

Group meeting

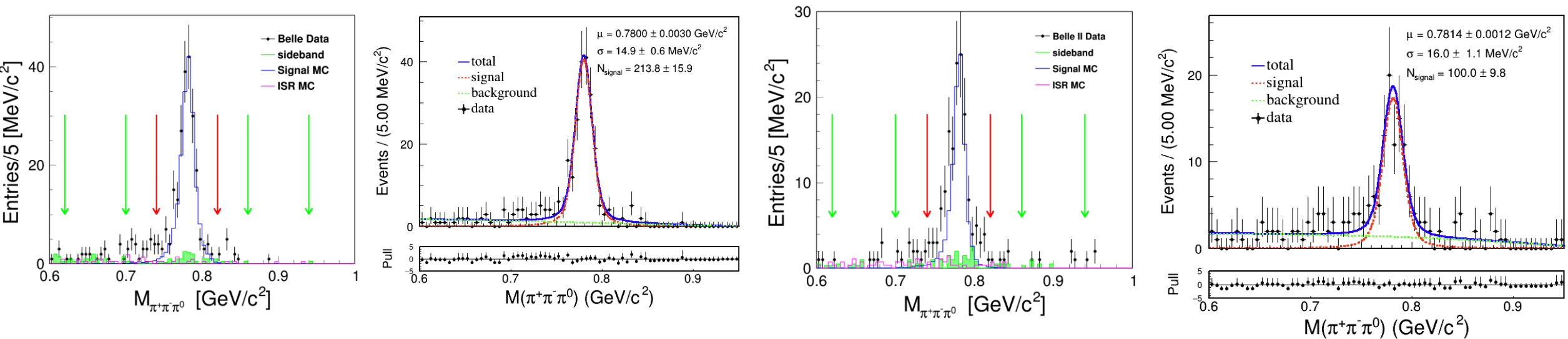
2025/09/12

$\omega J/\psi$ Results

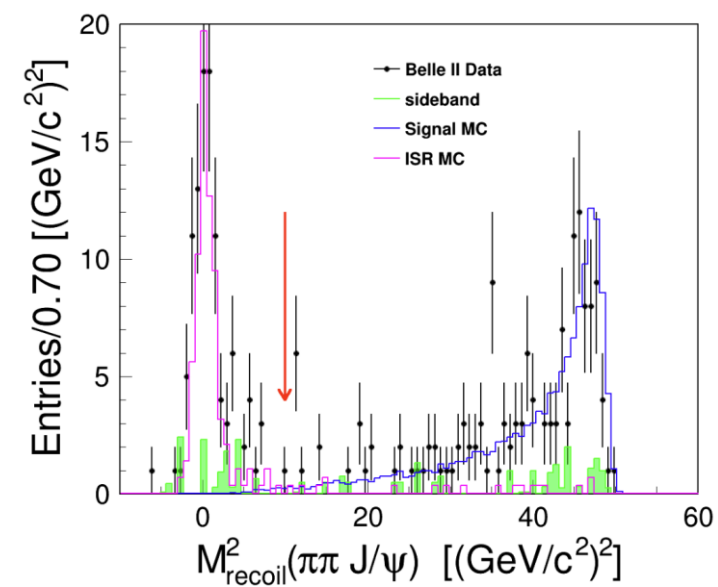
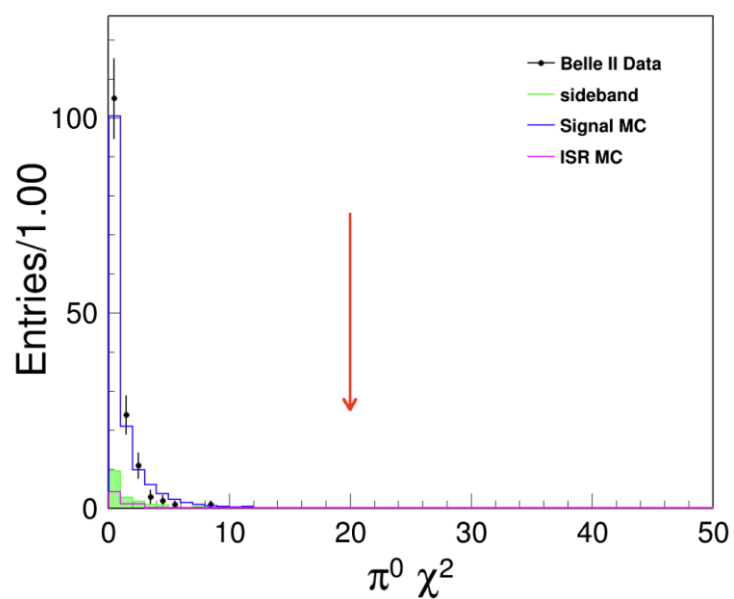
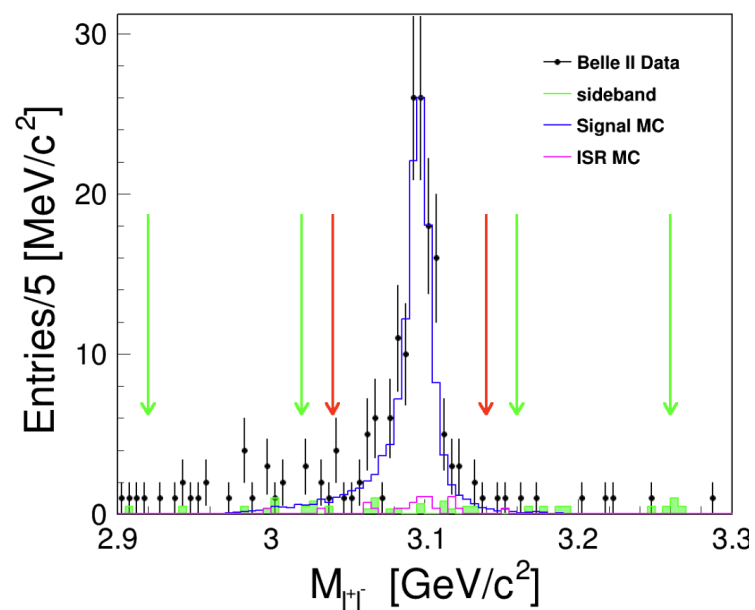
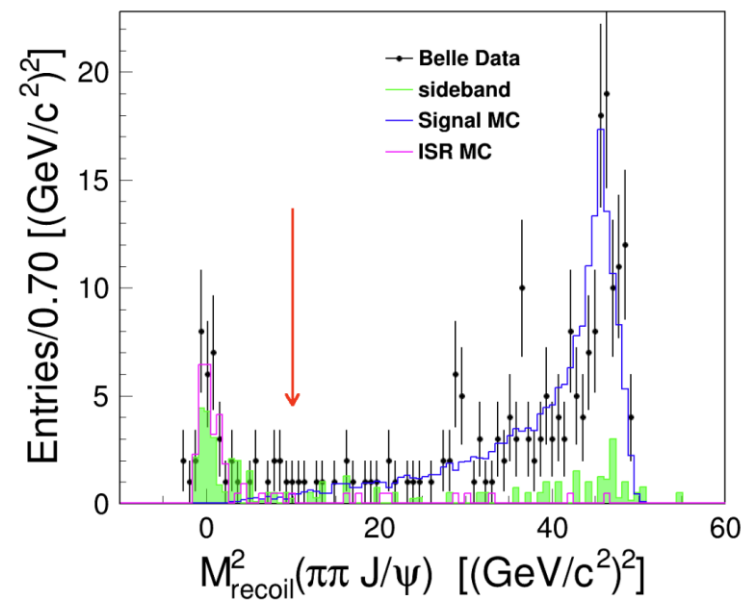
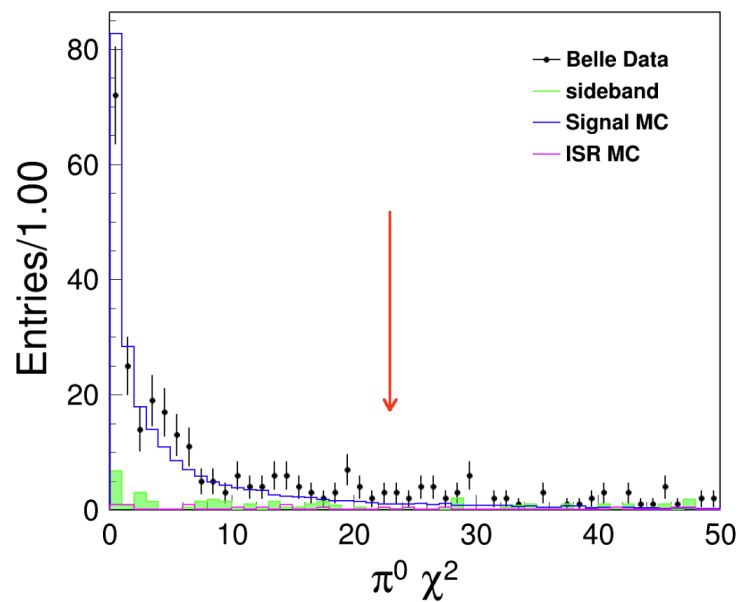
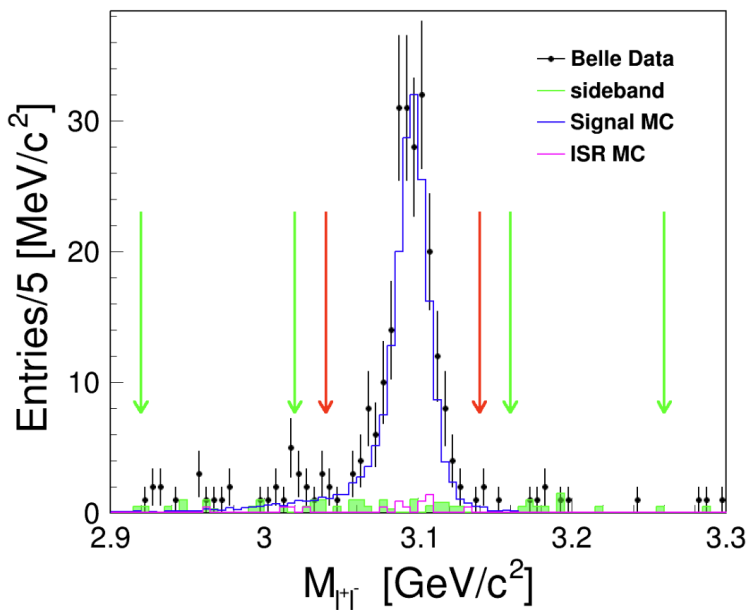
- Good charged tracks
 - $|dr| < 2 \text{ cm}, |dz| < 4 \text{ cm}$
 - $N_{goodtrack} = 4$
- Particle Identification
 - $muID > 0.7$ for all
 - $eID > 0.5$ for all e
 - $atcPIDBelle(2,3) > 0.6$ for all π
- Bremsstrahlung photons
 - within 0.05 radians of the original electrons
 - $E_\gamma > 20 \text{ MeV}$
- Belle π^0 selection
 - Photon divided into two categories based on cluserE: γ_{low} and γ_{high} .
 - $cluserE > 45 \text{ MeV}$ for endcap regions for γ_{low} .
 - $cluserE > 35 \text{ MeV}$ for barrel regions for γ_{low} .
 - Mass constraint fit with $\chi^2 < 23$.
- Belle II π^0 selection
 - pi0:eff40_May2020Fit with only best candidate selection

$\omega J/\psi$ Results

- J/ψ , ω reconstruction
 - $3.04 \text{ GeV}/c^2 < M_{\ell^+\ell^-} < 3.14 \text{ GeV}/c^2$
 - $2.92 \text{ GeV}/c^2 < M_{\ell^+\ell^-} < 3.02 \text{ GeV}/c^2$ & $3.16 \text{ GeV}/c^2 < M_{\ell^+\ell^-} < 3.26 \text{ GeV}/c^2$ for J/ψ sideband.
 - $0.74 \text{ GeV}/c^2 < (M_{\pi^+\pi^-\pi^0} - M_{\pi^0} + 0.1349) < 0.82 \text{ GeV}/c^2$
 - $0.86 \text{ GeV}/c^2 < (M_{\pi^+\pi^-\pi^0} - M_{\pi^0} + 0.1349) < 0.94 \text{ GeV}/c^2$ and $0.62 \text{ GeV}/c^2 < (M_{\pi^+\pi^-\pi^0} - M_{\pi^0} + 0.1349) < 0.7 \text{ GeV}/c^2$ for ω sideband.
 - **Best candidate selection using mass constraint fit χ^2 of ω .**
- $M_{Rec}^2 > 10 (\text{GeV}/c^2)^2$ for $\pi^+\pi^-\ell^+\ell^-$ to suppress ISR $\psi(2S)$ backgrounds.
- $|M_{\ell^+\ell^-} - M_{\ell^+\ell^-\pi^+\pi^-} - 0.589| > 0.0052 \text{ GeV}/c^2$ suppress $\psi(2S)$ backgrounds.
- $P_t^* < 0.1 \text{ GeV}/c$ for $\omega J/\psi$ system to identify $\gamma\gamma \rightarrow \omega J/\psi$ events.
- Belle II dataset: Run I + Run II (4S) $561 fb^{-1}$.



Updated results



Updated results

