

Supplementary material for PAPER-2020-021

This section provides supplementary material containing additional visualisations of the invariant mass distributions in the paper. Figure 1 shows the invariant mass distributions of $B^0 \rightarrow D^- \pi^+$ candidates with linear vertical axis and Fig. 2 shows these distributions with combined Run 1, 2015 and 2016 data samples. Figure 3 shows the $D_s^+ \pi^-$ and $K^+ K^- \pi^+$ invariant mass distributions of $B^0 \rightarrow D_s^+ \pi^-$ candidates with linear vertical axis and Fig. 4 shows these distributions with combined Run 1, 2015 and 2016 data samples.

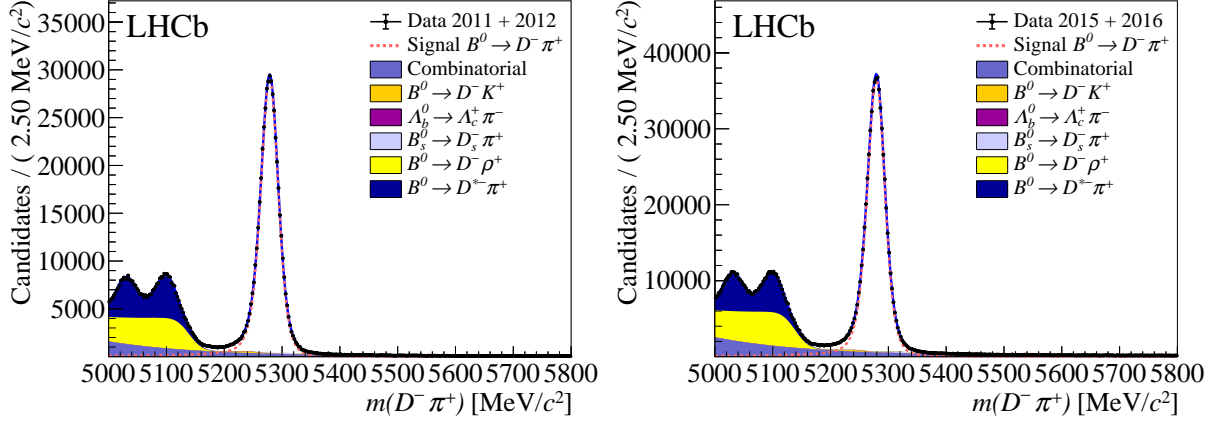


Figure 1: The invariant mass distributions with linear vertical axis of normalisation $B^0 \rightarrow D^- \pi^+$ candidates, for (left) Run 1 and (right) Run 2 data samples. Overlaid are the fit projections along with the signal and background contributions.

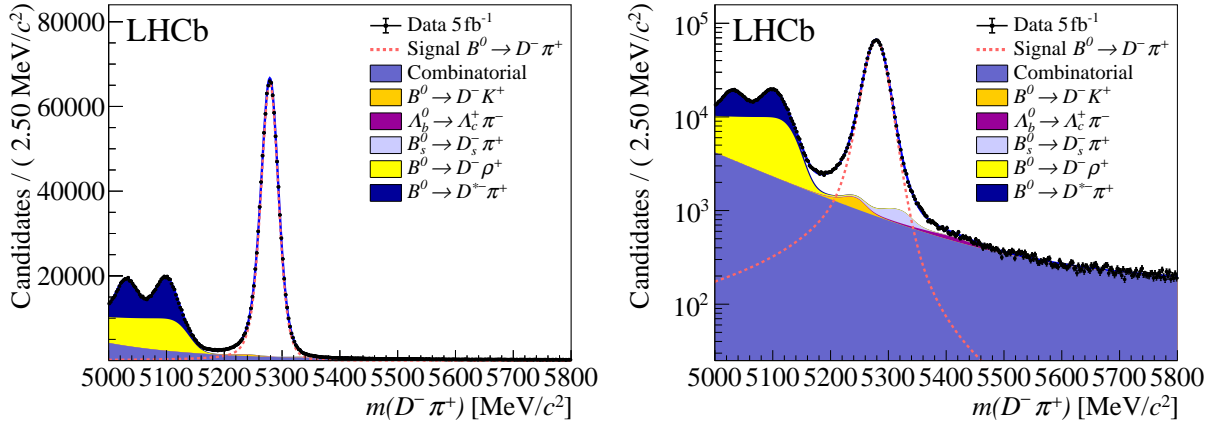


Figure 2: The invariant mass distributions of normalisation $B^0 \rightarrow D^- \pi^+$ candidates, using combined Run 1, 2015 and 2016 data samples with (left) linear and (right) logarithmic axes. Overlaid are the fit projections along with the signal and background contributions.

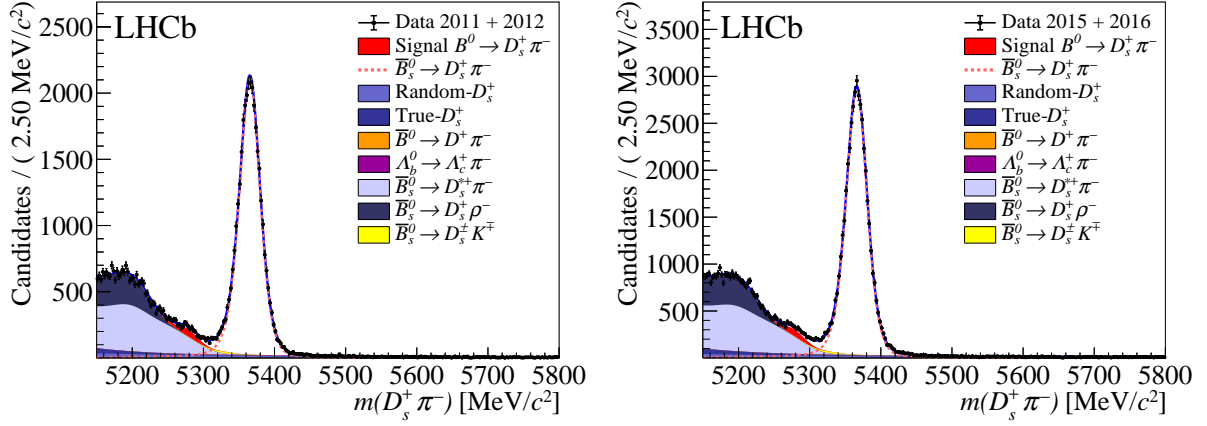


Figure 3: The $D_s^+ \pi^-$ invariant mass distributions with linear vertical axis of signal $B^0 \rightarrow D_s^+ \pi^-$ candidates, for (left) Run 1 and (right) Run 2 data samples. Overlaid are the fit projections along with the signal and background contributions.

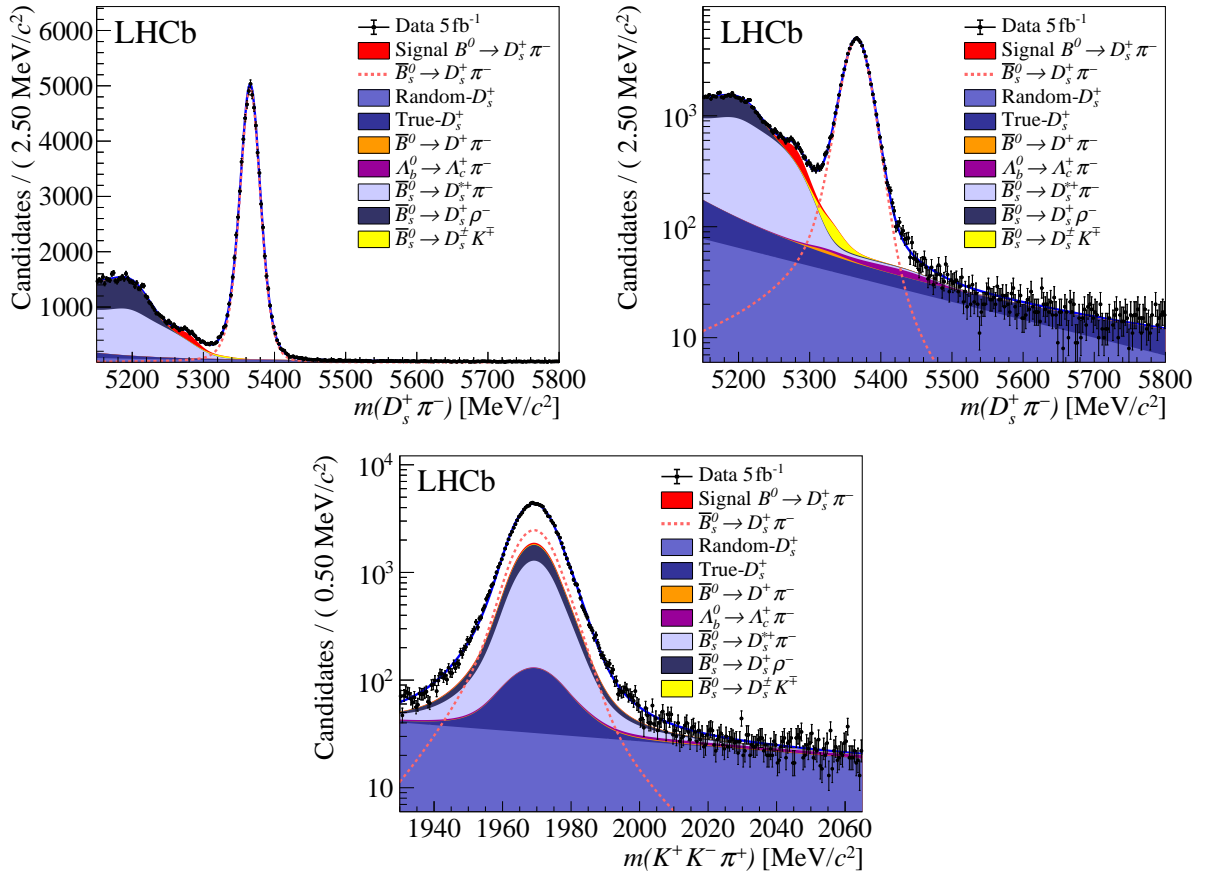


Figure 4: The (top) $D_s^+ \pi^-$ and (bottom) $K^+ K^- \pi^+$ invariant mass distributions of signal $B^0 \rightarrow D_s^+ \pi^-$ candidates, using combined Run 1, 2015 and 2016 data samples. The vertical axes are (top left) linear and (top right and bottom) logarithmic. Overlaid are the fit projections along with the signal and background contributions.