

Figure 1: This figure shows the  $\Delta E$  distributions of B candidates in  $250 \text{ pb}^{-1}$  of collision data, in the mode  $B \rightarrow J/\psi K^{(*)}$ . Events are required to contain at least three good tracks to purify the sample with processes of the type  $e^+e^- \rightarrow \text{hadrons}$ , while rejecting beam induced background, Bhabha scattering, and other low multiplicity background sources. The lepton, kaon and pion tracks are required to have impact parameters,  $|d_0|$  and  $|z_0| < 0.5 \text{ cm}$  and  $3.0 \text{ cm}$  respectively.  $E_{ECL}/p \geq 0.9$  is applied to select  $e^+$  and  $e^-$ . While for selecting muons,  $E_{ECL} < 0.3 \text{ GeV}$  and  $M_{uid} \geq 0.1$  by atleast one of the muons. The  $J/\psi$  and  $K^*$  candidates are selected within  $3.0 \leq M_{l+l^-} \leq 3.12 \text{ GeV}/c^2$  and  $0.845 \leq M_{K\pi} \leq 0.942 \text{ GeV}/c^2$ .  $q\bar{q}$  background is suppressed with  $R_2 \leq 0.3$ . The internal document reference is BELLE2-NOTE-PH-2018-014.

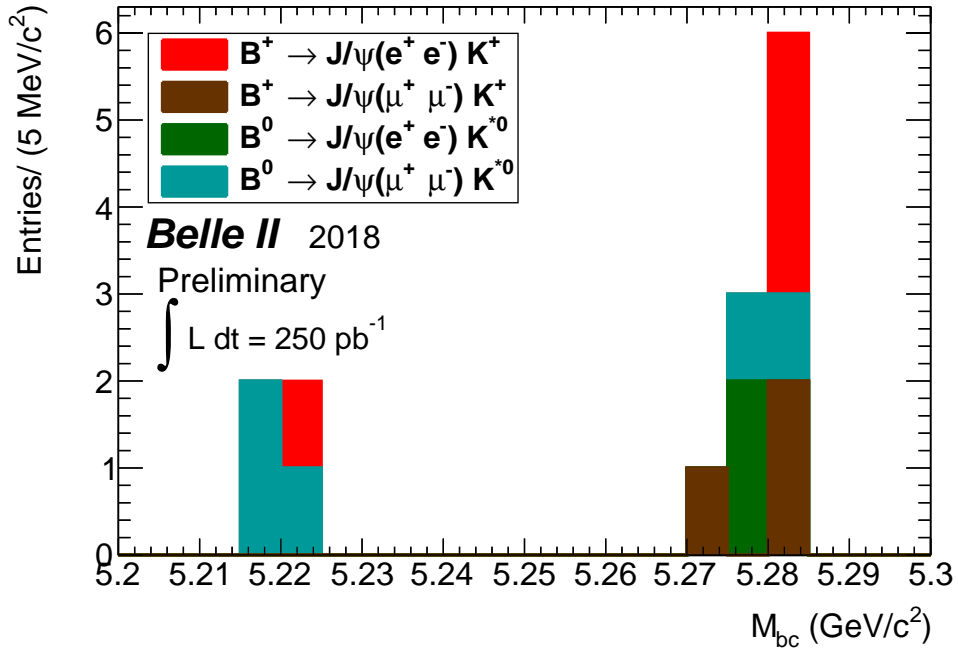


Figure 2: This figure shows the  $M_{bc}$  distributions of B candidates in  $250 \text{ pb}^{-1}$  of collision data, in the mode  $B \rightarrow J/\psi K^{(*)}$ . Events are required to contain at least three good tracks to purify the sample with processes of the type  $e^+e^- \rightarrow \text{hadrons}$ , while rejecting beam induced background, Bhabha scattering, and other low multiplicity background sources. The lepton, kaon and pion tracks are required to have impact parameters,  $|d_0|$  and  $|z_0| < 0.5 \text{ cm}$  and  $3.0 \text{ cm}$  respectively.  $E_{ECL}/p \geq 0.9$  is applied to select  $e^+$  and  $e^-$ . While for selecting muons,  $E_{ECL} < 0.3 \text{ GeV}$  and  $M_{uid} \geq 0.1$  by atleast one of the muons. The  $J/\psi$  and  $K^*$  candidates are selected within  $3.0 \leq M_{l+l^-} \leq 3.12 \text{ GeV}/c^2$  and  $0.845 \leq M_{K\pi} \leq 0.942 \text{ GeV}/c^2$ .  $q\bar{q}$  background is suppressed with  $R_2 \leq 0.3$ . The internal document reference is BELLE2-NOTE-PH-2018-014.