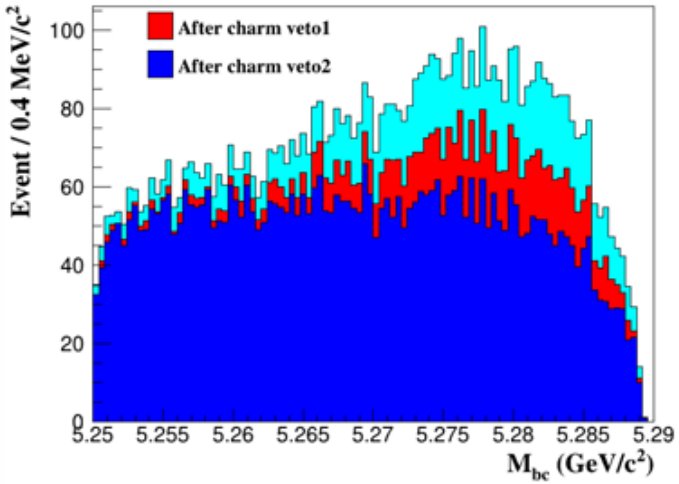
Group Meeting

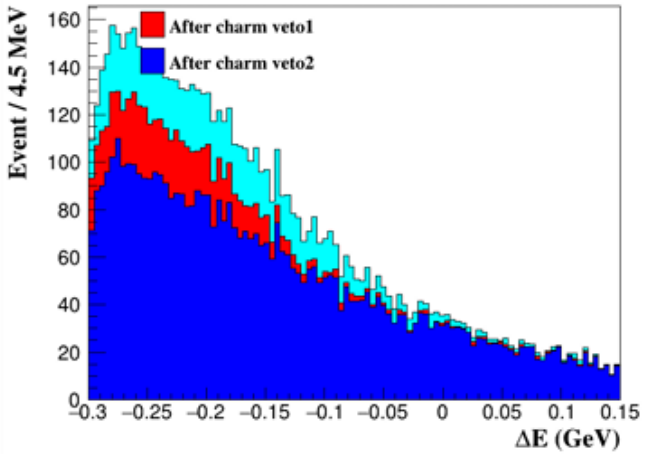
2024.11.22

Belle II

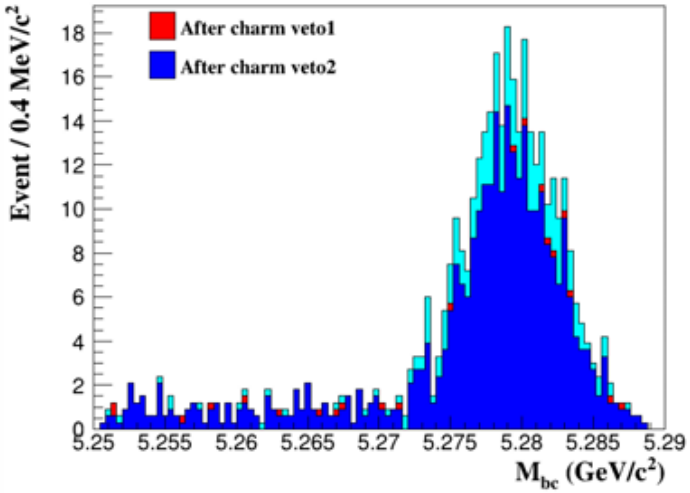
Charm Veto

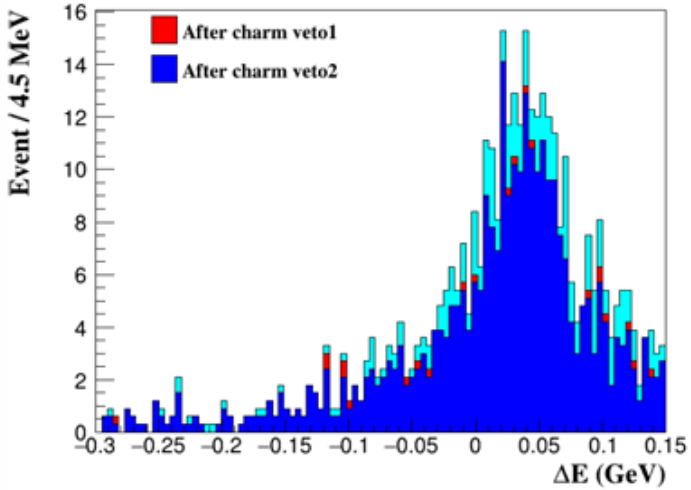
$B\bar{B}$ bkg without $B \to K\pi\pi$





$B \to K\pi\pi$





Charm veto1 : cut on $M_{K^+\pi^-}$ & $M_{K^-\pi^+}$

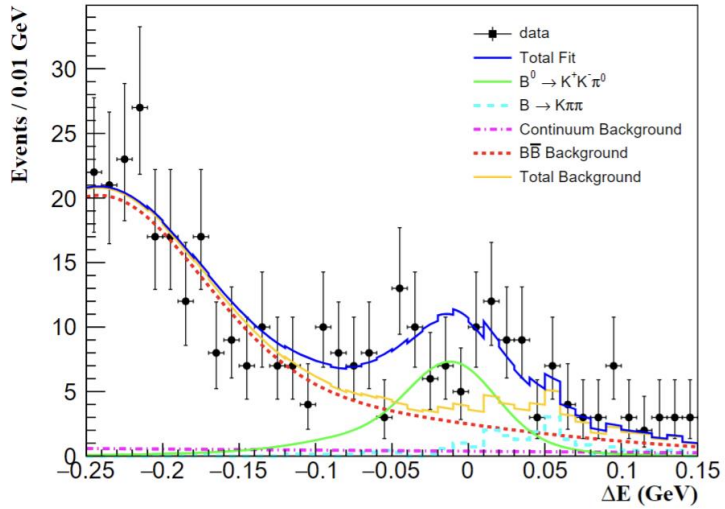
Charm veto2 : cut on $M_{K^+\pi^-}$ & $M_{K^-\pi^+}$ & $M_{K^+K^-}$

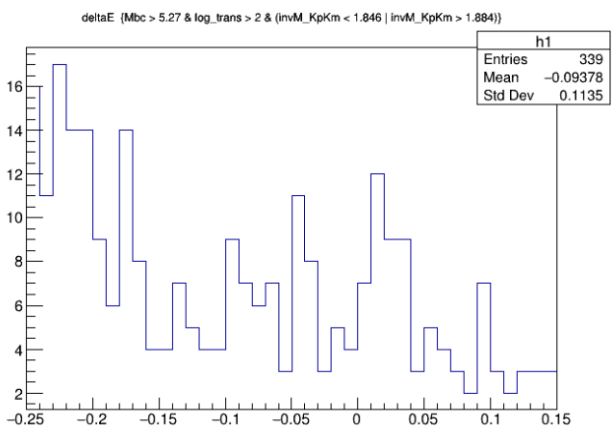
Belle II

CSMVA > 0.95 (Earliest Version)

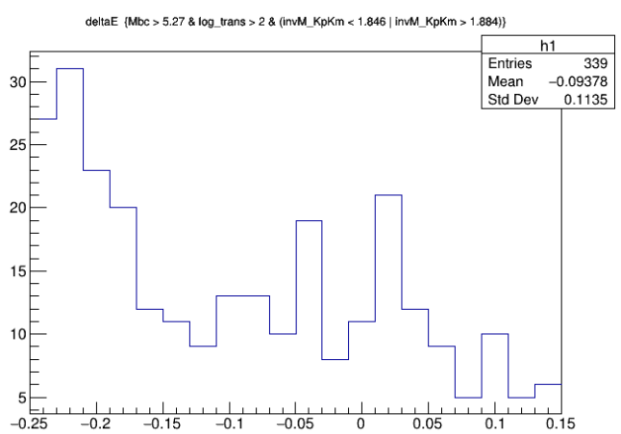
Projection Plot

- $5.27 < M_{bc} < 5.289\ \mathrm{GeV}/c^2$
- C'> 2

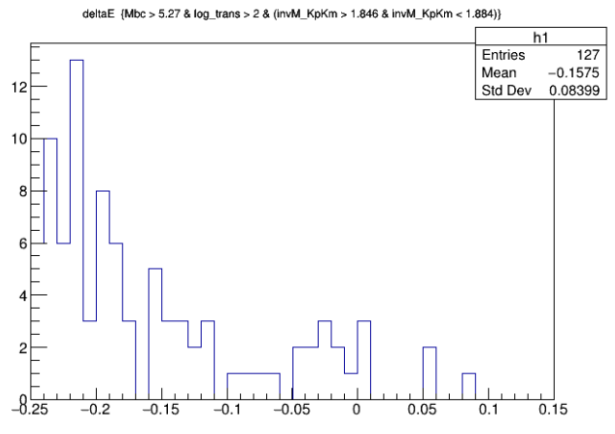




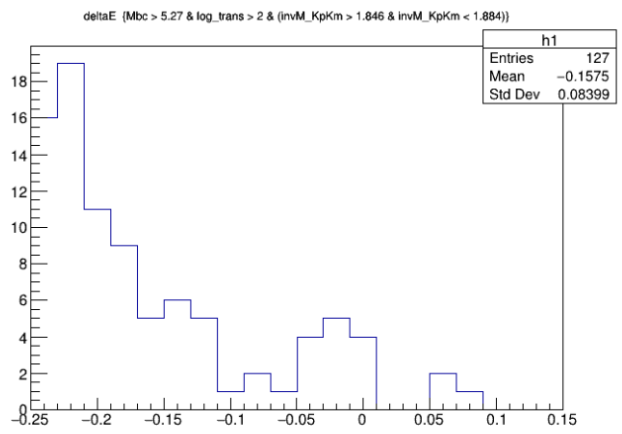
After veto
Bin width: 10 MeV



After veto
Bin width: 20 MeV



Charm
Bin width: 10 MeV



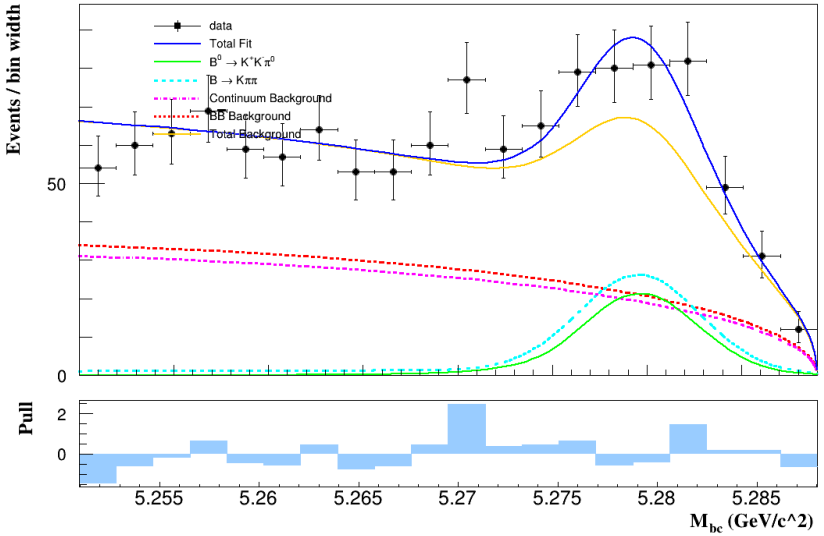
Charm
Bin width: 10 MeV

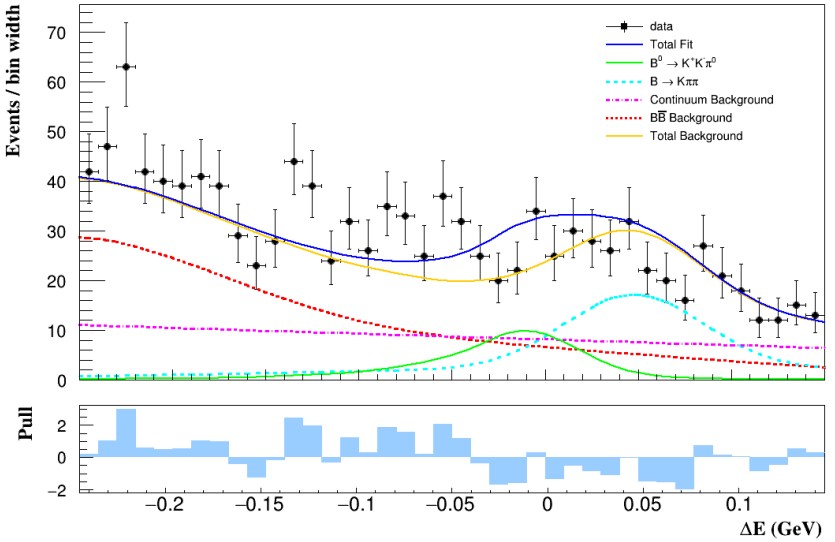
Belle II

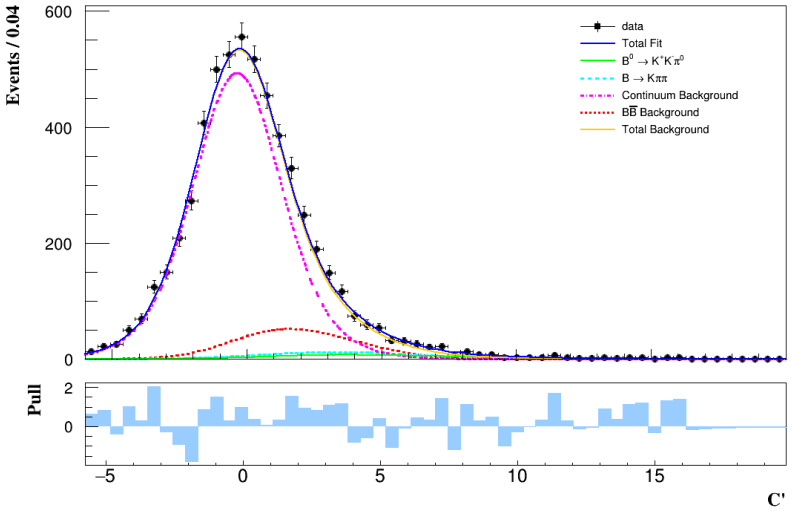
CSMVA > 0.4 (New weightfile)

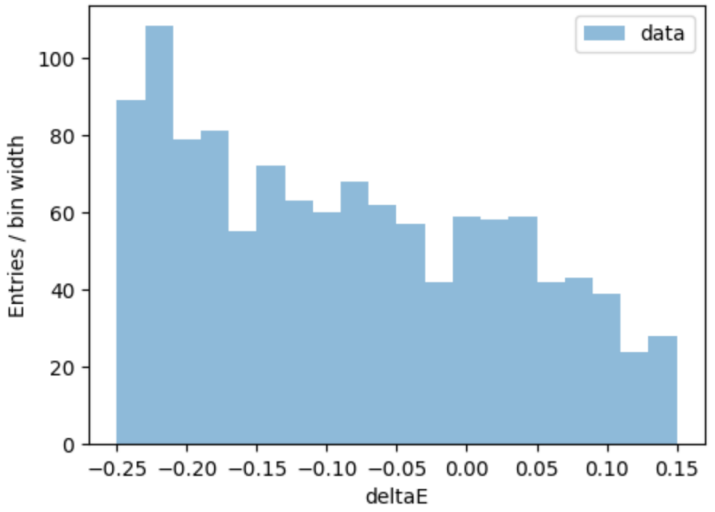
Projection Plot

- $-0.15 < \Delta E < 0.05$ GeV
- $5.27 < M_{bc} < 5.289$ GeV/c^2
- C'> 3

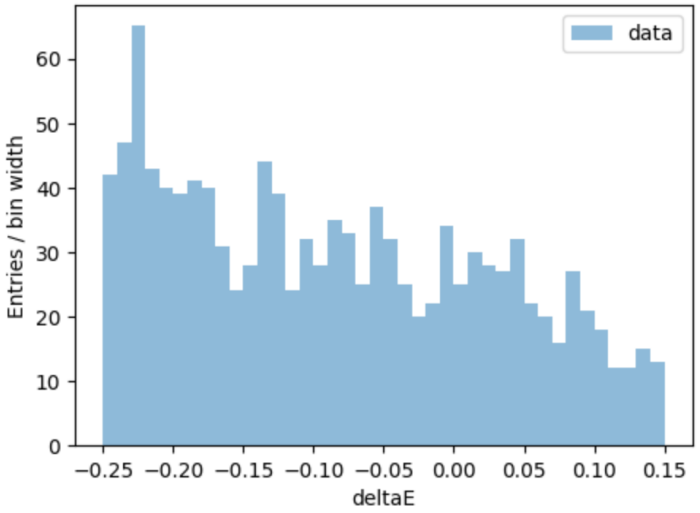








Bin width: 20 MeV



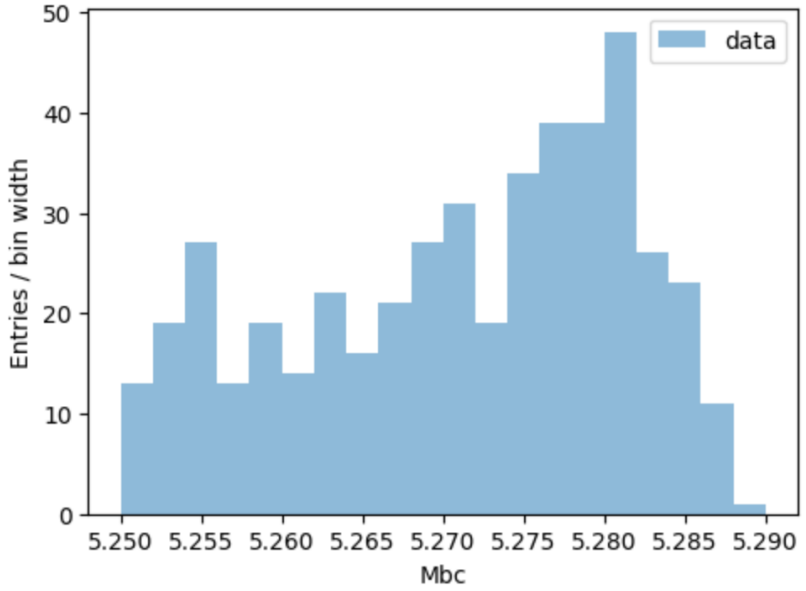
Bin width: 10 MeV

Belle II

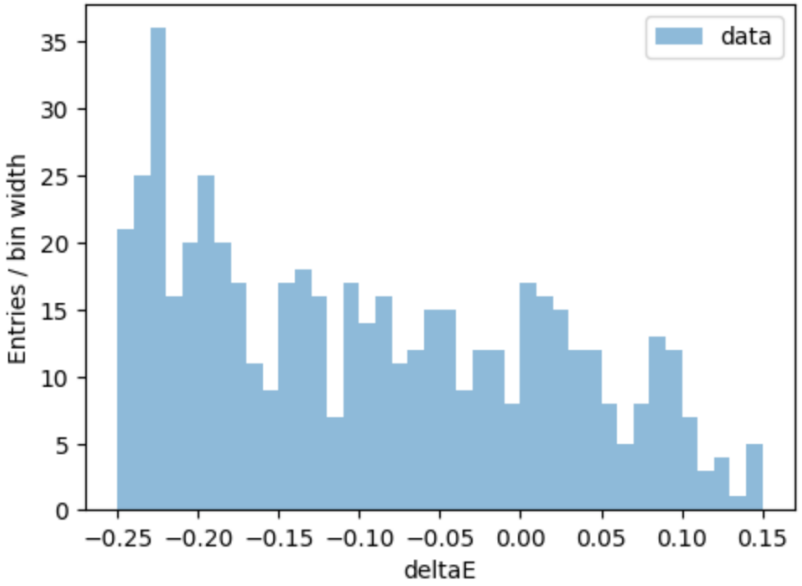
CSMVA > 0.4 (New weightfile)

Projection Plot

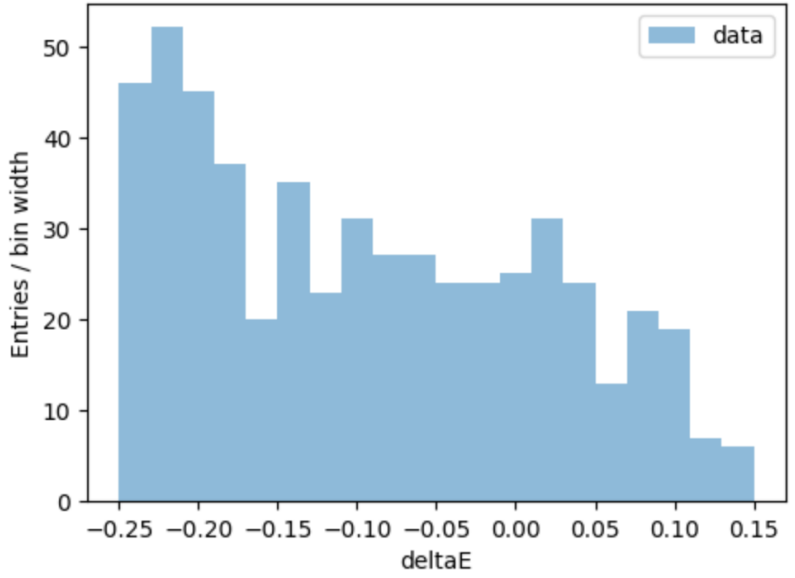
- -0.15 < ΔE < 0.05 GeV
- 5.27< M_{bc} <5.289 GeV/c^2
- C'> 4.5



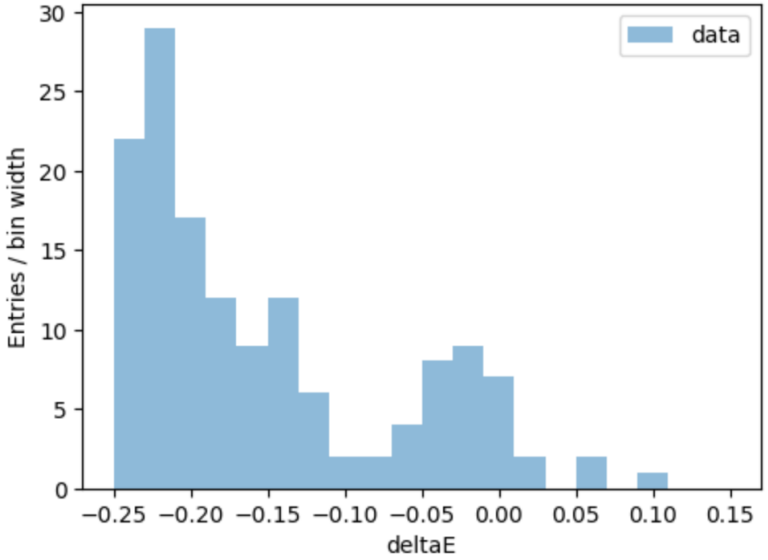
Bin width: 2 MeV/c^2



Bin width: 10 MeV



Bin width: 20 MeV



Charm

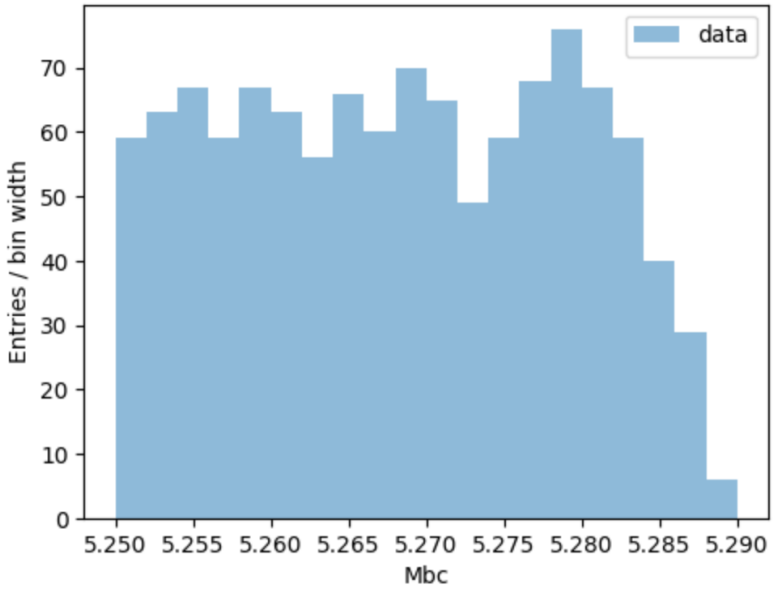
Bin width: 20 MeV

Belle

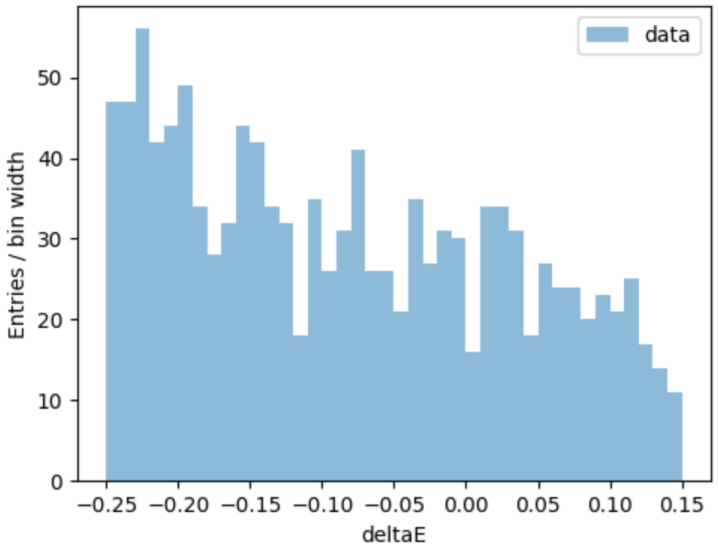
CSMVA > 0.4

Projection Plot

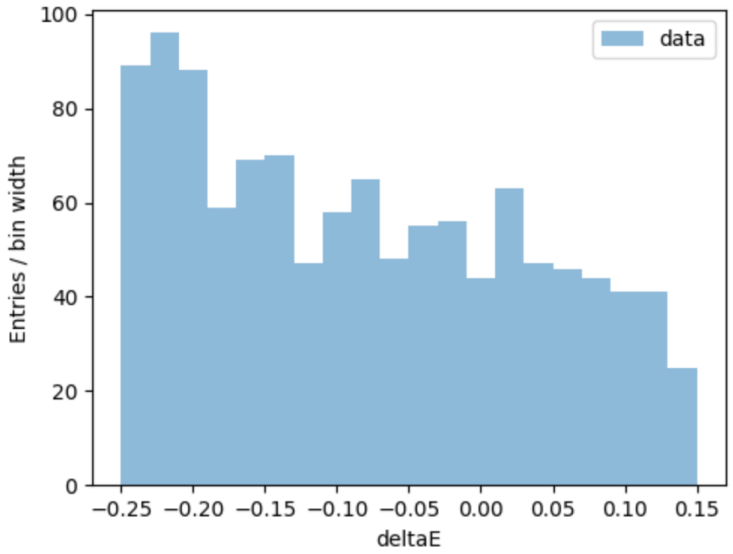
- -0.15 < ΔE < 0.05 GeV
- 5.268 < M_{bc} <5.289 GeV/c^2
- C'> 4.5



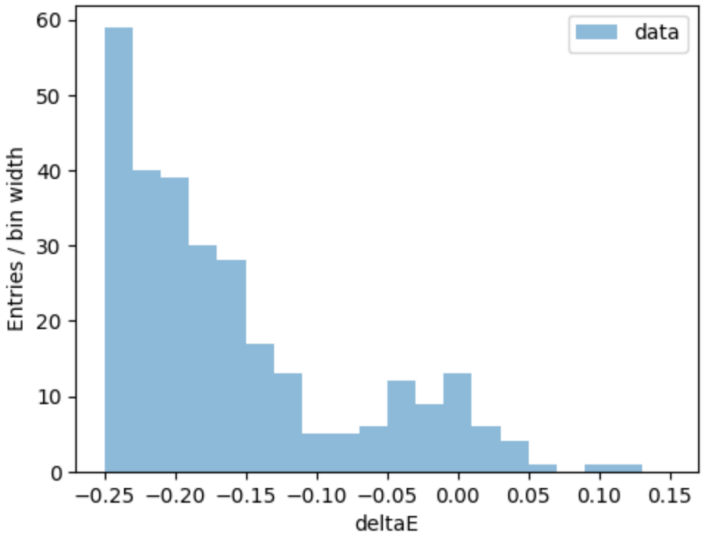
Bin width: 2 MeV/c^2



Bin width: 10 MeV



Bin width: 20 MeV



Charm

Bin width: 20 MeV

```
  RooFitResult: minimized FCN value: -331891, estimated distance to minimum: 1.484e-06
                covariance matrix quality: Full, accurate covariance matrix
                Status : MINIMIZE=0 HESSE=0 MINOS=0

    Floating Parameter    FinalValue +/-  Error
  --------------------  --------------------------
            N_BtoKpipi    2.5312e+02 +/-  3.81e+01
               N_bbbar    4.1576e+03 +/-  1.36e+02
               N_qqbar    2.4788e+04 +/-  1.95e+02
                 N_sig    1.3862e+02 +/-  2.58e+01

RooArgList:: = (N_BtoKpipi,N_bbbar,N_qqbar,N_sig)
chi2_ndf_mbc             8.97329
chi2_ndf_de             1.47878
chi2_ndf_log             1.73386
Parameter: N_BtoKpipi, Value: 253.124
Parameter: N_BtoKpipi, Error: 38.0714
Parameter: N_bbbar, Value: 4157.6
Parameter: N_bbbar, Error: 135.69
Parameter: N_qqbar, Value: 24788.5
Parameter: N_qqbar, Error: 195.238
Parameter: N_sig, Value: 138.619
Parameter: N_sig, Error: 25.8221
eff = 0.235419
Branch ratio : 1.45234
Br_err : 0.270543
NLL_min = -331891
NLL = -331870
significance : 6.53135
```