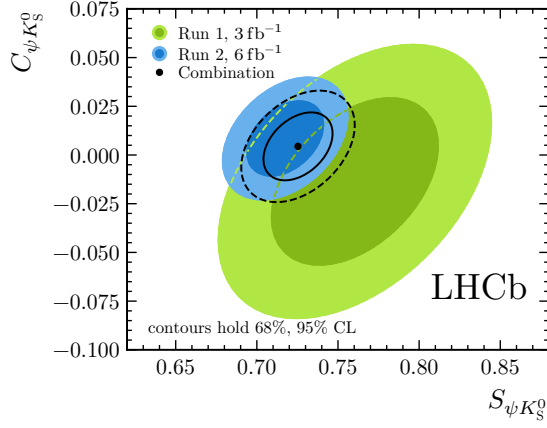# 1 Supplementary material for LHCb-PAPER-2023-013

Figure 4: Two-dimensional contour plot of the LHCb Run 1 and Run 2 measurements and the total LHCb combination for the simultaneously measured parameters S and C.
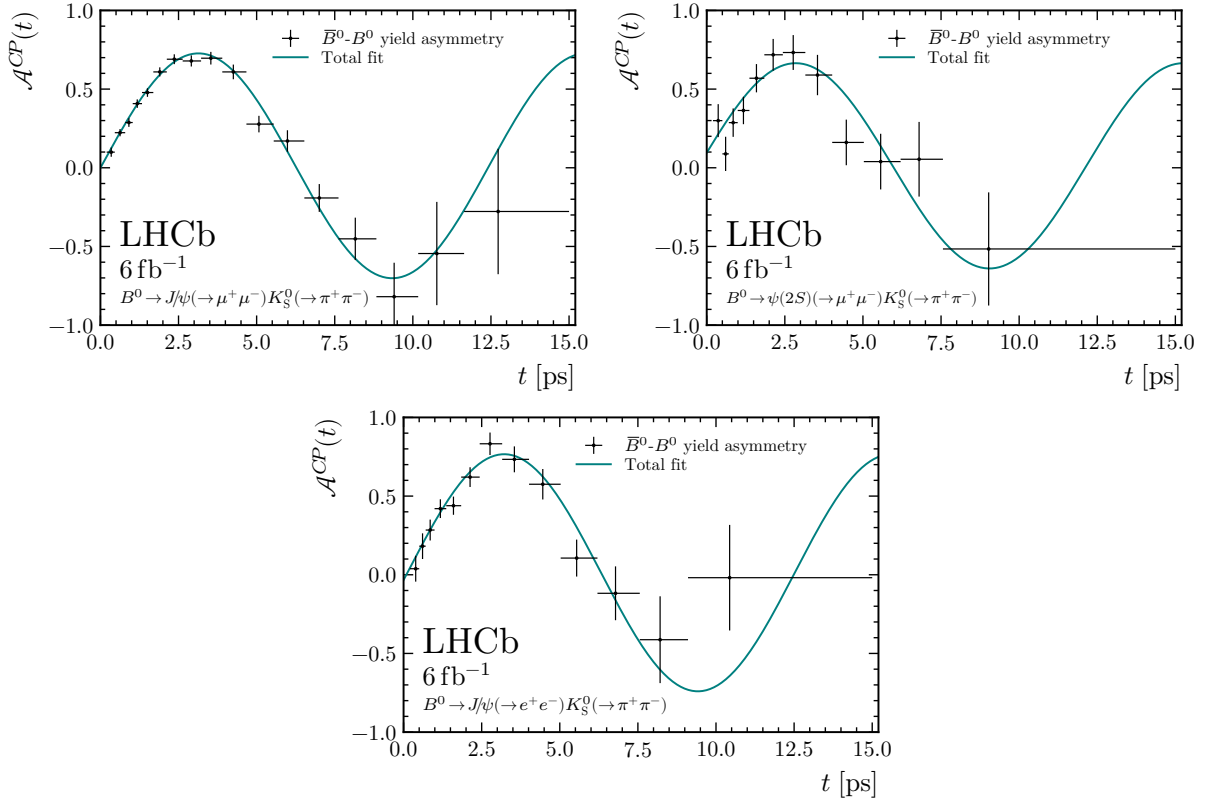

Figure 5: Time-dependent CP asymmetry from the maximum-likelihood estimator of the binned asymmetry with the fit result overlaid.
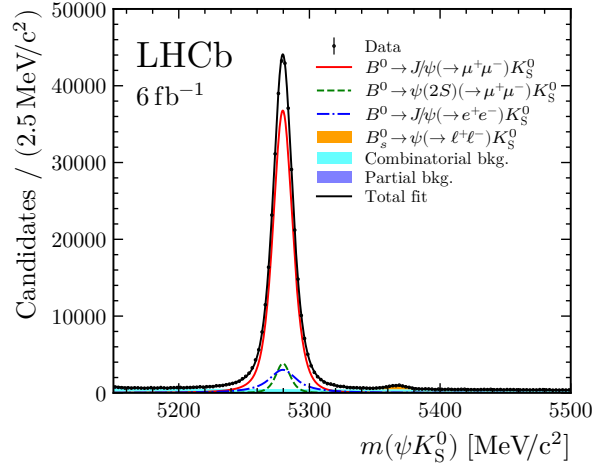
Figure 6: Invariant-mass distribution of the selected candidates with an identified flavour at production of the three signal channels.
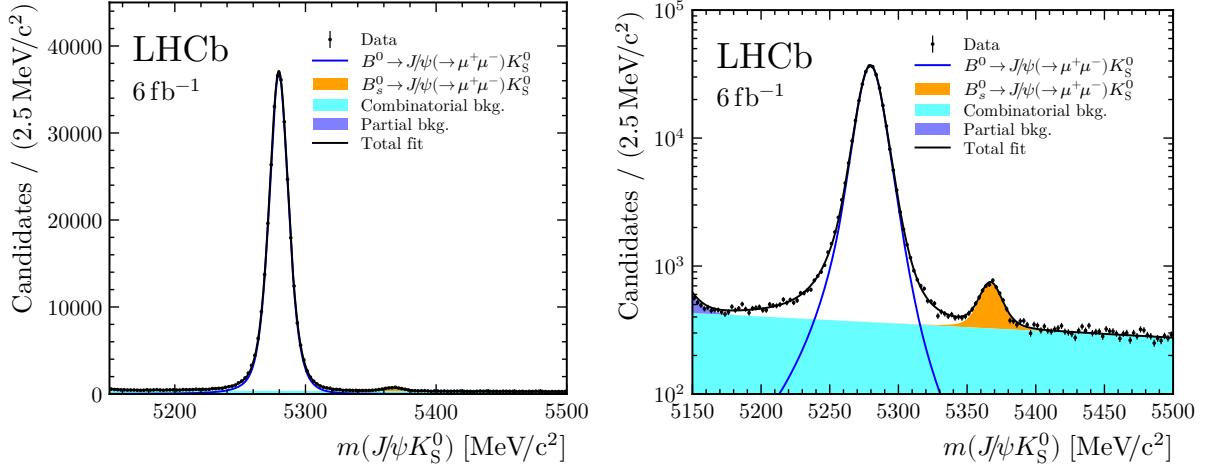

Figure 7: Invariant-mass distribution of the selected candidates with an identified flavour at production of the $B^0 \rightarrow J/\psi(\rightarrow \mu^+\mu^-)K^0_S$ channel with (left) linear and (right) logarithmic y-axes.
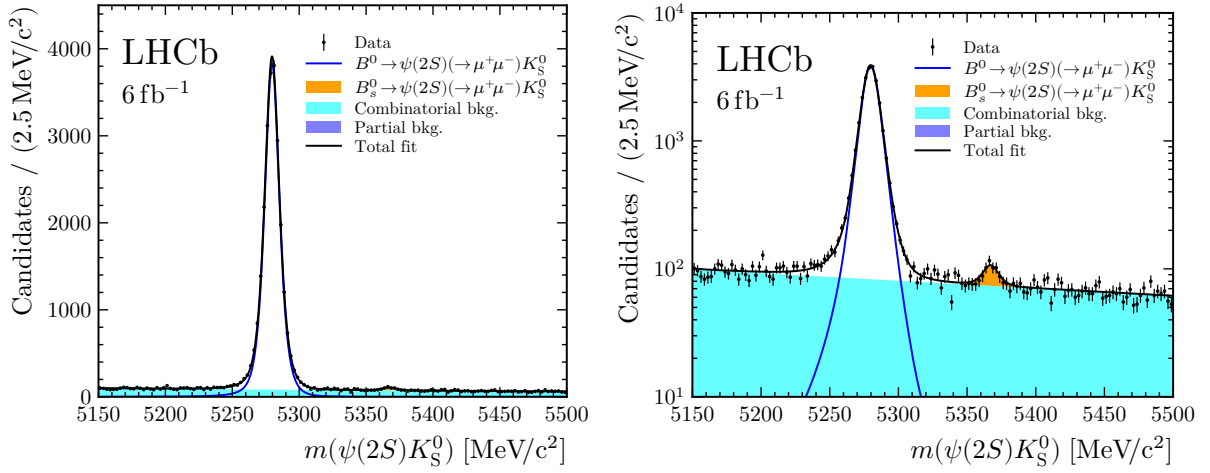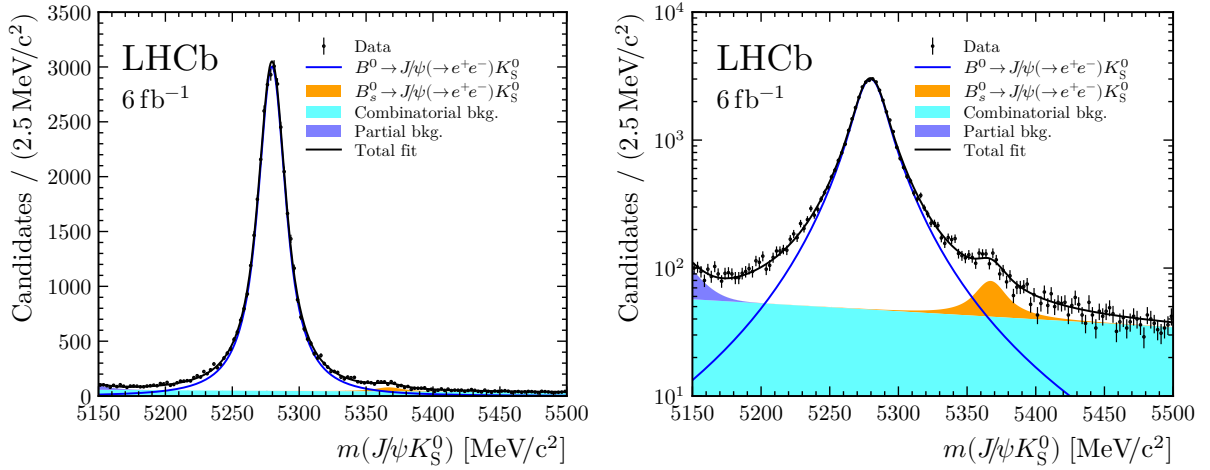
Figure 8: Invariant-mass distribution of the selected candidates with an identified flavour at production of the $B^0 \to \psi(2S)(\to \mu^+\mu^-)K^0_S$ channel with (left) linear and (right) logarithmic y-axes.

Figure 9: Invariant-mass distribution of the selected candidates with an identified flavour at production of the $B^0 \to J/\psi(\to e^+e^-)K^0_S$ channel with (left) linear and (right) logarithmic y-axes.