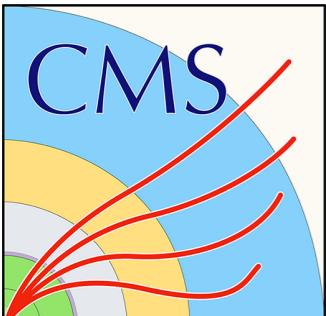


# Fragmentation of J/ $\psi$ in jets in pp at $\sqrt{s} = 5.02$ TeV

**Batoul Diab**

On behalf of CMS collaboration  
Laboratoire Leprince-Ringuet  
19/05/2018



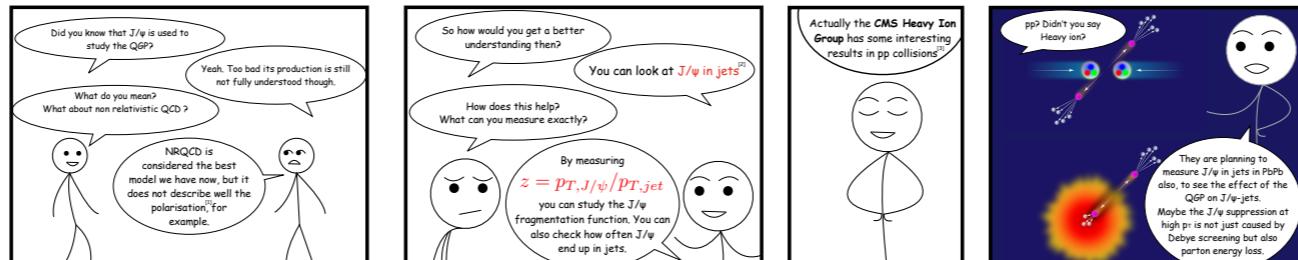
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LHC

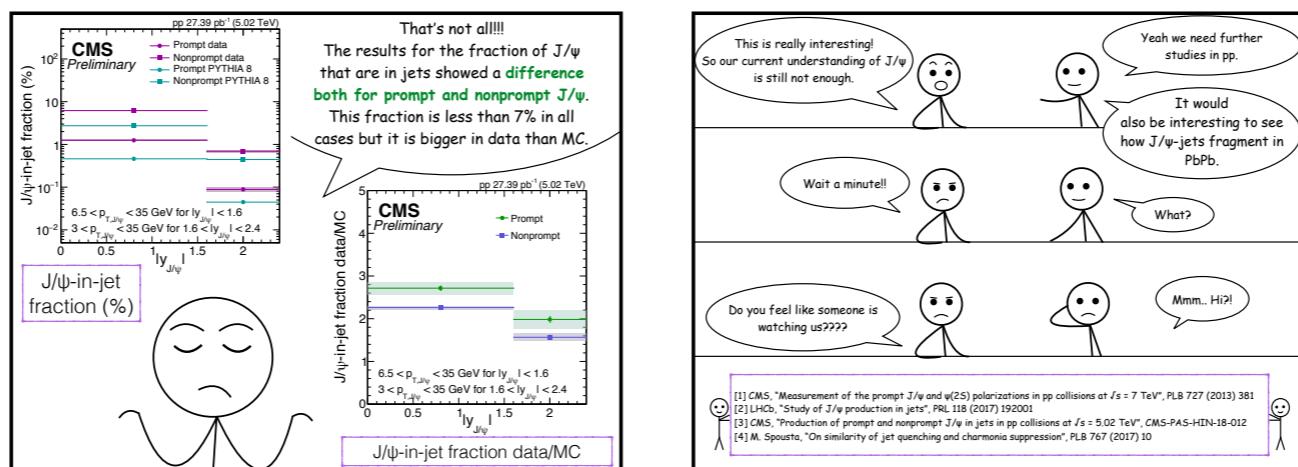
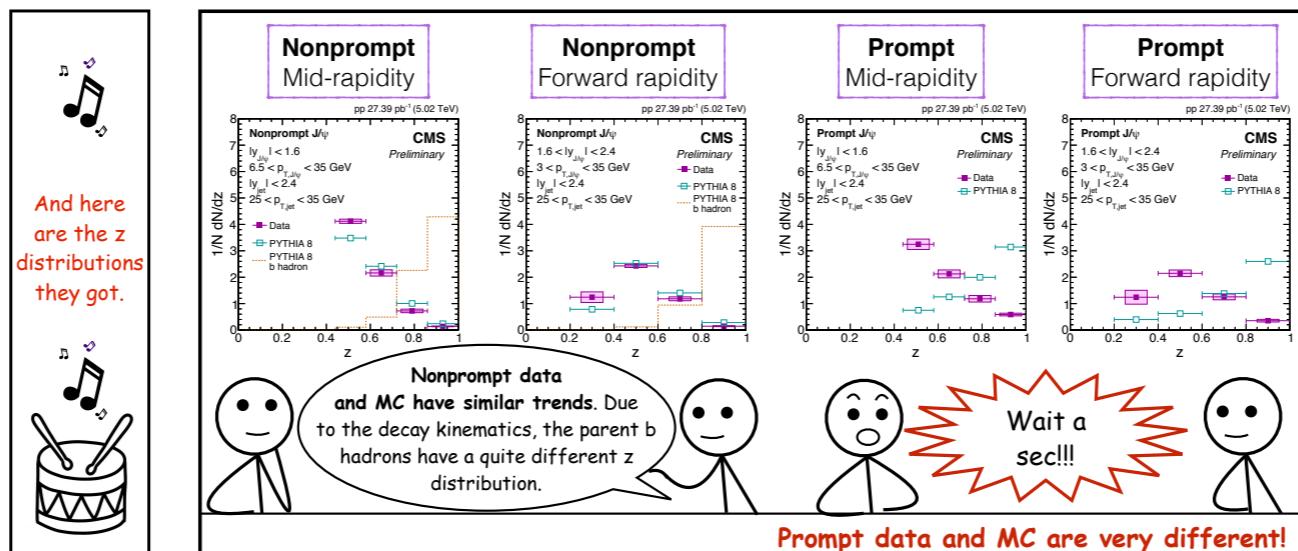
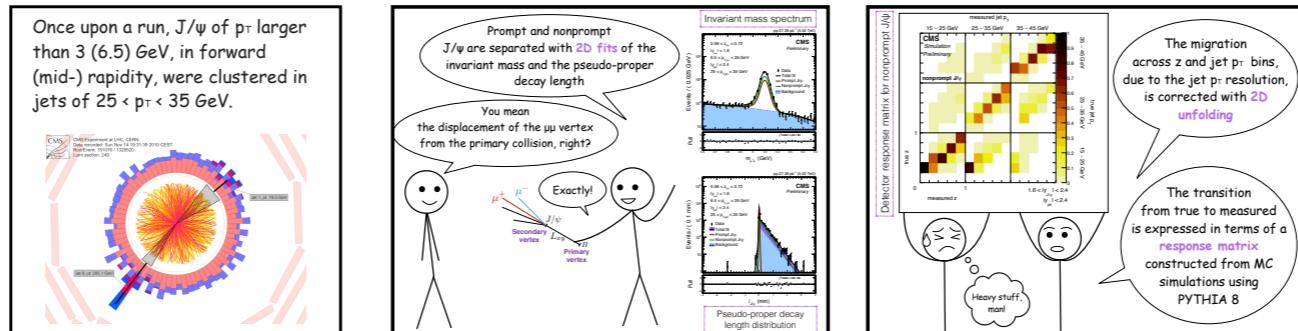
# Fragmentation of jets into J/ $\psi$ with CoMicS

Batoul Diab



You mean like jet quenching?<sup>[4]</sup>

Maybe! let's take a look together at their results.



The End

J/ψ are used as a probe for QCD phenomena

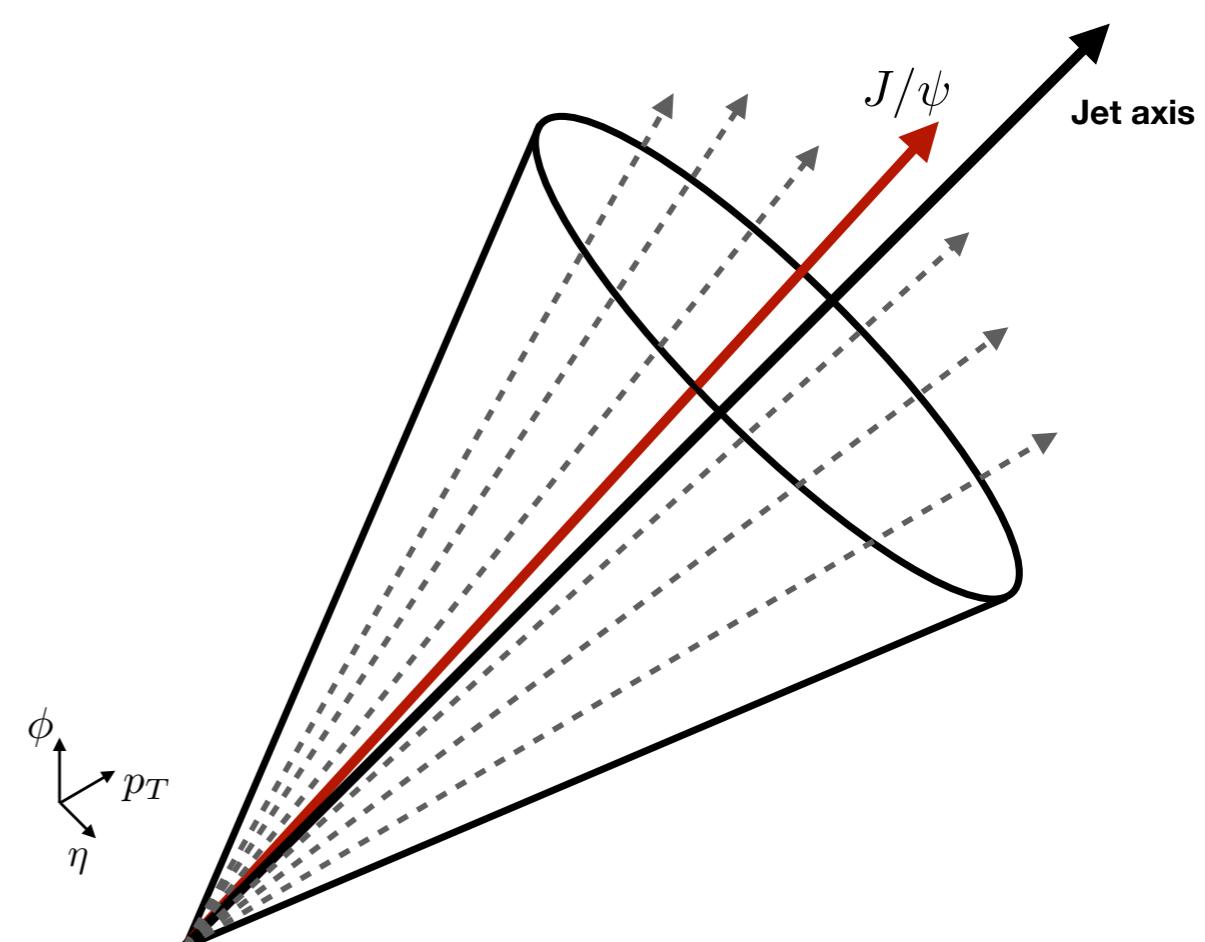
The production of J/ψ is not fully understood:

- Study J/ψ in **pp collisions** first

Are J/ψ isolated? → **J/ψ in jets**

- fragmentation pattern?
- fraction of J/ψ produced in jets?

$$z = \frac{p_{T,J/\psi}}{p_{T,jet}}$$

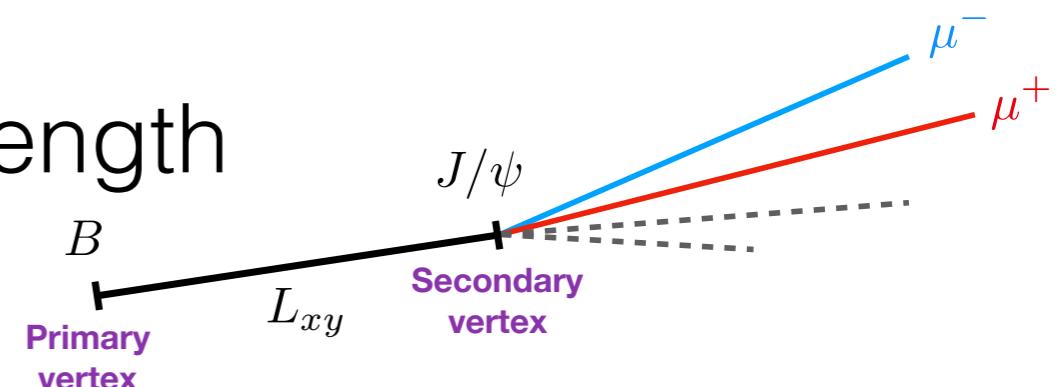
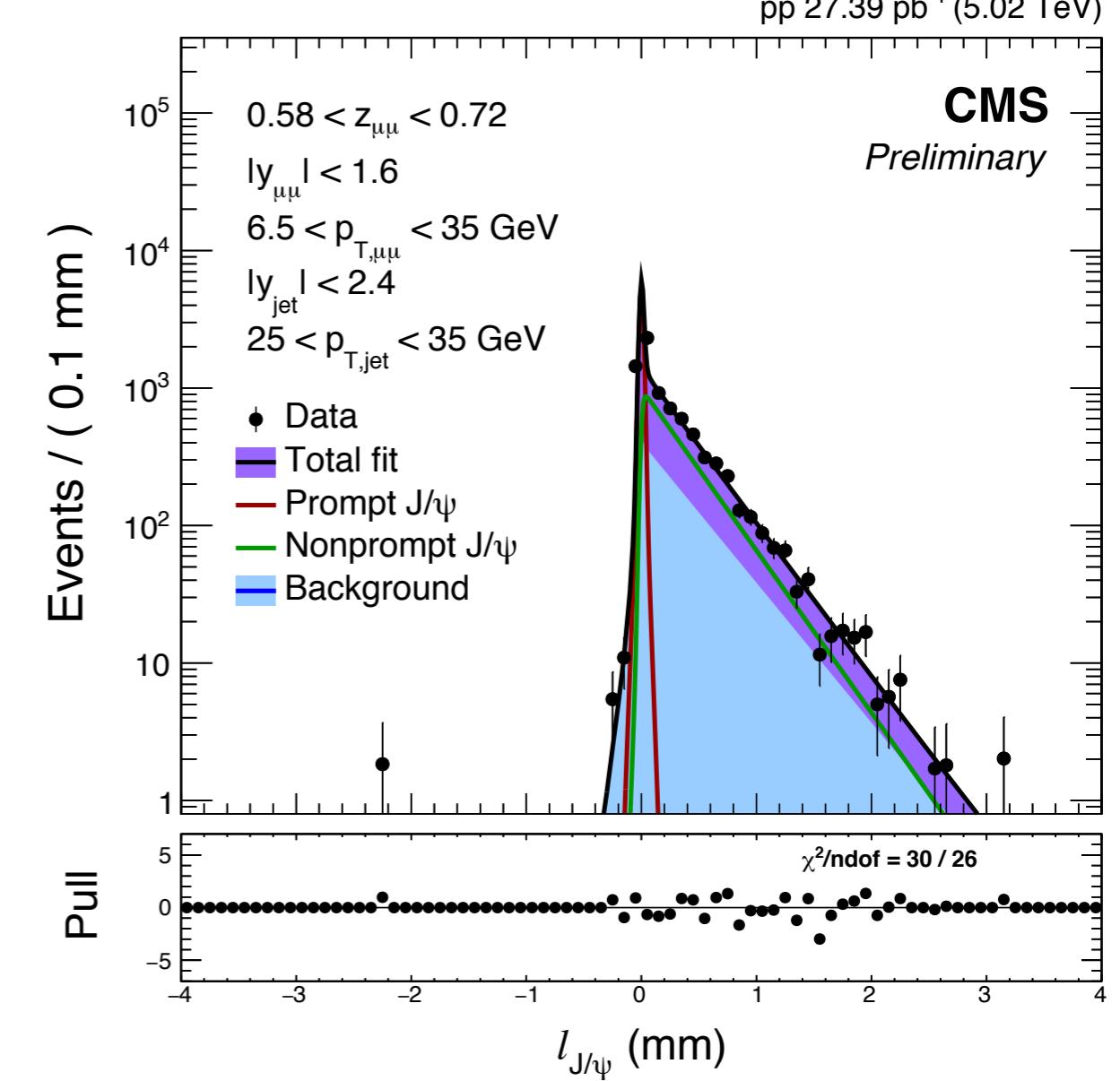
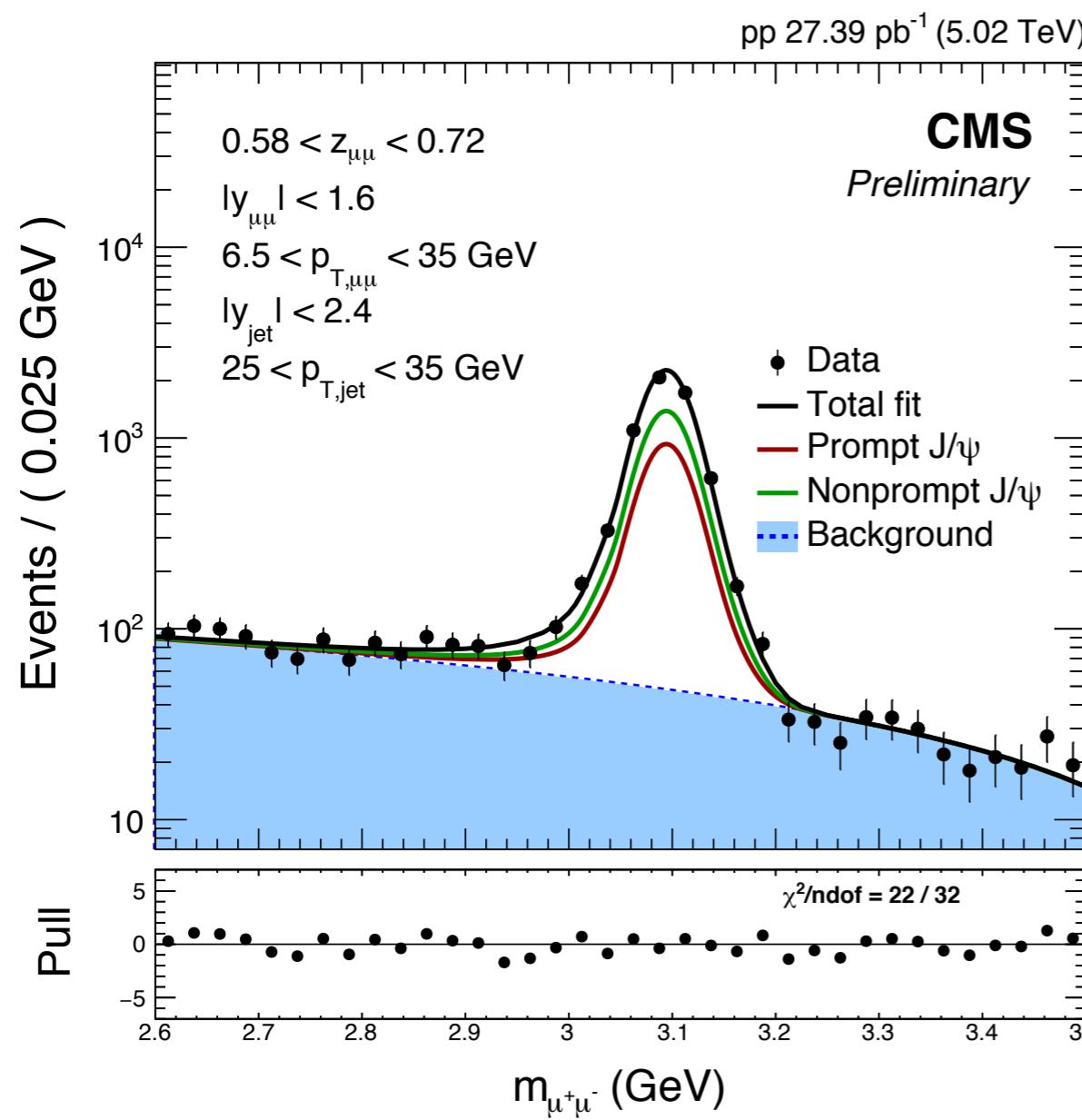


\*measured also by LHCb PRL 118, 192001 (2017)

# Prompt vs nonprompt J/ $\psi$

UR

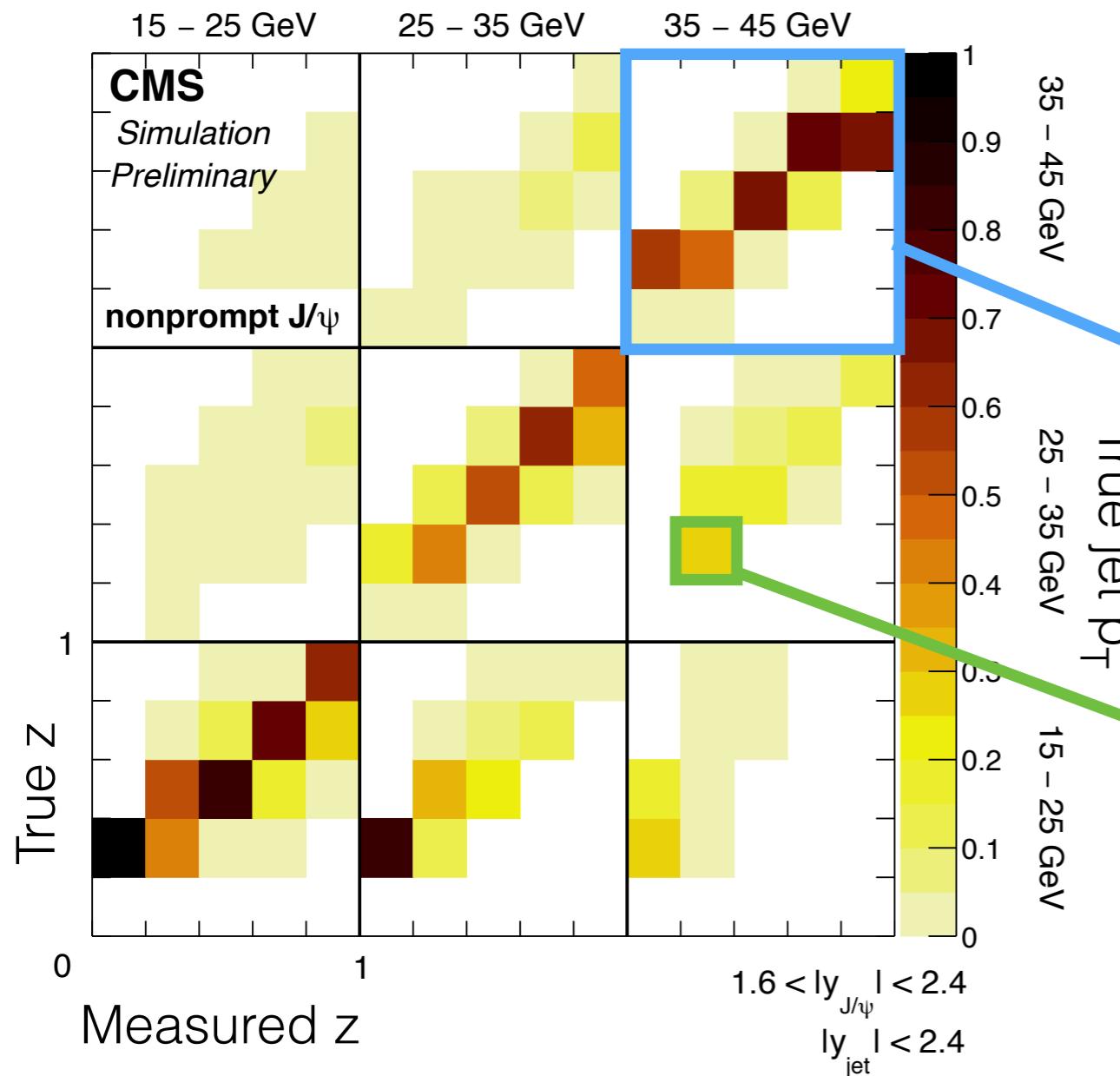
2D fits of invariant mass and decay length



# Correction for detector effects

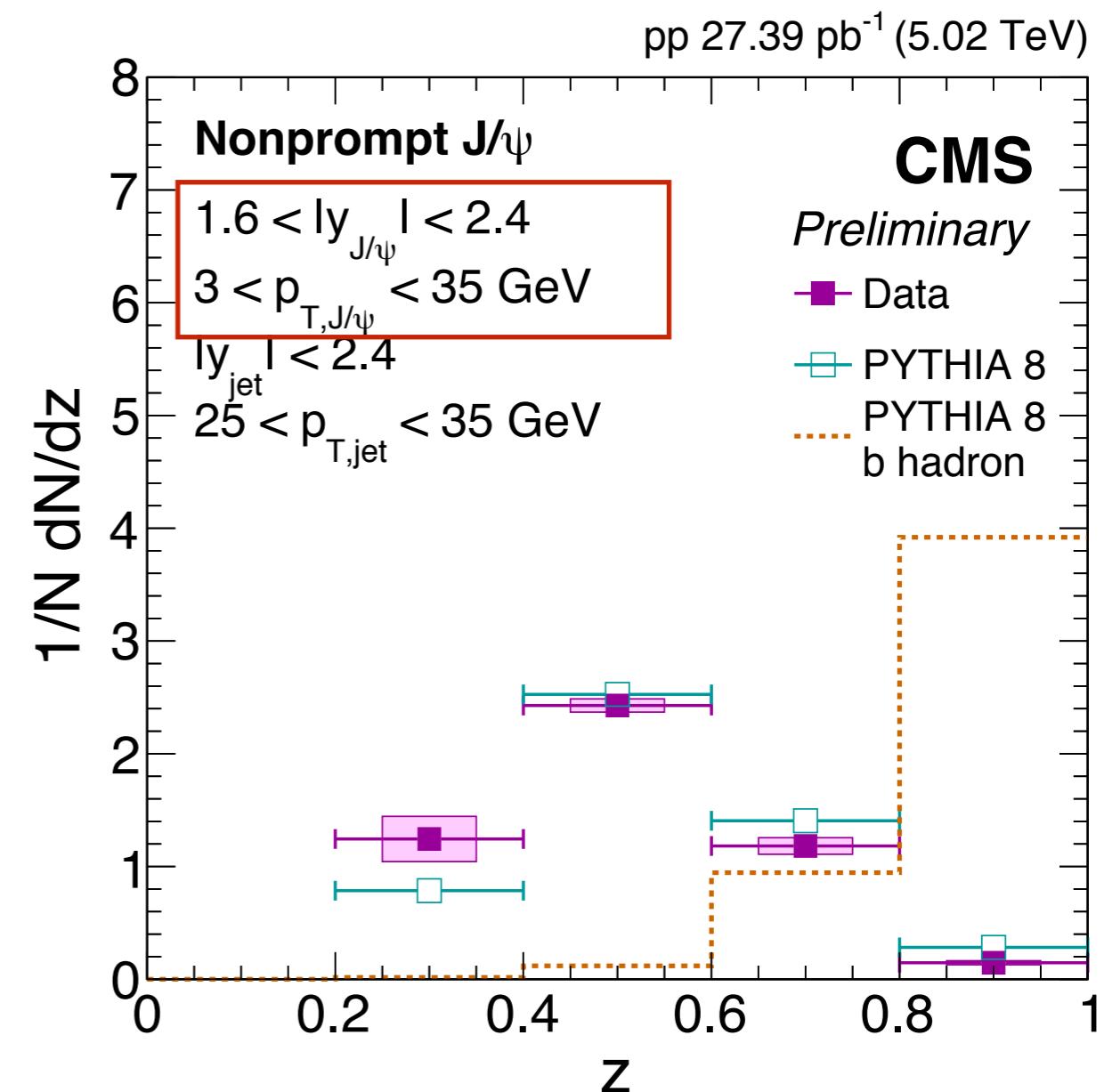
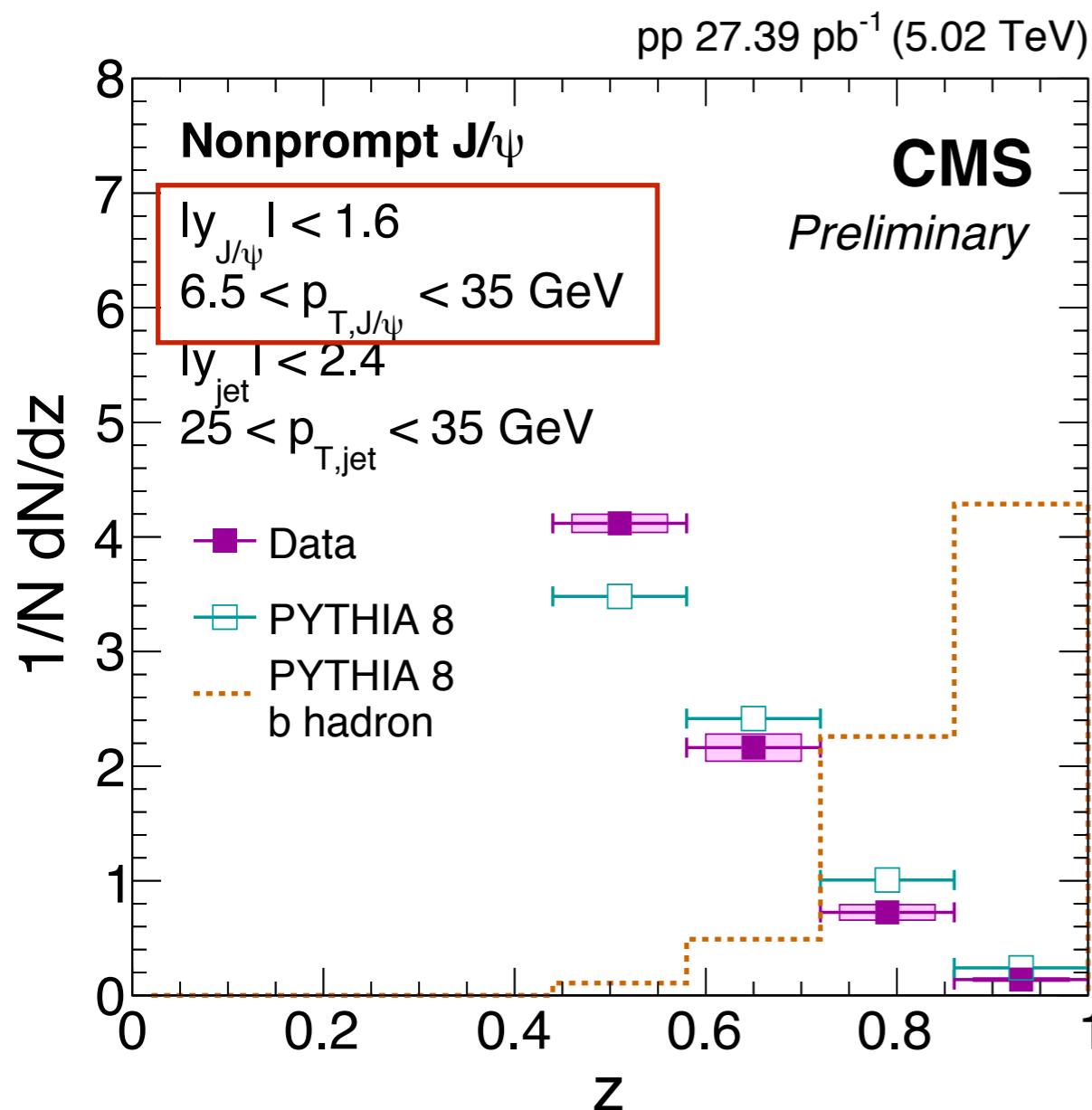
## 2D unfolding: z and jet $p_T$

Measured jet  $p_T$



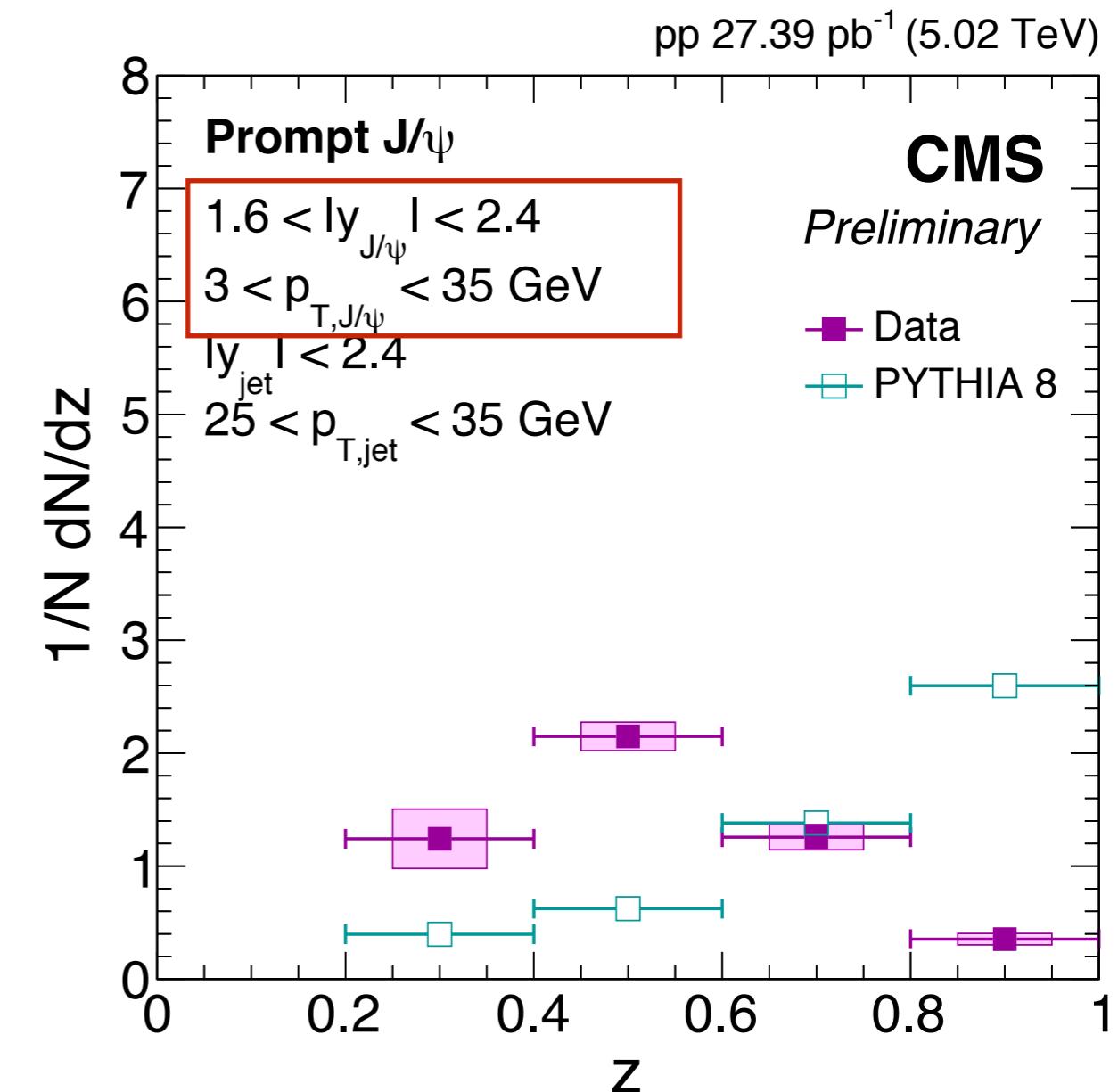
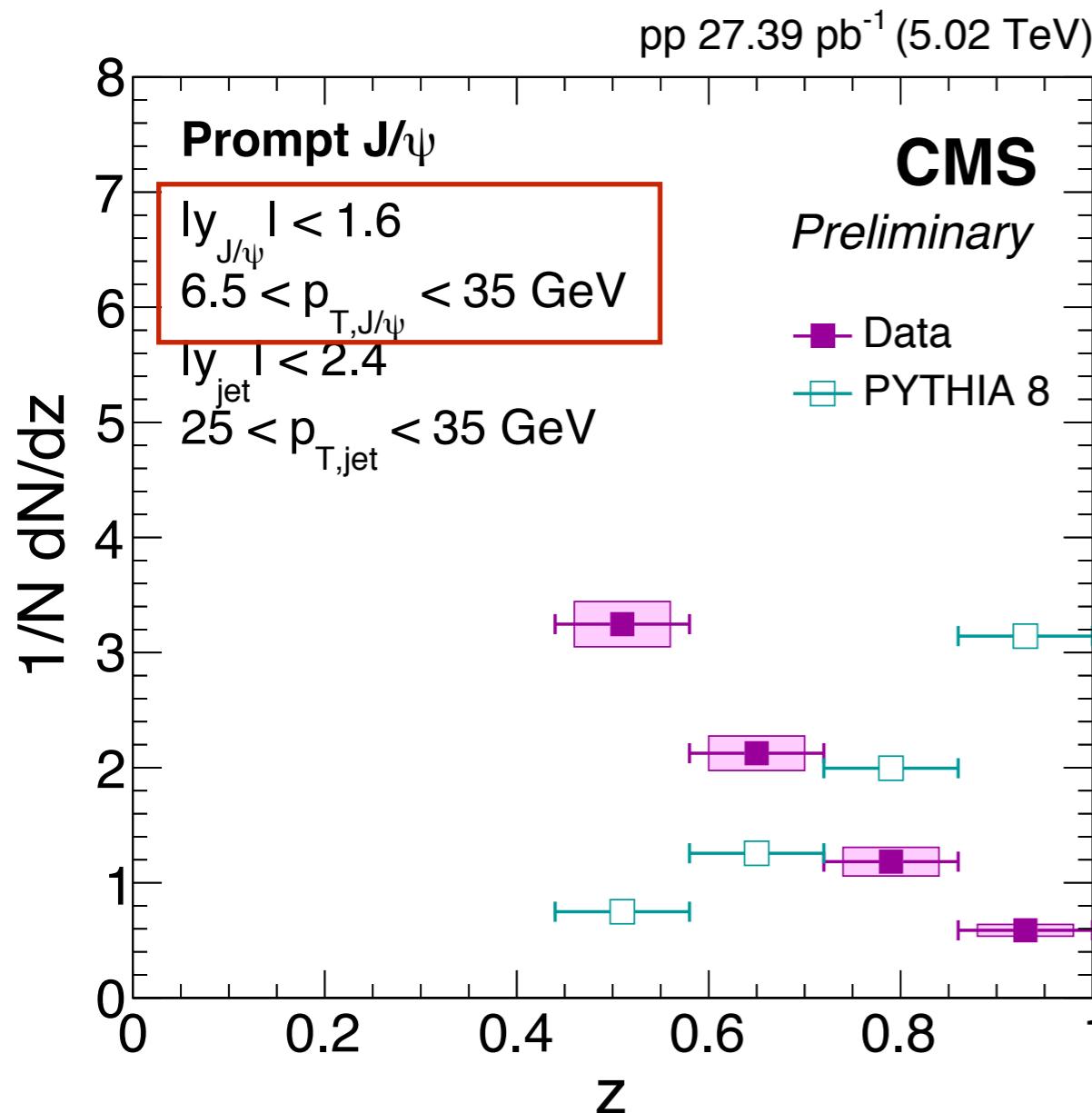
Final results at “particle level”

# Nonprompt J/ $\psi$ results



**Similar behaviour in data and Pythia**  
 Expected due to the decay kinematics

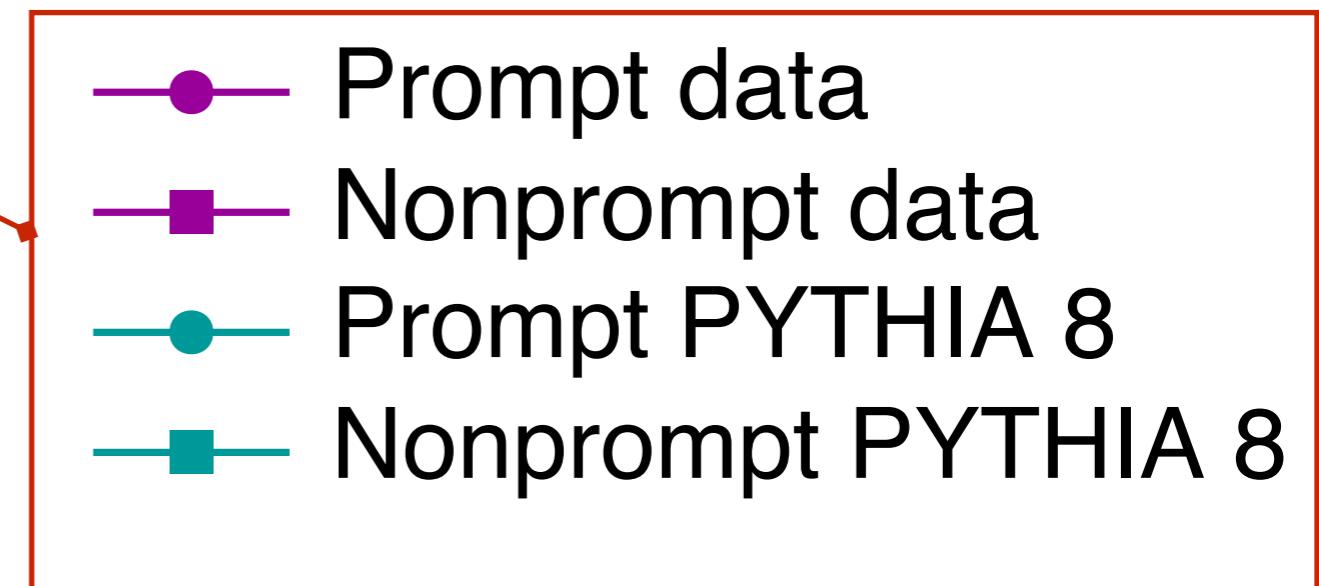
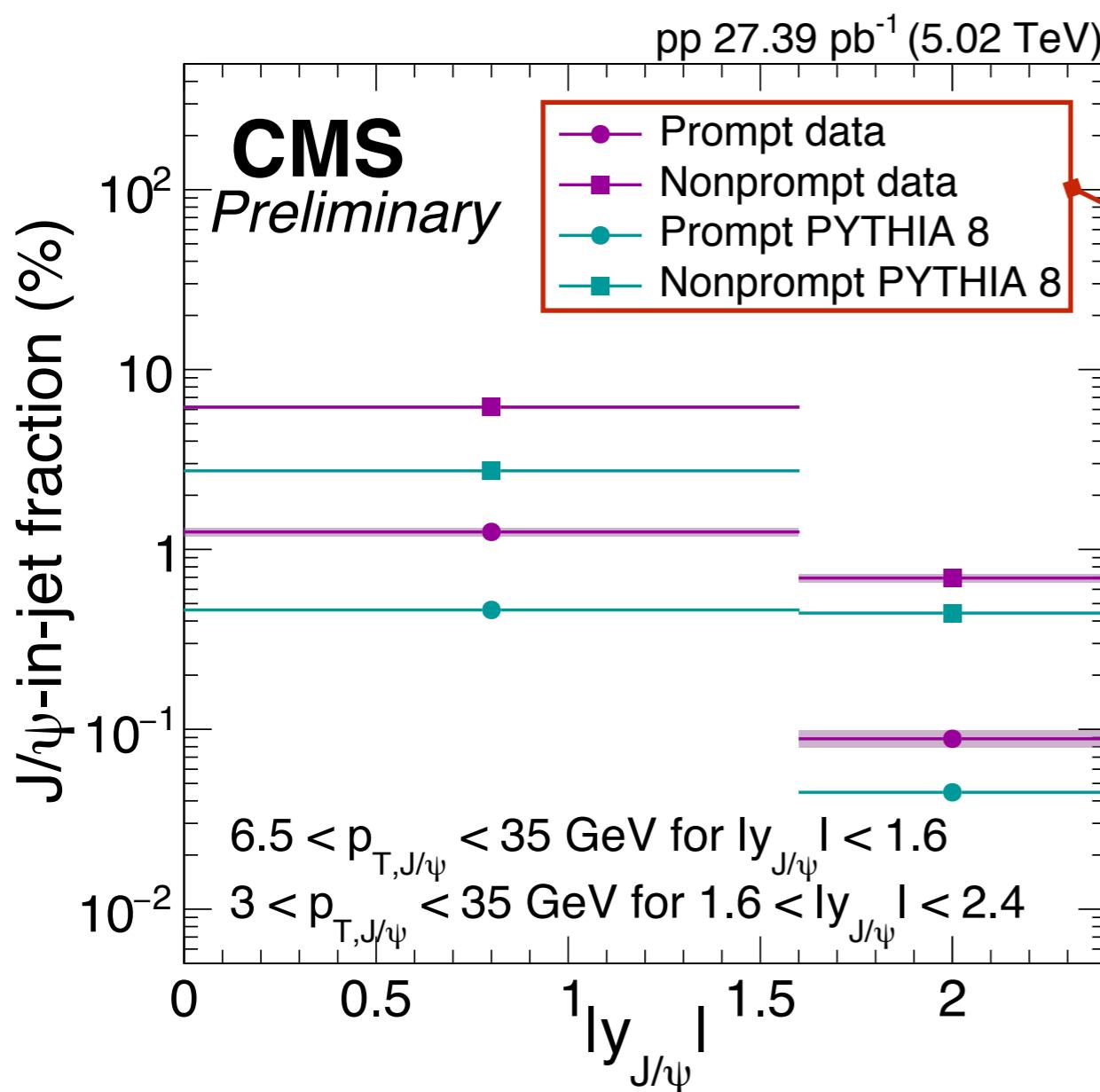
# Prompt J/ $\psi$ results



Different behaviour in data and Pythia  
**J/ $\psi$  are less isolated in data**

# J/ $\psi$ -in-jet fraction

Measured for  
the first time

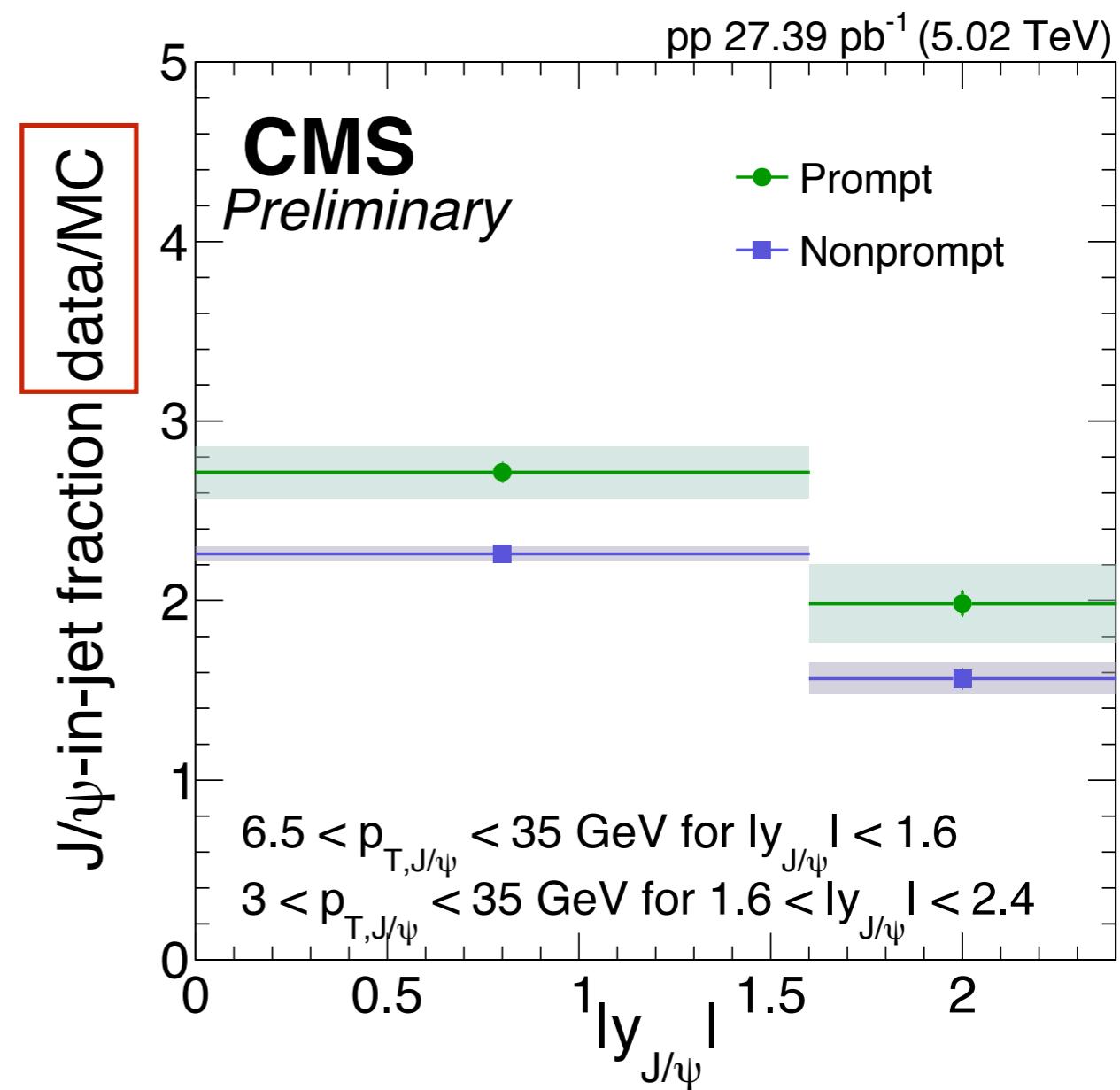
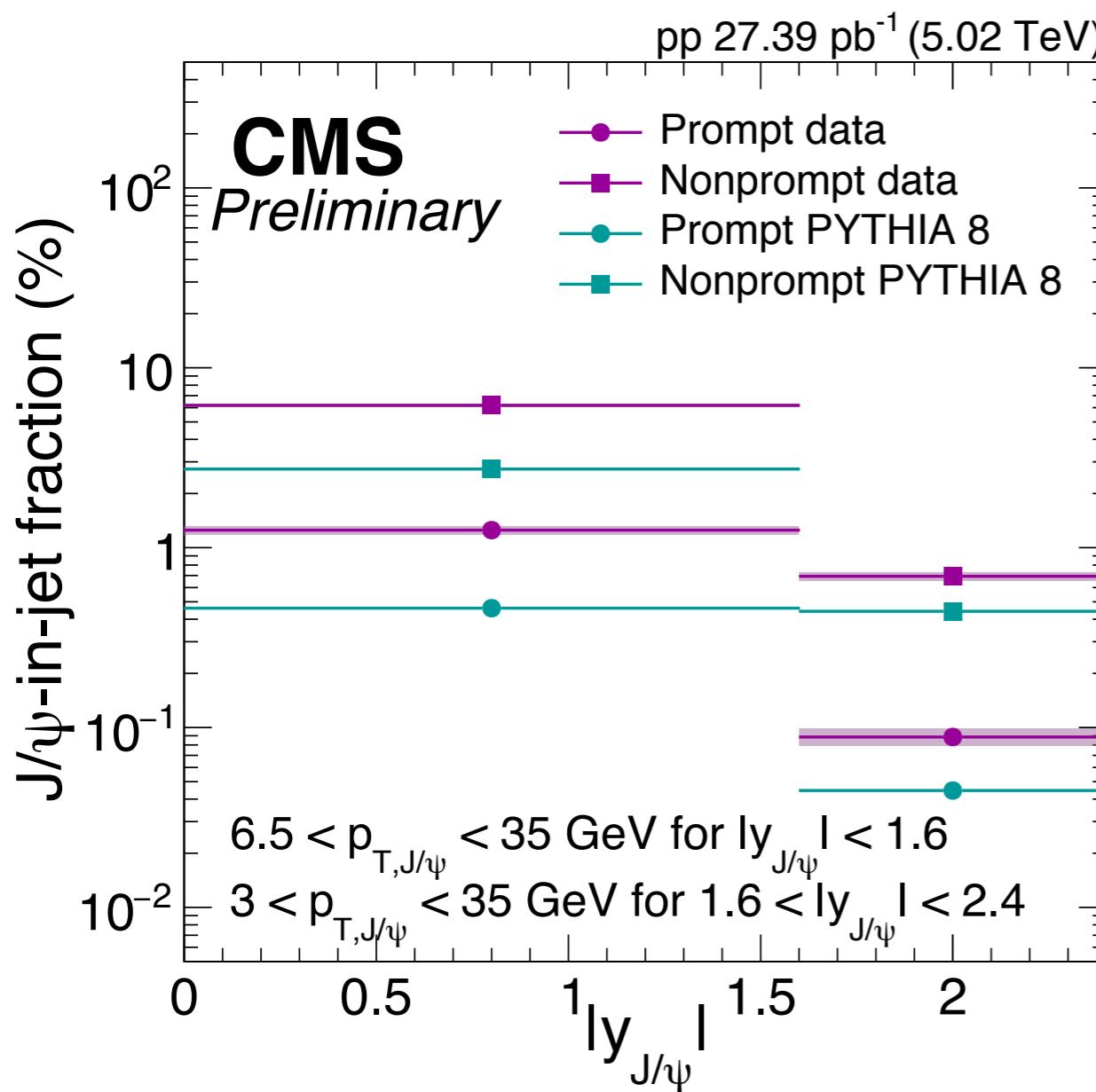


Less than 7% of J/ψ produced in jets

**Under-predicted in Pythia**

# J/ $\psi$ -in-jet fraction

Measured for  
the first time



Less than 7% of J/ $\psi$  produced in jets

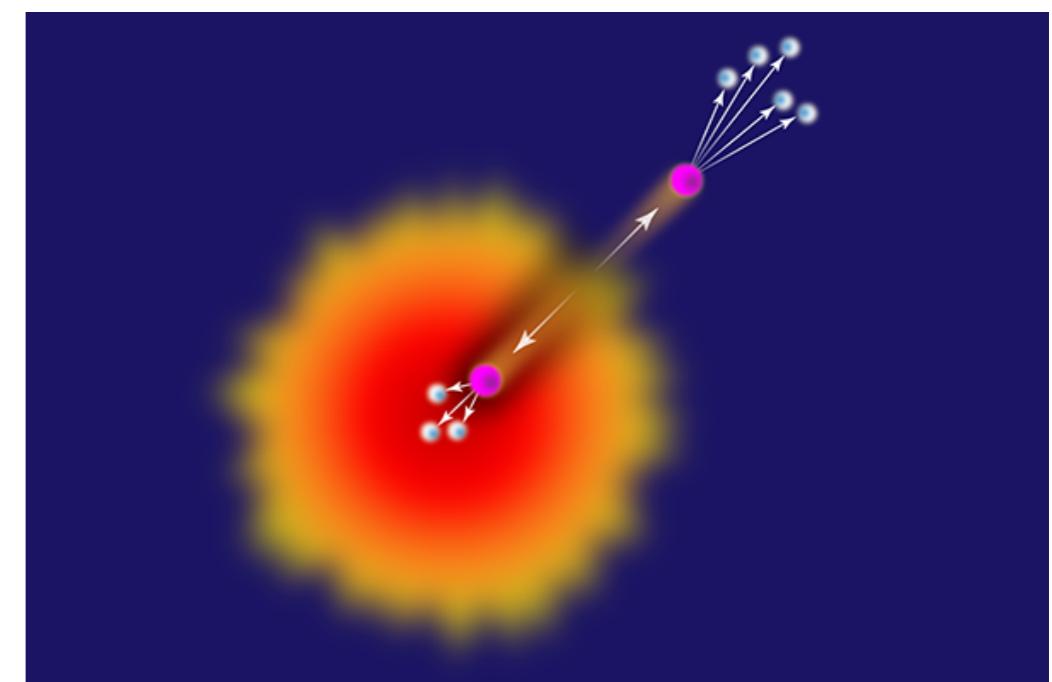
**Under-predicted in Pythia**

# Conclusion

J/ $\psi$  are produced in a **jettier** environment than predicted

## Prospects

In **PbPb** : Jet quenching might play a role in J/ $\psi$  suppression.



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