

# Supplementary material for LHCb-PAPER-2017-017

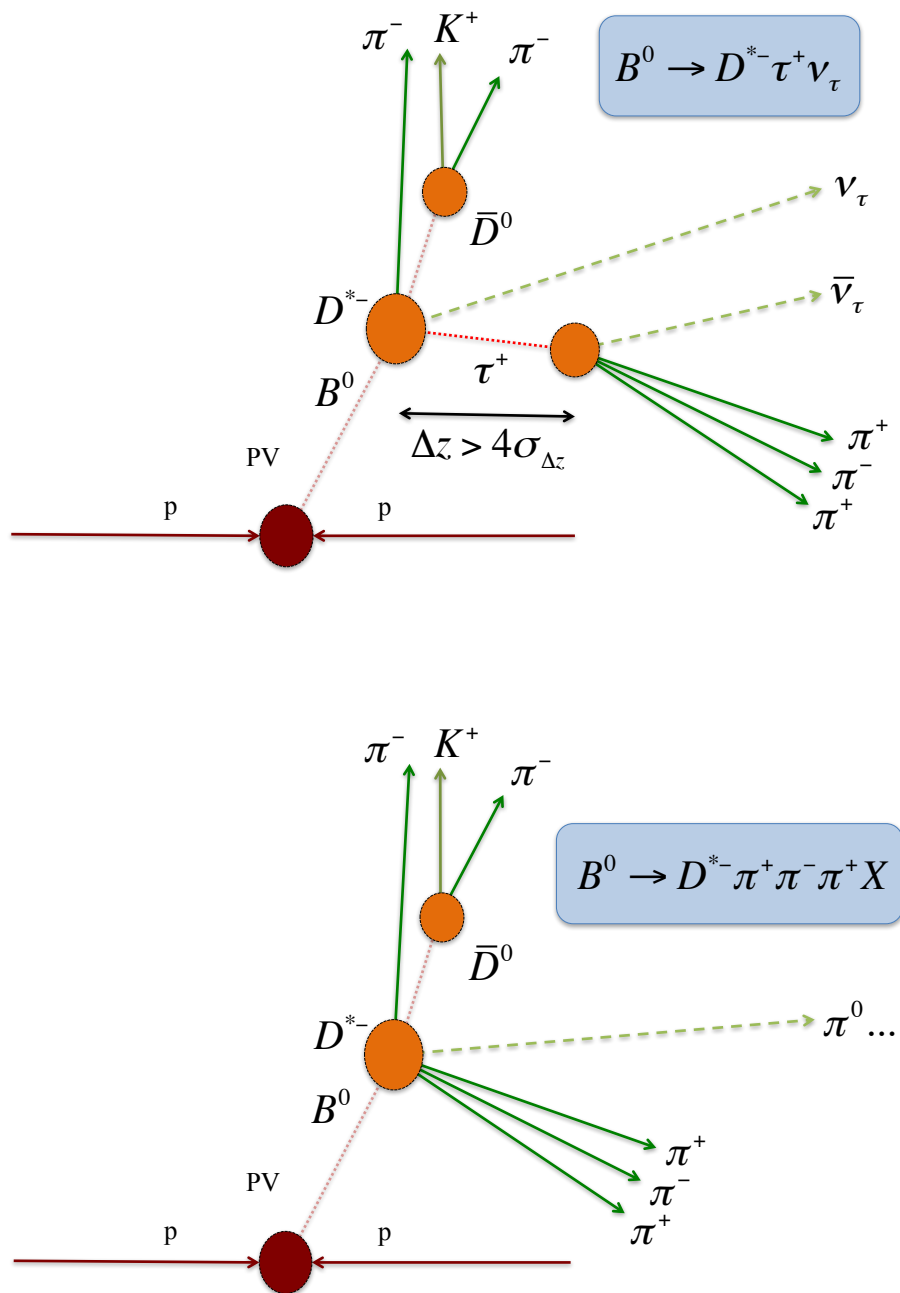


Figure 1: Schematic representation of the topologies of (top)  $B^0 \rightarrow D^{*-} \tau^+ \nu_\tau$  signal and (bottom)  $B \rightarrow D^{*-} 3\pi X$  background decays.

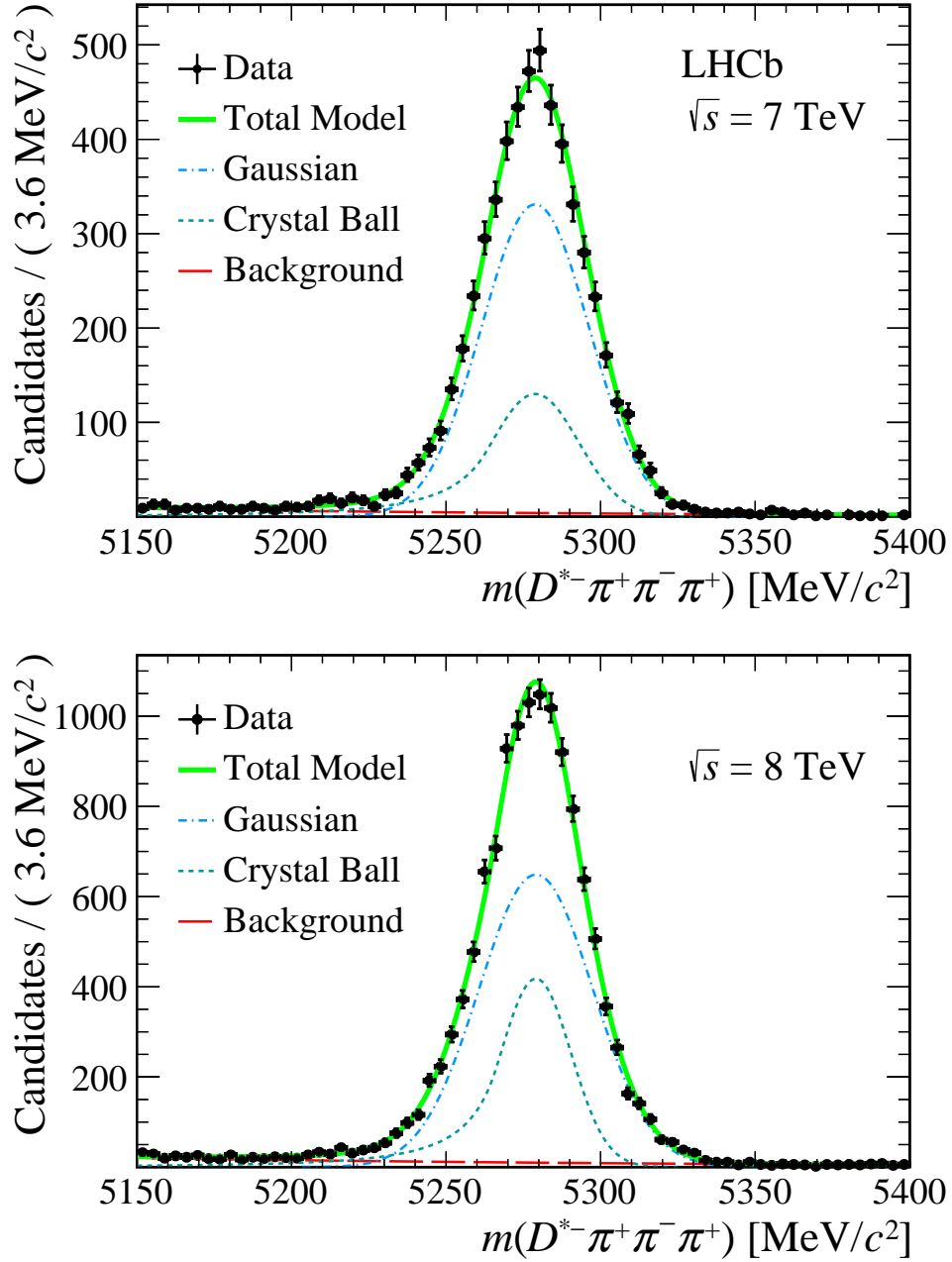


Figure 2: Fit to the  $m(D^{*-} \pi^+ \pi^- \pi^+)$  distribution in the (top)  $\sqrt{s} = 7 \text{ TeV}$  and (bottom)  $8 \text{ TeV}$  data.

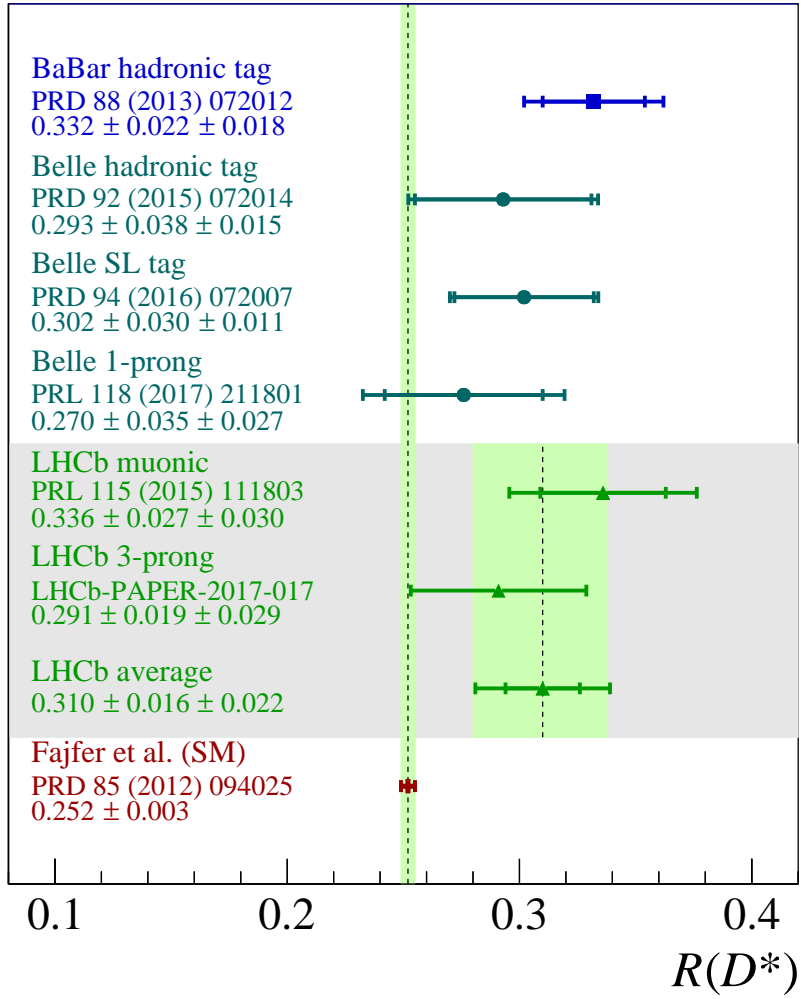


Figure 3: Comparison of this result with previous measurements and the Standard Model prediction of  $\mathcal{R}(D^*)$ .