

# 1 Supplementary material for LHCb-PAPER-2021-020

2 This appendix contains supplementary material that will be posted on the public CDS record  
3 but will not appear in the paper.

4 The measurement of production cross-sections for inclusive  $J/\psi$  mesons was performed  
5 by the ALICE collaboration at  $\sqrt{s} = 5$  TeV at forward rapidity  $2.5 < y < 4.0$  [1]. The  
6 cross-section for inclusive  $J/\psi$  mesons from the ALICE measurement is compared with  
7 the sum of prompt and nonprompt cross-sections from the LHCb measurement in the  
8 same rapidity range, as shown in Fig. 1.

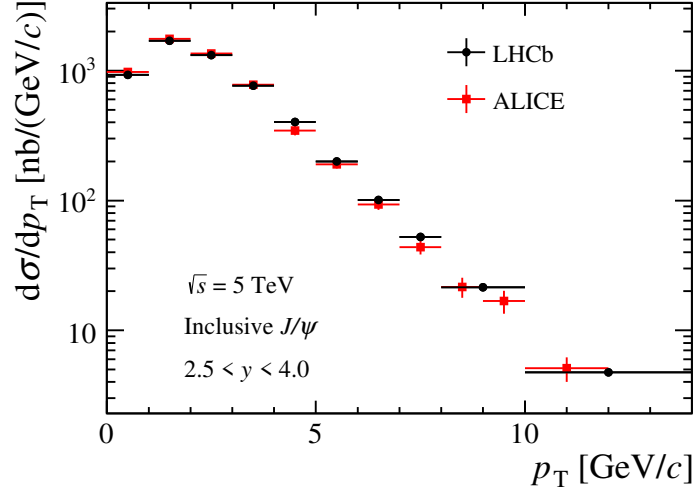


Figure 1: Comparison of inclusive  $J/\psi$  cross-section from the ALICE measurement and the sum of prompt and nonprompt cross-sections from the LHCb measurement.

9 The cross-sections for prompt and nonprompt  $J/\psi$  mesons were also measured at  
10  $\sqrt{s} = 5$  TeV by the ATLAS collaboration in the region  $|y| < 2$  [2] and by the CMS  
11 collaboration in the region  $|y| < 2.4$  [3]. Combining results from LHCb, ATLAS and CMS  
12 experiments, the  $d\sigma/dy$  in the common  $p_T$  range  $10 < p_T < 14$  GeV/c is shown in Fig. 2.

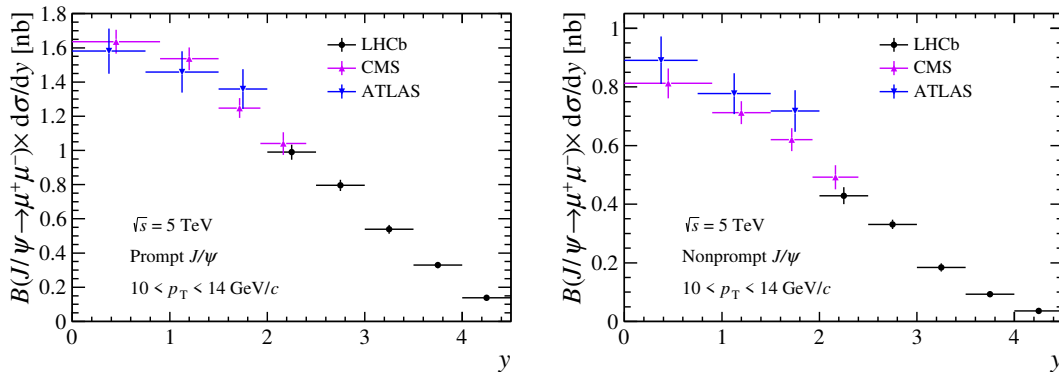


Figure 2: Cross-sections  $d\sigma/dy$  of (left) prompt and (right) nonprompt  $J/\psi$  mesons for the LHCb, ATLAS and CMS measurements.

## 13 References

- 14 [1] ALICE collaboration, J. Adam *et al.*, *J/ψ suppression at forward rapidity in Pb-Pb*  
15 *collisions at  $\sqrt{s_{\text{NN}}} = 5.02$  TeV*, Phys. Lett. **B766** (2017) 212, [arXiv:1606.08197](#).
- 16 [2] ATLAS collaboration, M. Aaboud *et al.*, *Measurement of quarkonium production in*  
17 *proton-lead and proton-proton collisions at 5.02 TeV with the ATLAS detector*, Eur.  
18 Phys. J. **C78** (2018) 171, [arXiv:1709.03089](#).
- 19 [3] CMS collaboration, A. M. Sirunyan *et al.*, *Measurement of prompt and nonprompt J/ψ*  
20 *production in pp and pPb collisions at  $\sqrt{s_{\text{NN}}} = 5.02$  TeV*, Eur. Phys. J. **C77** (2017)  
21 269, [arXiv:1702.01462](#).