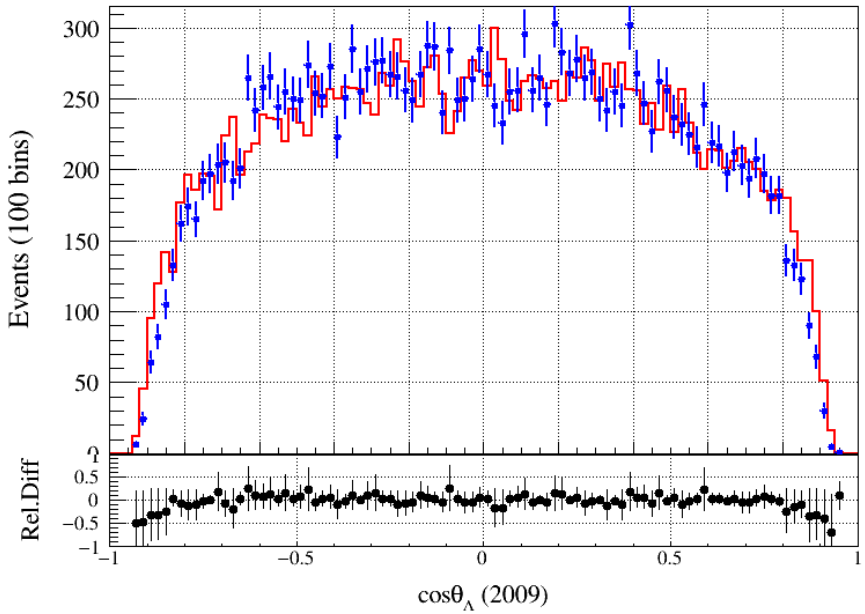
Check of $\cos\theta_{\overline{\Lambda}}$ of $J/\psi \to \Lambda\overline{\Lambda}$

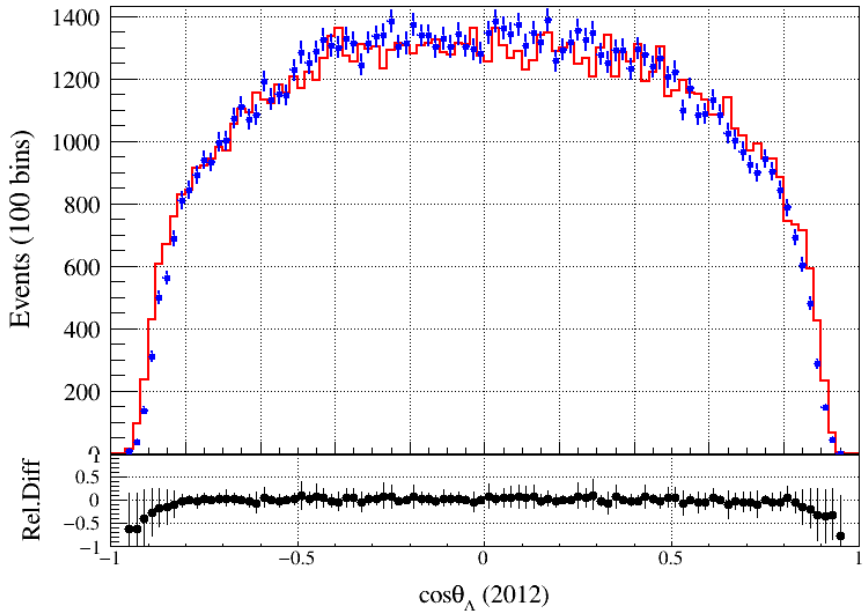
$J/\psi \to \overline{\Lambda}(\to \bar{p}\pi^+)\Lambda(\to n\pi^0)$, $\quad Measure\ \alpha_0$

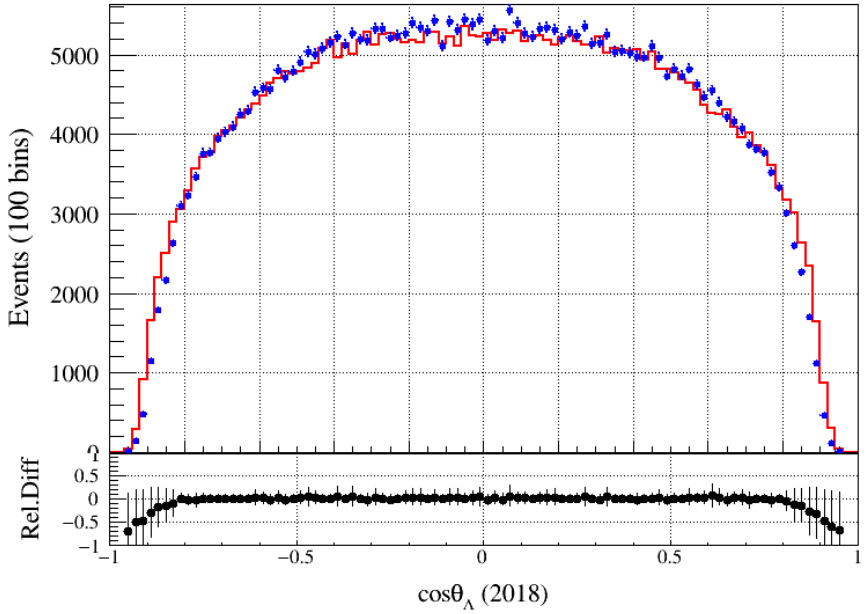
$J/\psi \to \Lambda(\to p\pi^-)\overline{\Lambda}(\to \bar{n}\pi^0)$, $\quad Measure\ \bar{\alpha}_0$

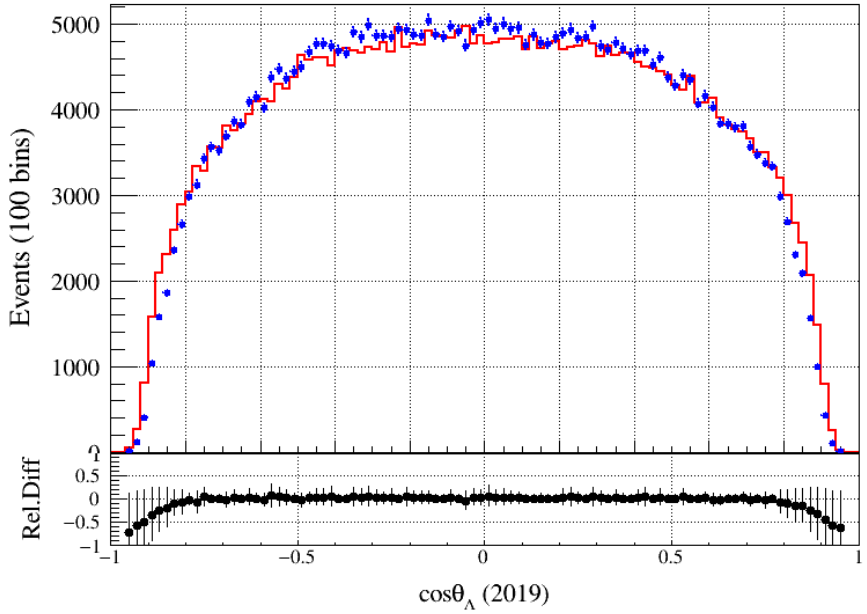
裴宇鹏

npi0


Events (100 bins)
Rel.Diff
cosθ_Λ (2009)


Events (100 bins)
Rel.Diff
cosθ_Λ (2012)


Events (100 bins)
Rel.Diff
cosθ_Λ (2018)


Events (100 bins)
Rel.Diff
cosθ_Λ (2019)

Check the Single Tag Efficiency

- Data && MC : $J/\psi \to \Lambda(\to p\pi^-)\bar{\Lambda}(\to \text{anything})$

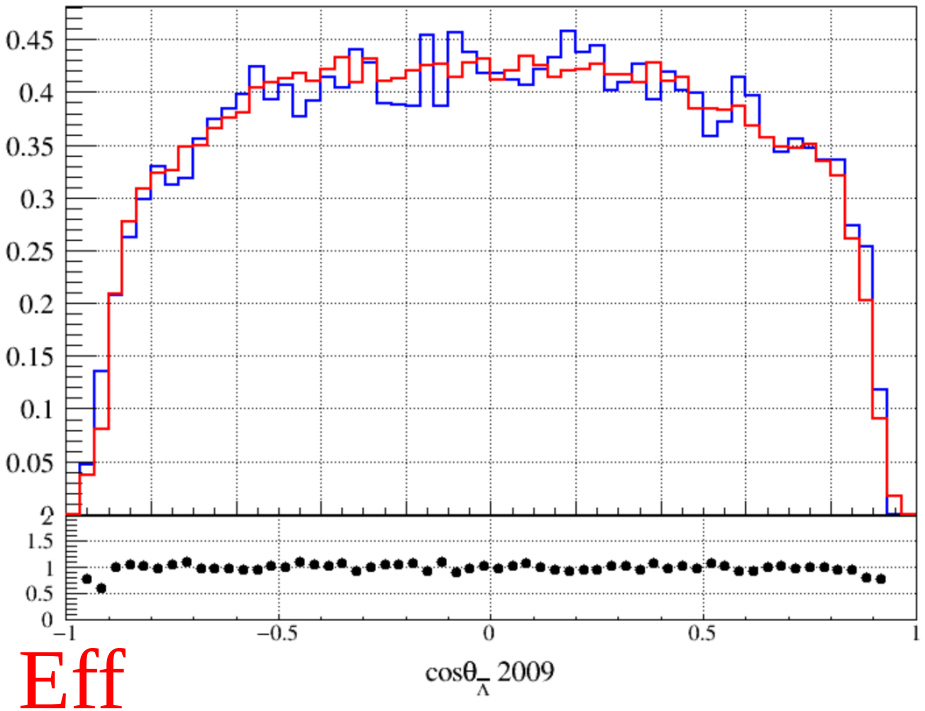
① Tag a Λ by $\Lambda \to p\pi^-$ N

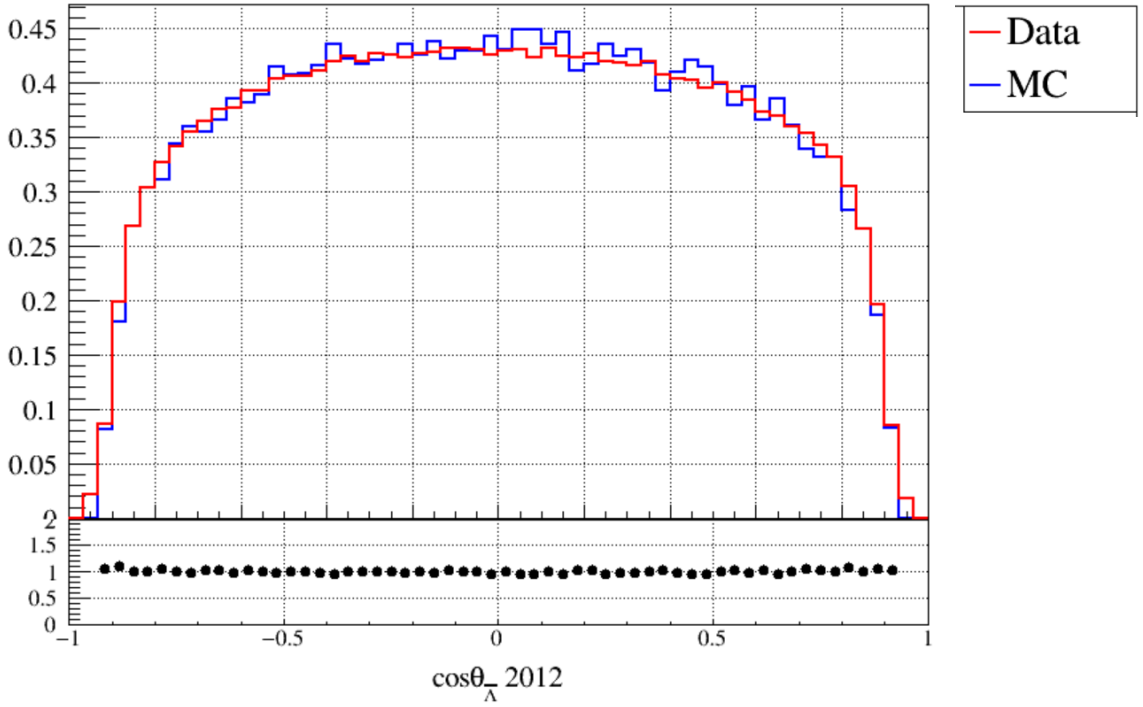
② Select a $\bar{\Lambda}$ by $\Lambda \to \bar{p}\pi^+$ n

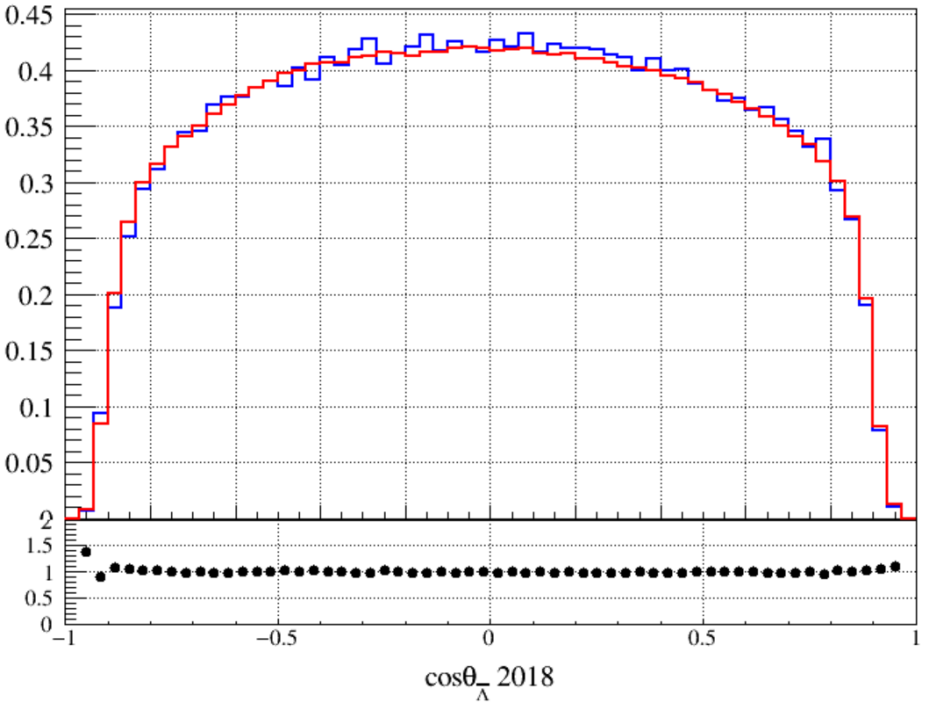
③ eff = n/N

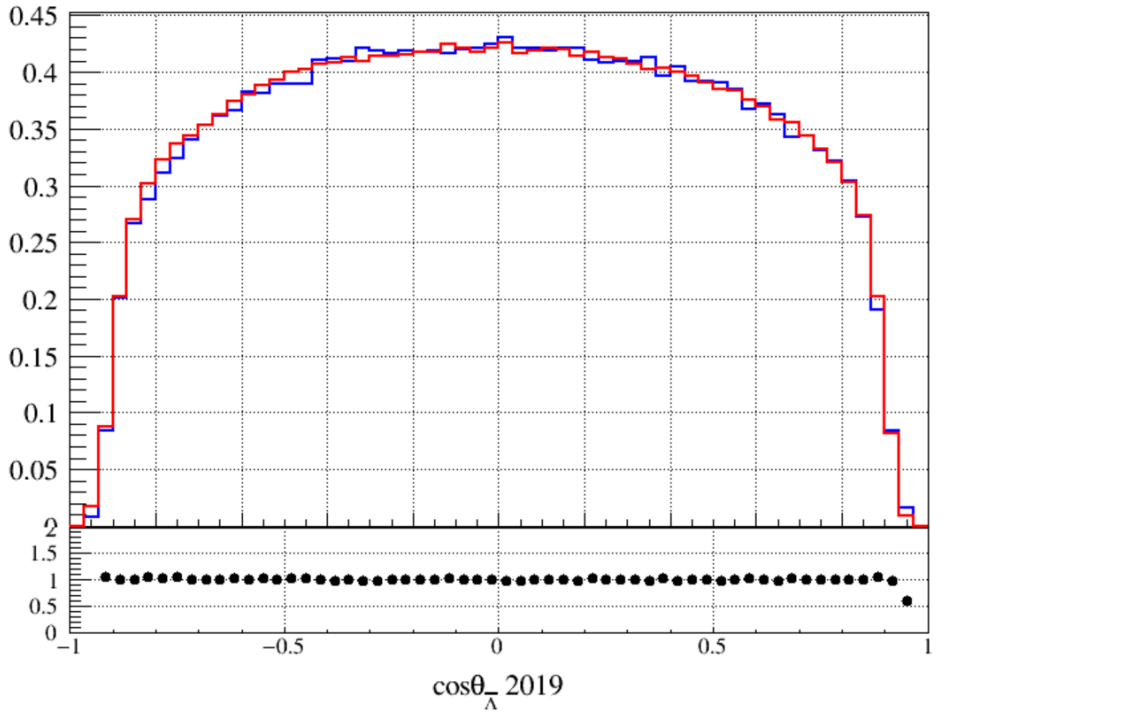
- Tracking && PID
- Initial && secondary Vertex Fit
- $L/\sigma_L > 2.0$
- $\chi^2_{sec} < 15$
- $\left|M_{p\pi} - 1.1157\right| < 0.008\ (GeV/c^2)$
- $M_{p\pi}^{recoil} \in [1.069, 1.152]\ GeV/c^2$

Rec Lam Eff


0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
2
1.5
1
0.5
0
−1
−0.5
0
0.5
1
cosθ_Λ 2009


Data
MC
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
2
1.5
1
0.5
0
−1
−0.5
0
0.5
1
cosθ_Λ 2012


0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
2
1.5
1
0.5
0
−1
−0.5
0
0.5
1
cosθ_Λ 2018


0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
2
1.5
1
0.5
0
−1
−0.5
0
0.5
1
cosθ_Λ 2019

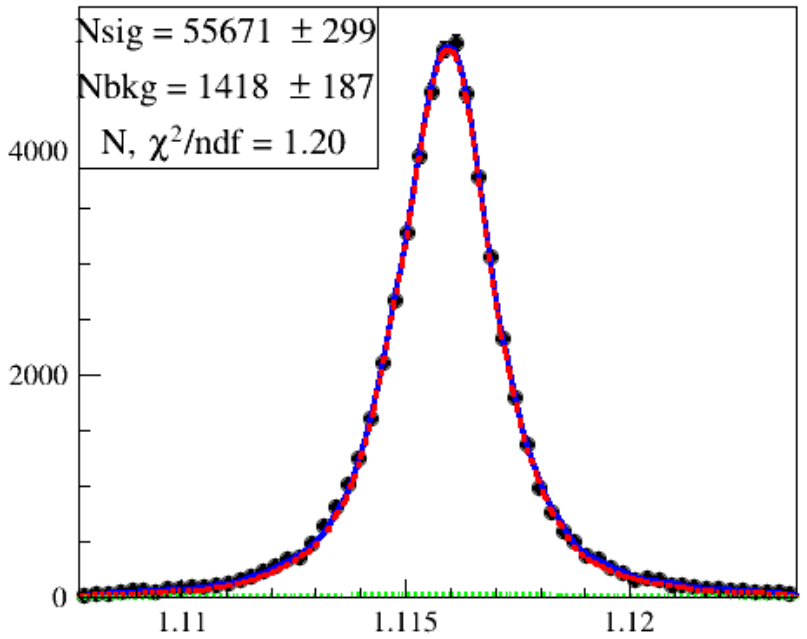
Check the rec Efficiency of $\Lambda \to n\pi^0$

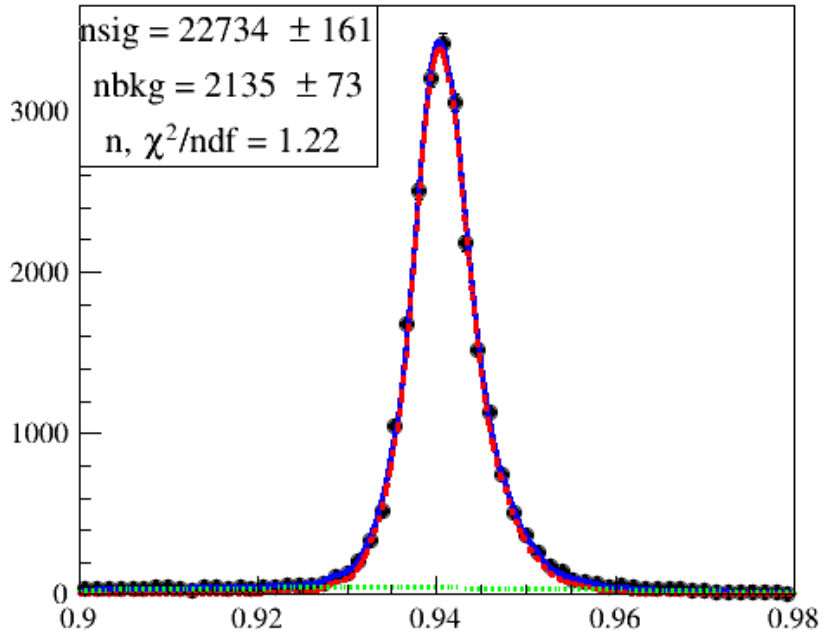
- Data && MC : $J/\psi \to \bar{\Lambda}(\to \bar{p}\pi^+)\,\Lambda(\to n\pi^0)$

① Tag a $\bar{\Lambda}$ by $\bar{\Lambda} \to \bar{p}\pi^+$ N

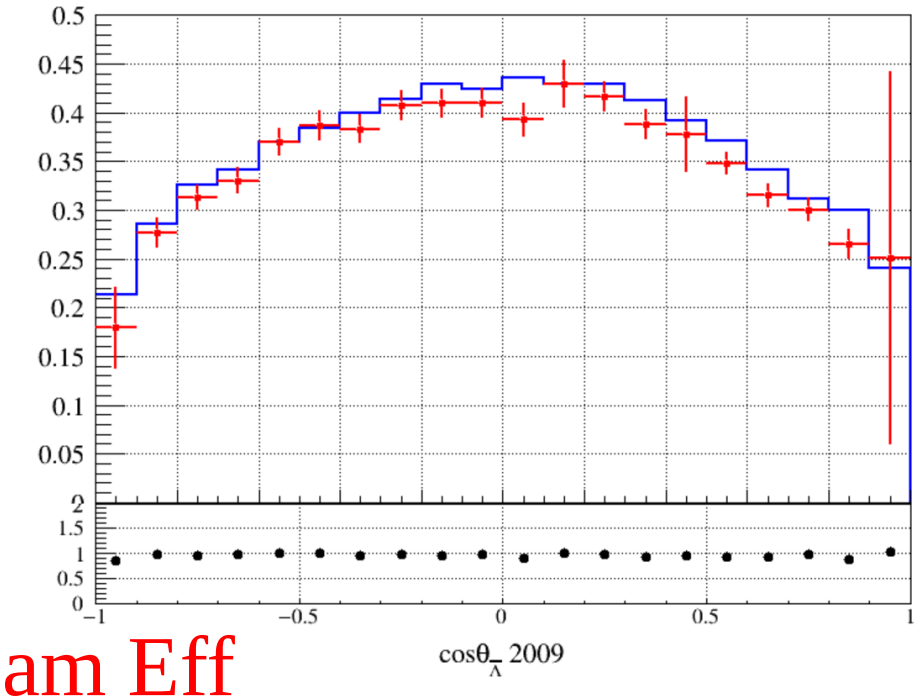
② Select a Λ by $\Lambda \to n\pi^0$ n

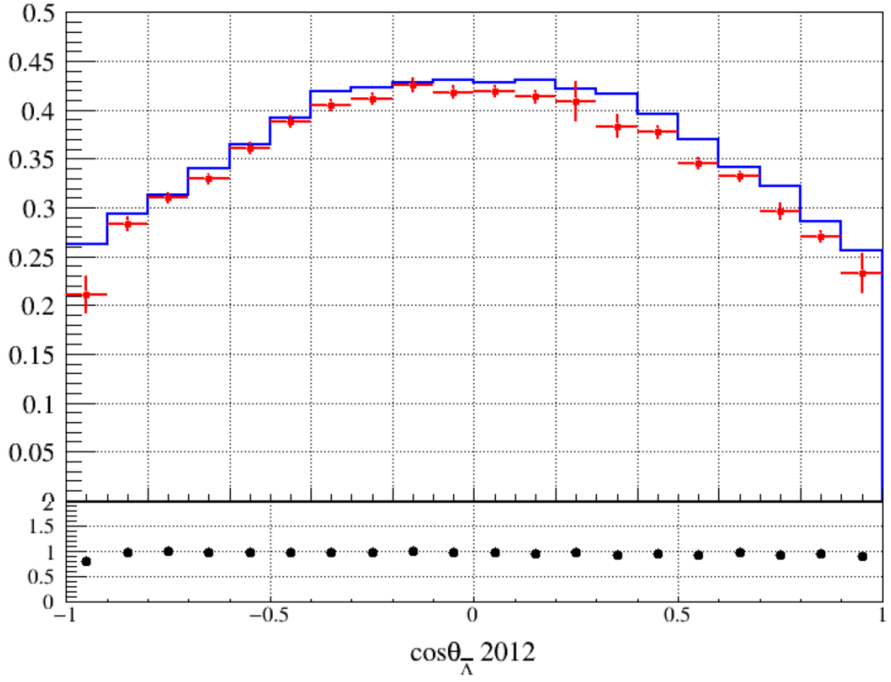
③ eff = n/N

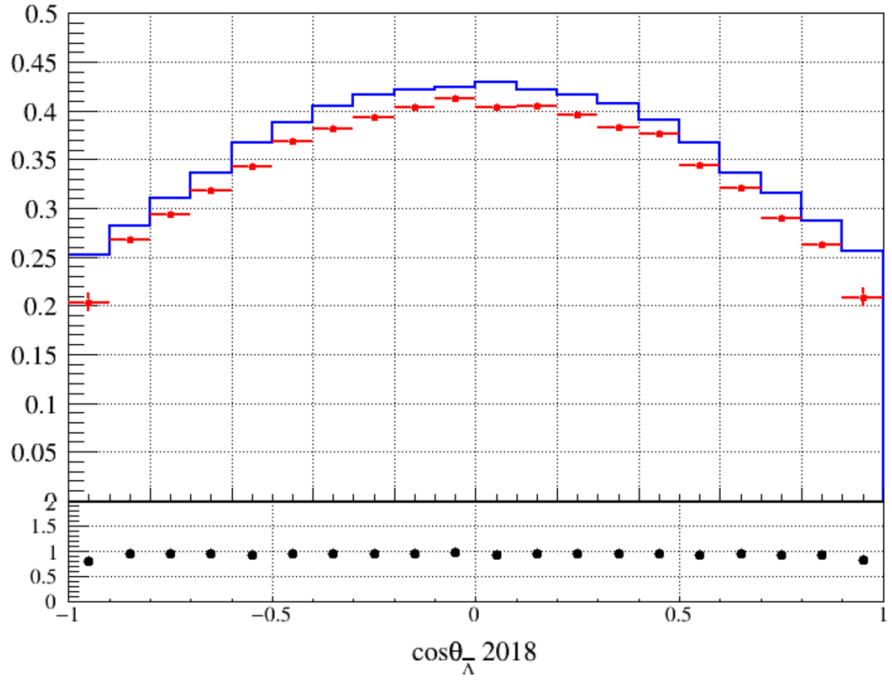


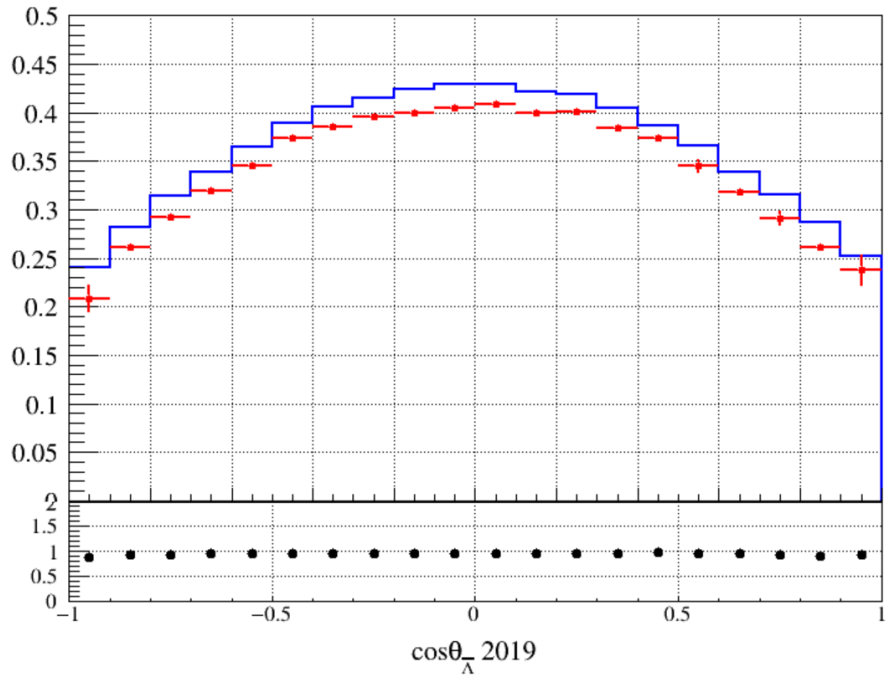


Npi0 Lam Eff









Next

- Correct the efficiency of π^0 by $J/\psi \to \Lambda\pi^-\Sigma^+\left(\to \mathrm{p}\pi^0\right) + \mathrm{c.\,c.}$