



中国科学技术大学

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Obtain J_{ψ} shape by p_T smearing

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MC

➤ MC:

➤ LHC23d1k:

520259, 520294, 520471, 520472, 520473

➤ pp, 13.6 TeV - General Purpose MC anchored to LHC22f aPASS4

```
export O2DPG_ENABLE_TPC_DISTORTIONS=ON
SCFile=$PWD/distortions_5kG_lowIR.root # file needs to be downloaded
export O2DPG_TPC_DIGIT_EXTRA=" --distortionType 2 --readSpaceCharge ${SCFile} "
```

In particular:

- same tag as data [O2-3346]
- ideal ITS/MFT alignment
- no TPC distortion maps (issue when simulating TPC distortion maps in MC (unexpected efficiency loss))
- PID in MC [O2-3346]
 - TPC Nsigma shifted since TuneOnData not yet implemented
 - TOF PID shifted because of a 70 ps shift in FT0 event time

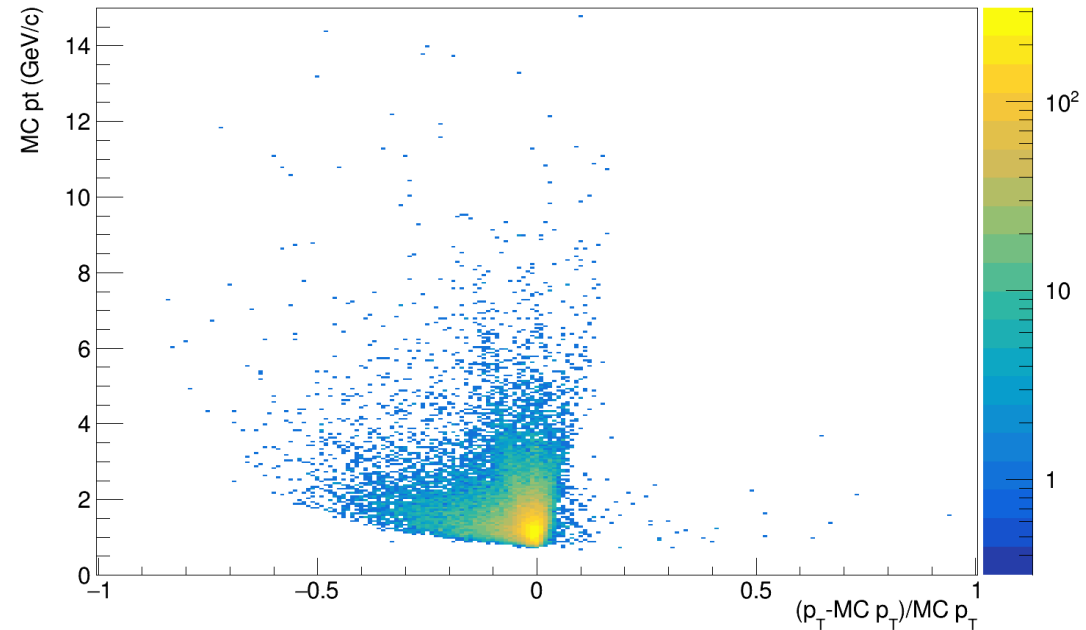
pT resolution

Track selection

- $p_T > 1 \text{ GeV}/c$
- $|\eta| < 0.9$
- $\text{ITSncls} > 2$
- $0 < \text{ITSchi2} < 4$
- SPDany
- $\text{TPCncls} > 90$
- $0 < \text{TPCchi2} < 4$
- $|\text{DCA}_{xy}| < 1$
- $|\text{DCA}_z| < 3$

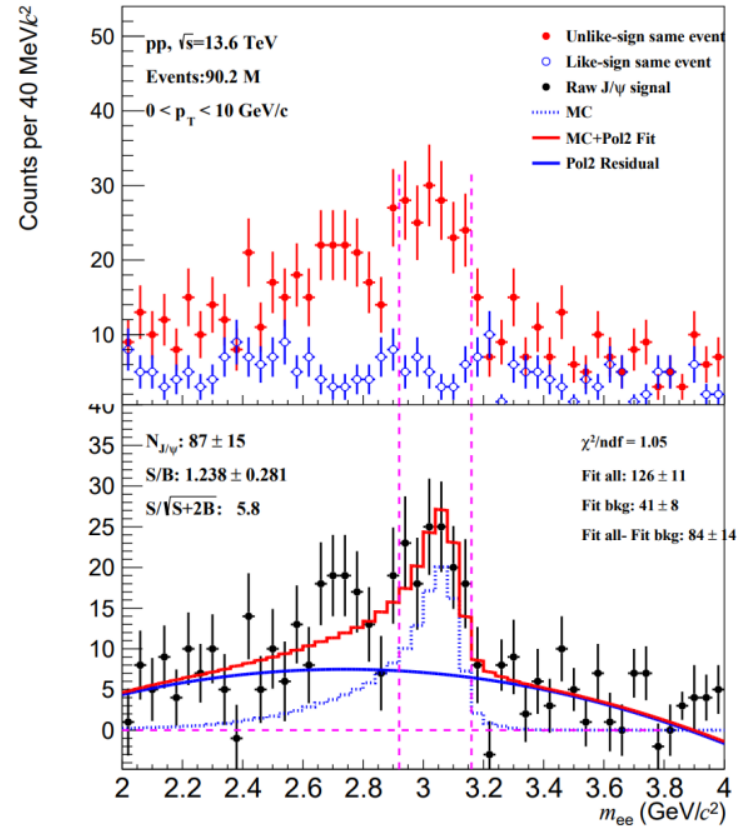
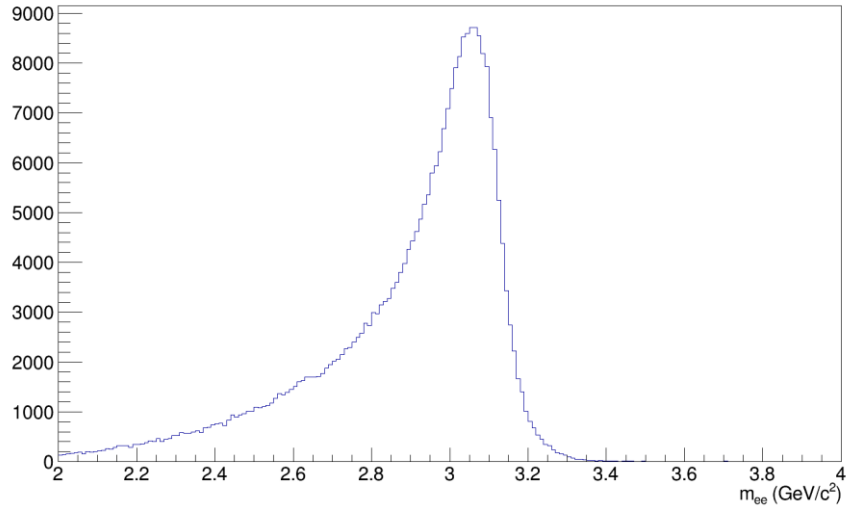
- $-3 < \text{TPC}n\sigma_e < 3$
- $\text{TPC}n\sigma_p > 3$
- $\text{TPC}n\sigma_\pi > 3$

- eFromAnything

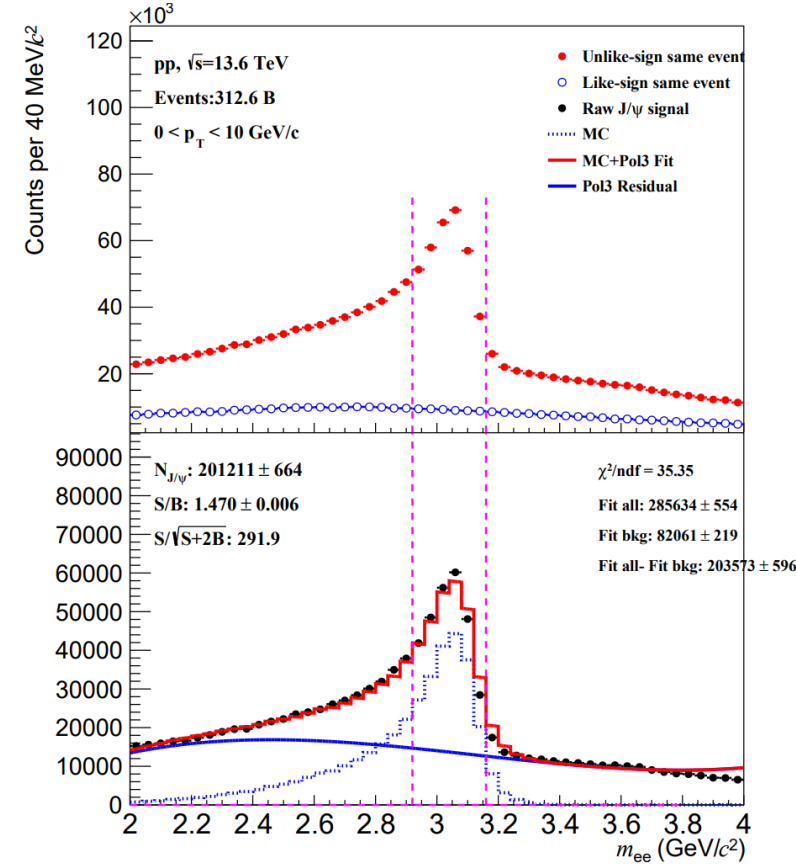


- Toy-MC is used to simulate $J\psi \rightarrow ee$ decay.
- p_T of electrons are smeared according to the p_T vs MC p_T distribution.

Jpsi signal



LHC22f



LHC22o