



Figure 1: The $\cos \theta_{BY} = \frac{2E_B^* E_Y^* - M_B^2 - m_Y^2}{2p_B^* p_Y^*}$ distribution of $\bar{B}^0 \rightarrow D^{*+} e^- \bar{\nu}_e$ candidates using 250 pb^{-1} of collision data, where E_Y^* , p_Y^* , and m_Y are the CM energy, momentum, and invariant mass of the $D^* e$ system, M_B is the nominal B mass, and E_B^* , p_B^* are the CM energy and momentum of the B , inferred from the CM machine energy. For correctly reconstructed B candidates, ignoring mismeasurements and the spread in machine energy, θ_{BY} is the CM angle between the B and Y momenta. Here the data (points with error bars) is overlaid with the combination of MC events, scaled to the same area as the data. D^0 candidates are reconstructed from $K^- \pi^+$ pairs, selected without particle identification requirements, within the invariant mass range $1.85 \text{ GeV}/c^2 < m_{K\pi} < 1.88 \text{ GeV}/c^2$. D^{*+} candidates are reconstructed from a D^0 candidate and a π^+ candidate track, with the invariant-mass difference between the D^{*+} and D^0 candidates in the range $0.144 \text{ GeV}/c^2 < \Delta m < 0.148 \text{ GeV}/c^2$. The momentum of D^{*+} candidates is required to satisfy $p_{D^{*+}}^* < 2.5 \text{ GeV}/c$. Continuum $e^+ e^- \rightarrow q\bar{q}$ background is suppressed with the Fox-Wolfram moment ratio $R2 < 0.25$. Electron candidates are selected with requirements on the energy-to-momentum ratio $E_{ECL}/p > 0.8$ and on the shower width parameter $E9/E21 > 0.94$, and must have center-of-mass momentum in the range $1.2 \text{ GeV}/c < p_i^* < 2.4 \text{ GeV}/c$. The internal document reference is BELLE2-NOTE-PH-2018-018.