

Charge flip estimation effort

H⁺⁺H⁻⁻ Meeting

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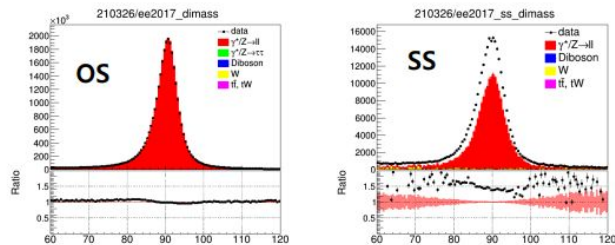


May 12, 2023

Comparison with study by DY Afb measurement group

SS method: CF rate

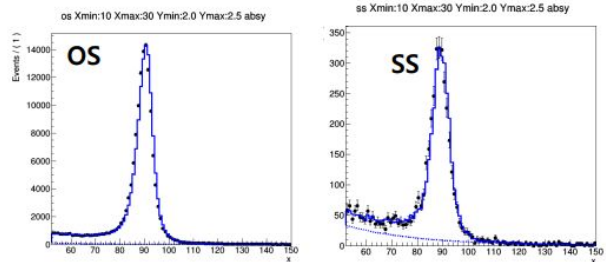
- Isolated SS dielectron region contaminated by charge-flip contributions
- To appropriately describe CF, scale factors for CF are measured



CF rate in bins of electron p_T and η

- p_T bin = [10, 30, 40, 50, 70, 100, 200]
- η bin = [0.0, 1.0, 1.4, 1.7, 2.0, 2.5]
- fitting OS and SS data with MCTemplate+CMSShape
- In data, we don't know which lepton is charge-flipped
 - use MC to take account of this -> need to iterate

Fitting example ($10 < p_T < 30$, $2.0 < |\eta| < 2.5$)

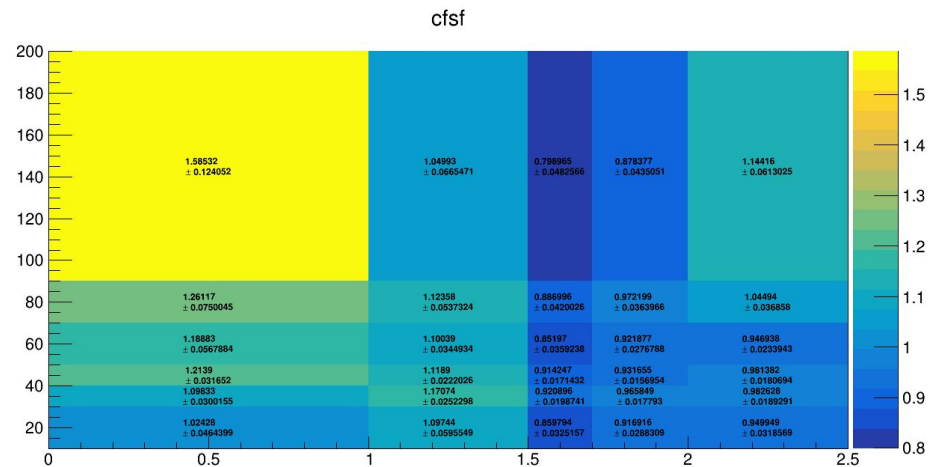
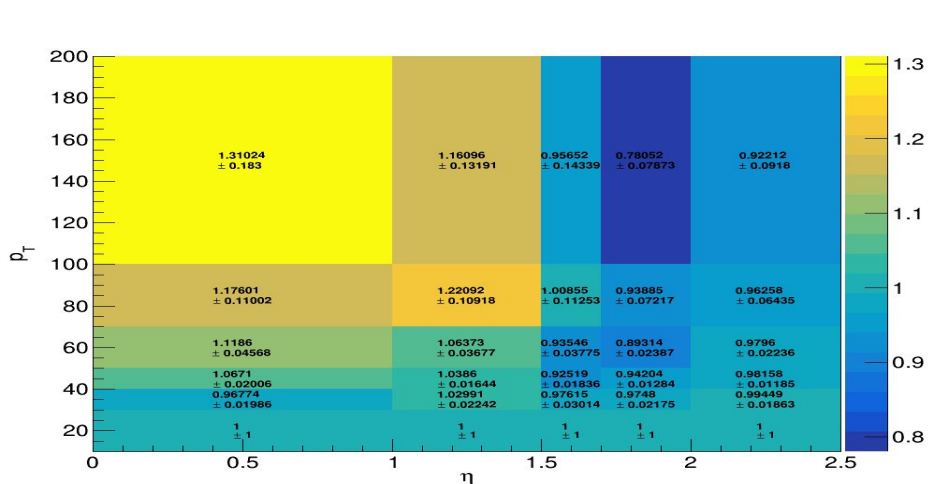


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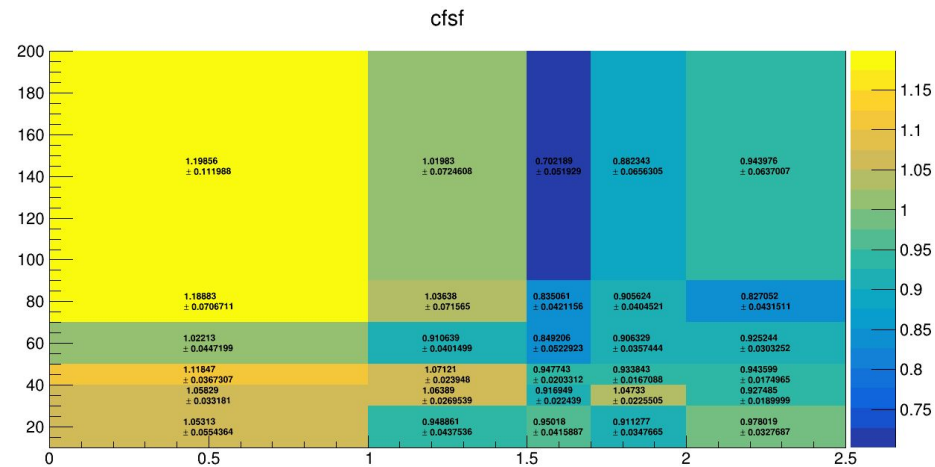
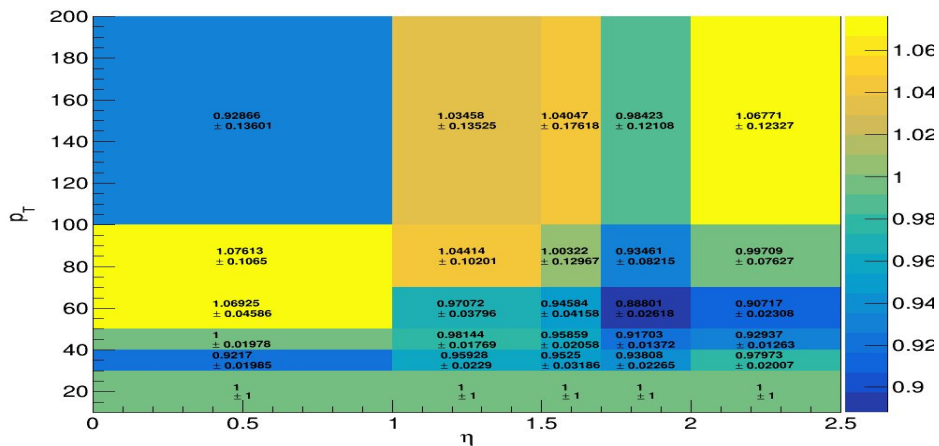
- Not exactly clear how these di-electron events are selected
- Presumably it differs a bit with respect to what I am using:

```
electronCuts = {
  'Electron_pt': '>10.0',
  'abs(Electron_eta)': '<2.5',
  'Electron_cutBased_HEEP': '',
  'Electron_pfRelIso03_all': '<0.4',
  'abs(Electron_dxy)': '<0.05',
  'abs(Electron_dz)': '<0.1'
}
```

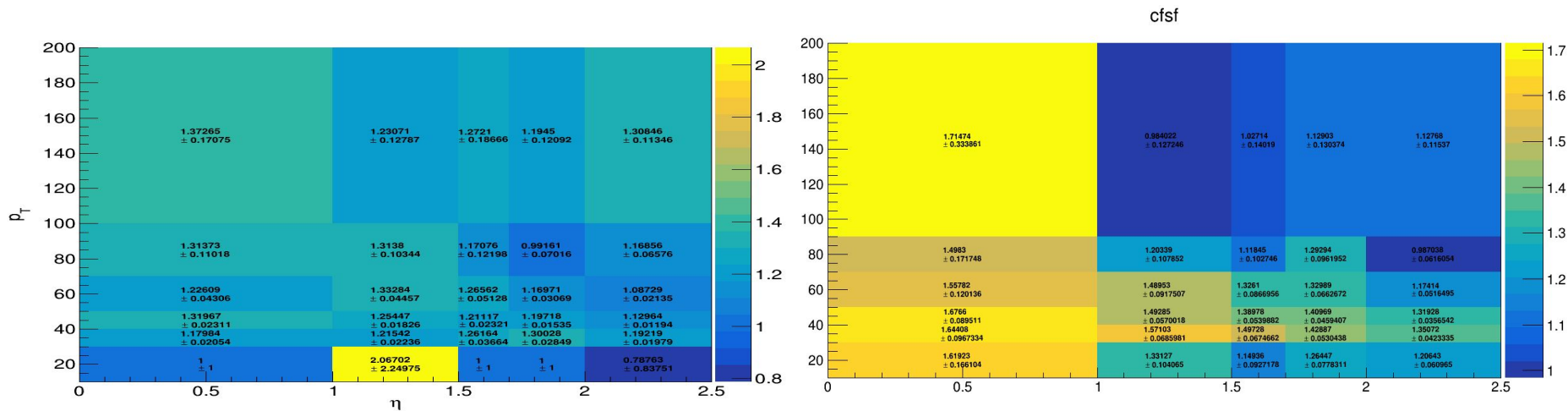
2016OG SF(Data/MC) with cfsf



2016 SF(Data/MC) with cfsf



2017 SF(Data/MC) with cfsf



2018 SF(Data/MC) with cfsf

