

Observation of the $B_s^0 \rightarrow X(3872)\phi$ decay

—Supplemental Material—

The CMS Collaboration
CERN
(Dated: August 15, 2020)

The results of the 2D fit on $m(K^+K^-)$ and $m(J/\psi\pi^+\pi^-)$ distribution are shown in Fig. 1 for the $\psi(2S)$ channel and in Fig. 2 for the $X(3872)$ channel. The top row shows the fit projections on the $m(K^+K^-)$

axis in 3 ranges of $m(J/\psi\pi^+\pi^-)$: left sideband, signal region, right sideband, while the bottom row shows similar projections on $m(J/\psi\pi^+\pi^-)$ axis in 3 ranges of $m(K^+K^-)$.

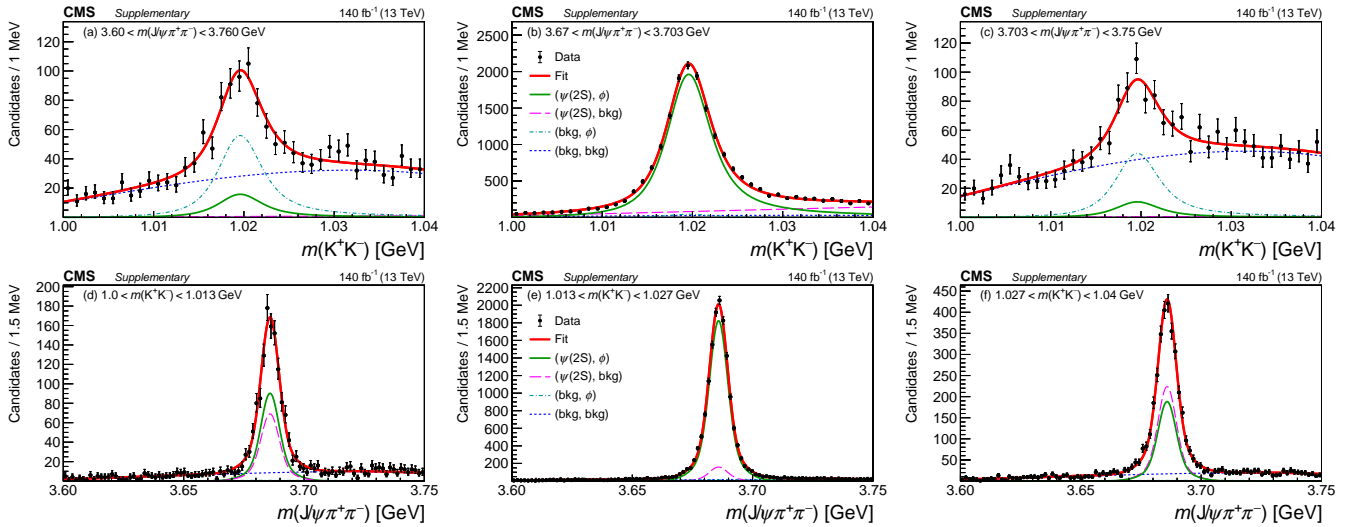


FIG. 1. Results of the 2D fit to $m(K^+K^-) : m(J/\psi\pi^+\pi^-)$ for $B_s^0 \rightarrow \psi(2S)\phi$ channel. Top row shows projections of the 2D fit on $m(K^+K^-)$ in the ranges of $m(J/\psi\pi^+\pi^-)$: left sideband (a), signal region (b), and right sideband (c). Bottom row shows projections of the 2D fit on $m(J/\psi\pi^+\pi^-)$ in the ranges of $m(K^+K^-)$: left sideband (d), signal region (e), and right sideband (f).

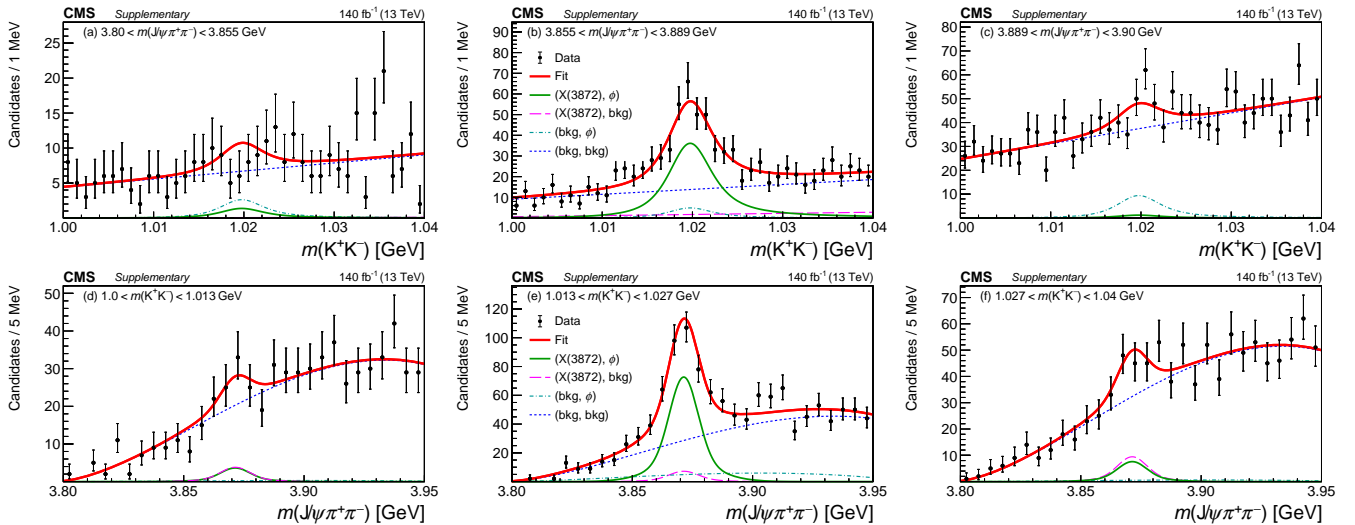


FIG. 2. Results of the 2D fit to $m(K^+K^-) : m(J/\psi\pi^+\pi^-)$ for $B_s^0 \rightarrow X(3872)\phi$ channel. Top row shows projections of the 2D fit on $m(K^+K^-)$ in the ranges of $m(J/\psi\pi^+\pi^-)$: left sideband (left), signal region (center), and right sideband (right). Bottom row shows projections of the 2D fit on $m(J/\psi\pi^+\pi^-)$ in the ranges of $m(K^+K^-)$: left sideband (d), signal region (e), and right sideband (f).