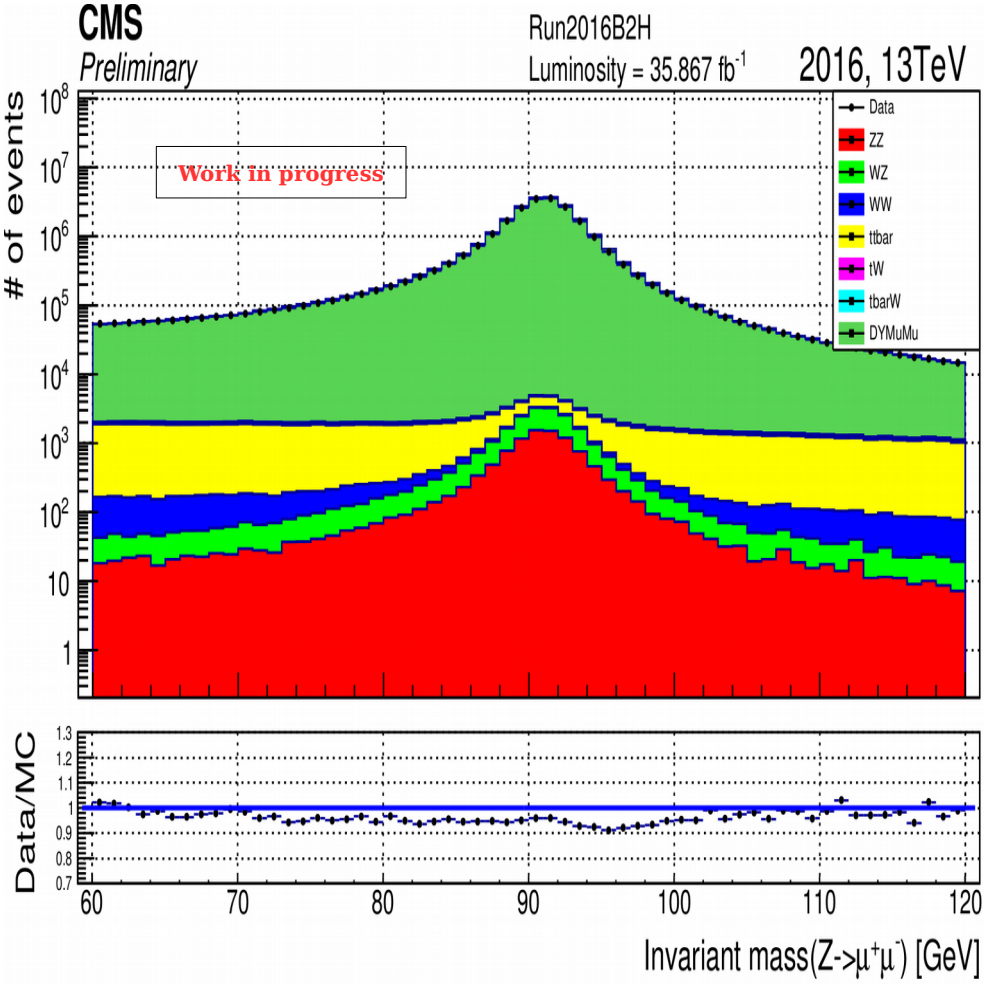
Muon Channel

- **Muon momentum and efficiency corrections in Z peak region (60-120GeV)**

Before Correction



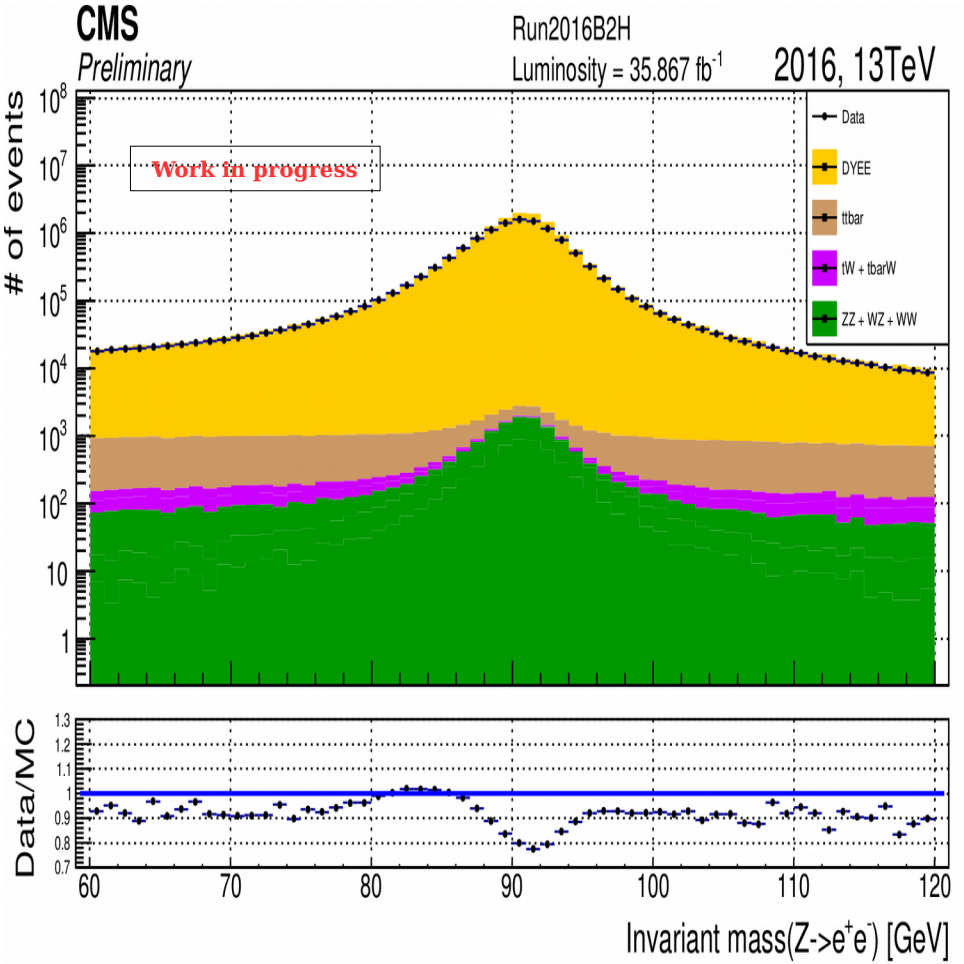
After Correction



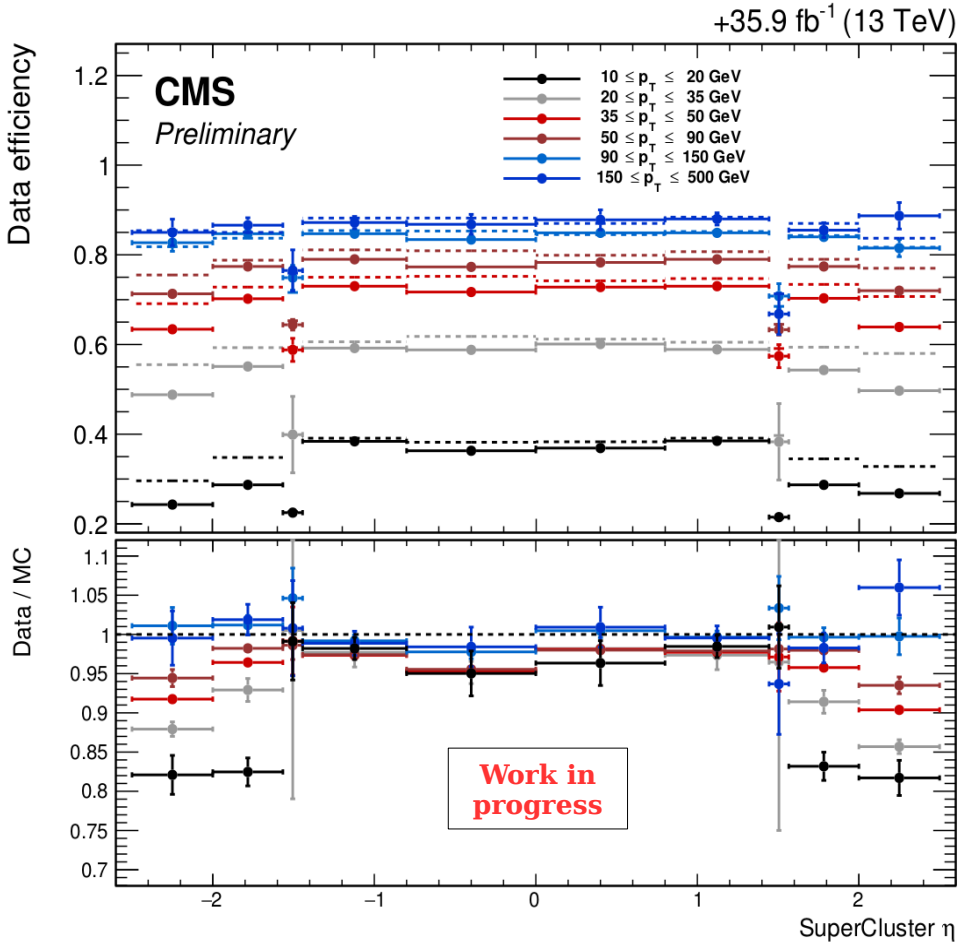
Electron Channel

- **Dielectron invariant mass in Z peak region (60-120GeV) and electron ID SF**

Before Correction



Electron ID Eff. & SF



Summary

- The Drell-Yan differential cross section measurement is studied in dilepton channels (μμ or ee) with full 2016 dataset
- SF used in efficiency correction is produced by the T&P method (electron ID)

- Future plan :
  - Study about the background estimation
  - Full corrections including detector resolution and FSR corrections will be studied
  - The calculation of uncertainty & (diff.) cross section

Thank you!