

BB result kin12

since we do not have the dp I use the actual momentum instead.

Following are the data with

1 electron PID : T3 no edm && (prl_sum/electron_momentum)>0.6

2 L vertex cut : $|z| \leq 0.075$ m

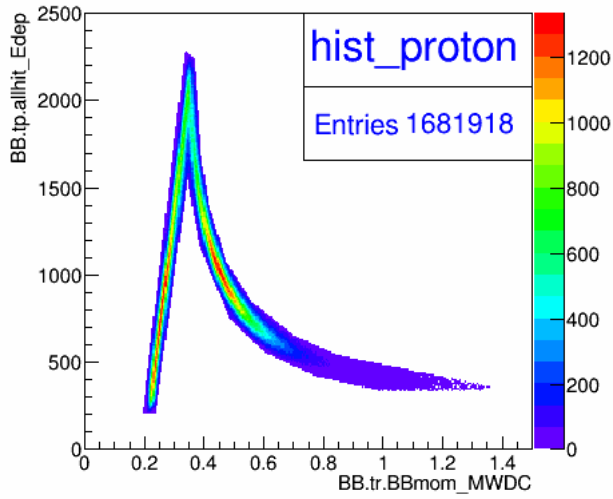
3. proton PID: graphic E vs p

4. add CT time : ± 3.5 ns

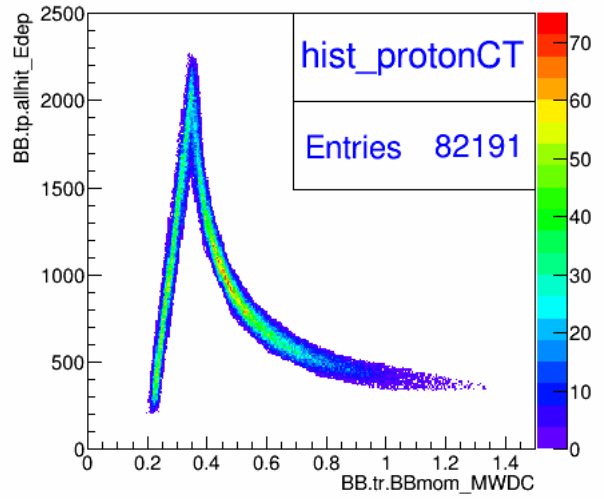
5. *add the estimated coincidence vertex: $\text{abs}(rpl.z - BB.tr.tg_y * 1.12 + 0.007) \leq 0.04$

Proton PID in various steps.

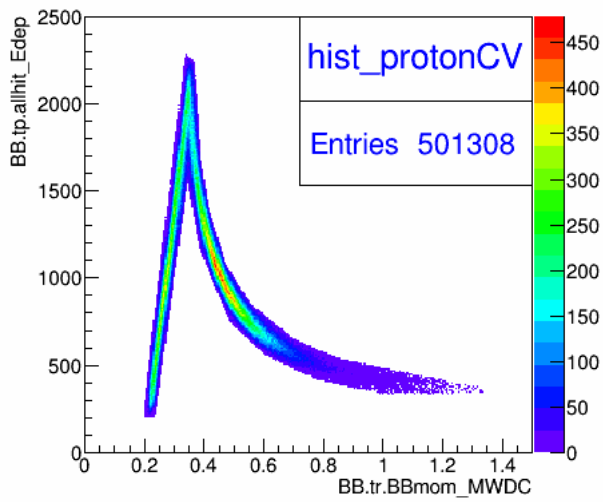
hist_proton



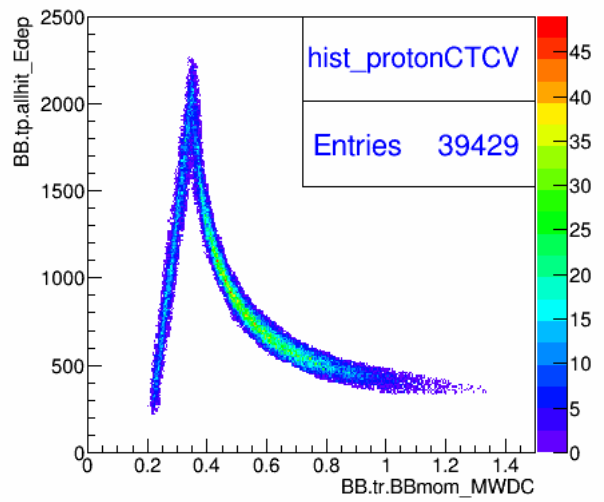
hist_protonCT



hist_protonCV

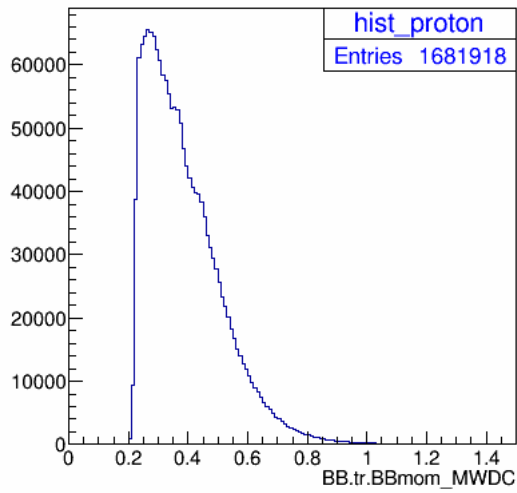


hist_protonCTCV

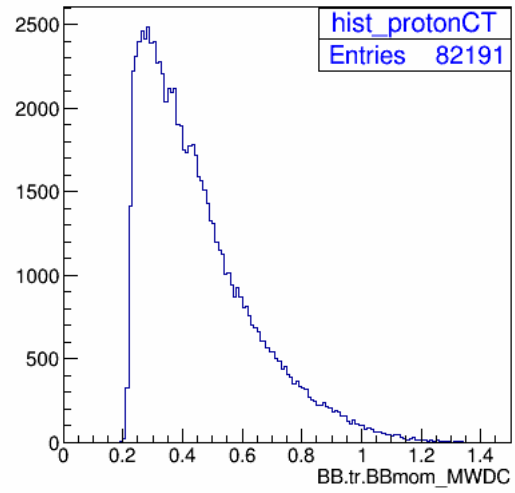


The result of the momentum distribution with various cuts (CT,CV,CT&CV) (no background subtraction yet)

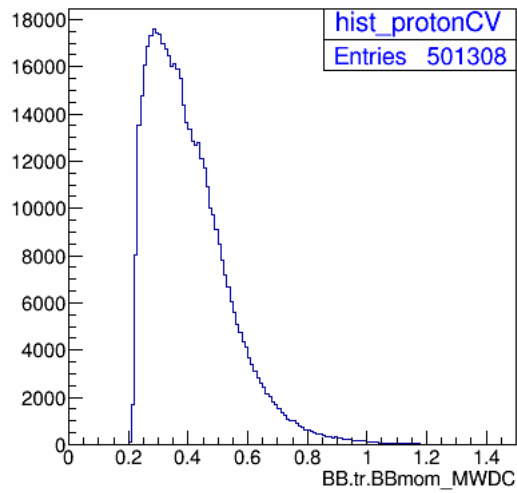
hist_proton



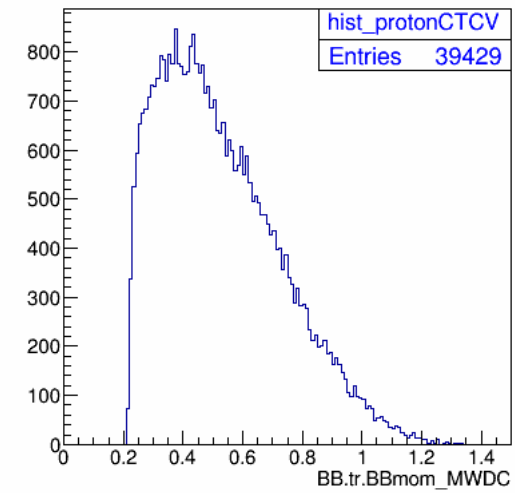
hist_protonCT



hist_protonCV

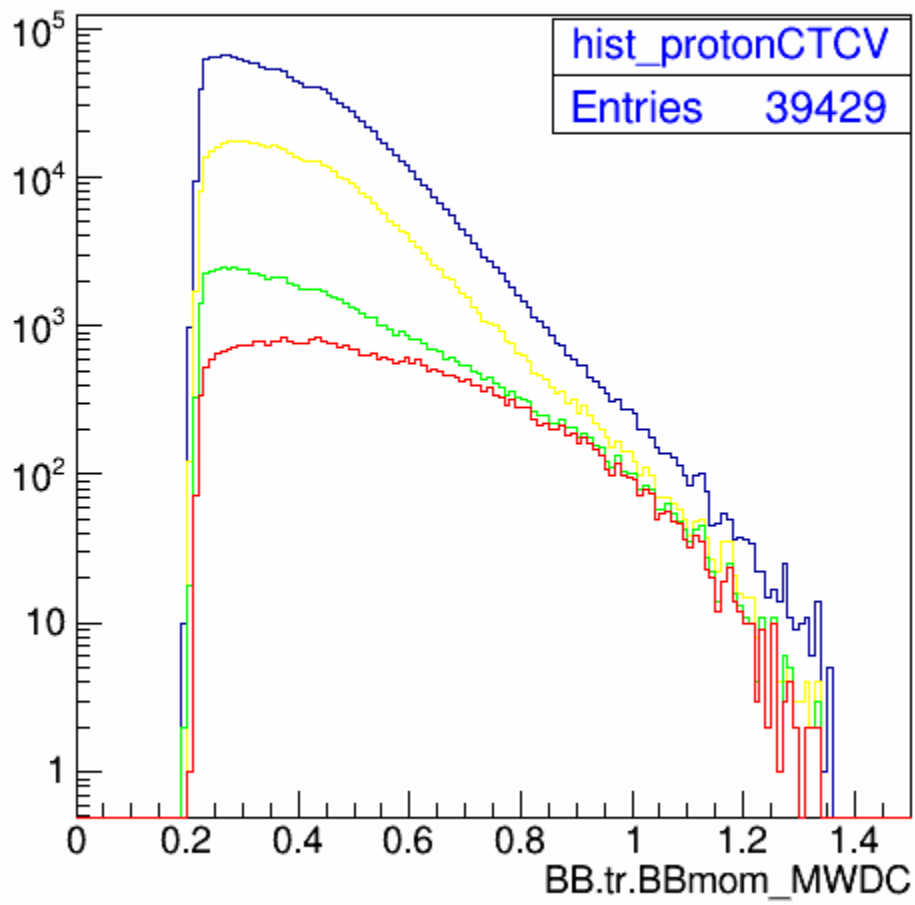


hist_protonCTCV



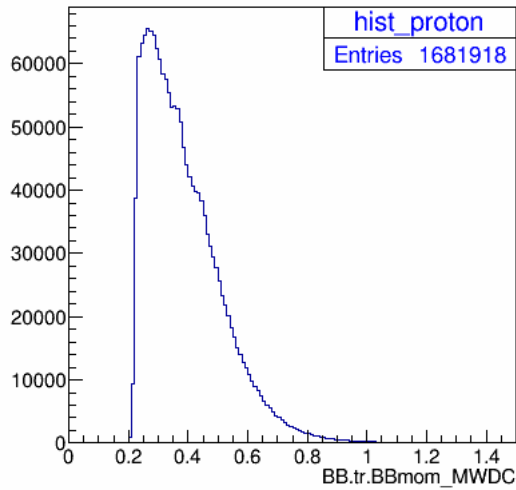
with the combination of the CT and CV cut, it seems like that those in low momentum section reduced more compare to other section of momentum.

hist_proton

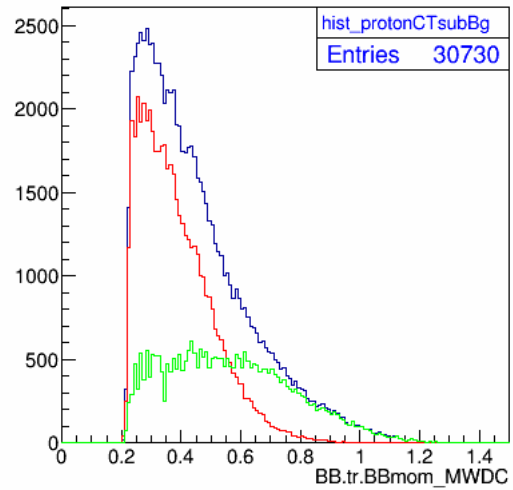


Overlap of all proton momentum distribution with various cut but without background subtraction.

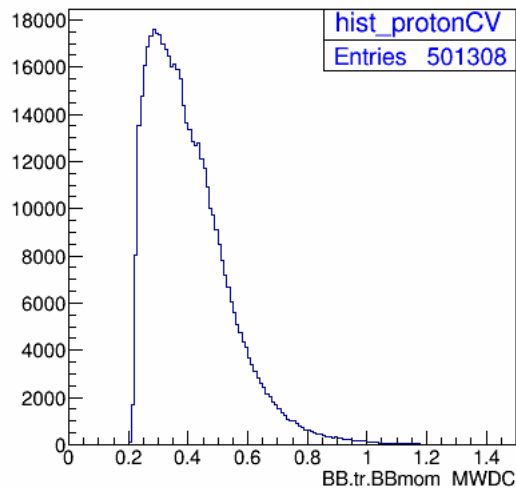
hist_proton



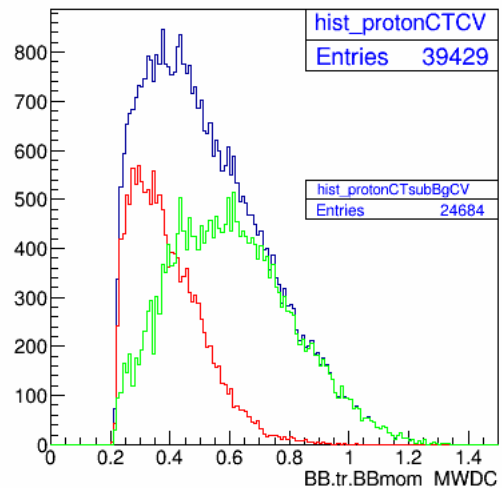
hist_protonCT



hist_protonCV



hist_protonCTCV



Getting the momentum distribution of the background event from using the background of the CT from both side of the CT peak. The background are in red in those two case with CT cut and with both CT&CV cut.

The result of hist sub bg are in green.

Note that in the lower right graph the entries of the event after background subtraction are in comparable with the one before or the background itself.

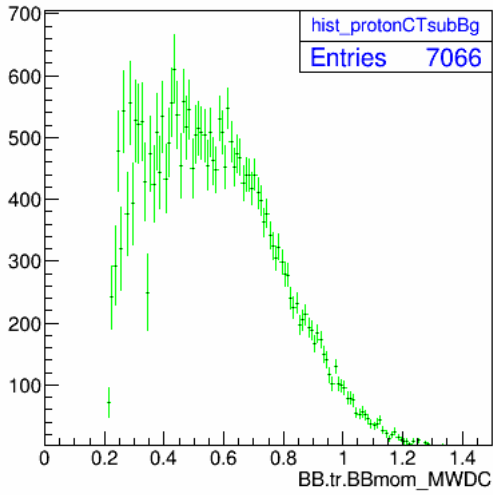
This would mean the error bar (not yet shown) at the low momentum would change compare to just the CT cut alone.

Entries:

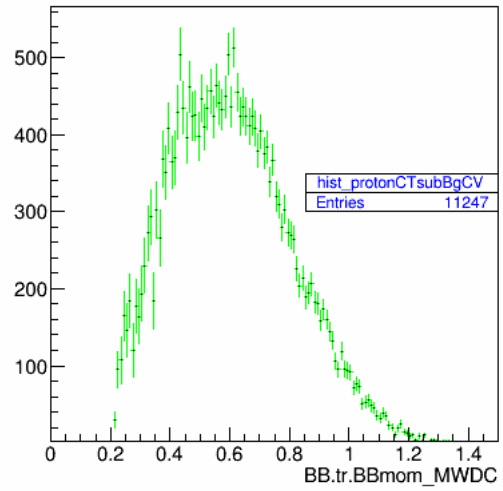
CT: 82191	BG: 51461	CTsubBG: 30730 +/- 286 +/- 227
CTCV:39429	BG: 14745	CTCVsubBG: 24684 +/- 198 +/- 121

**study the variation of CV cut sensitivity

hist_protonCTsubBg

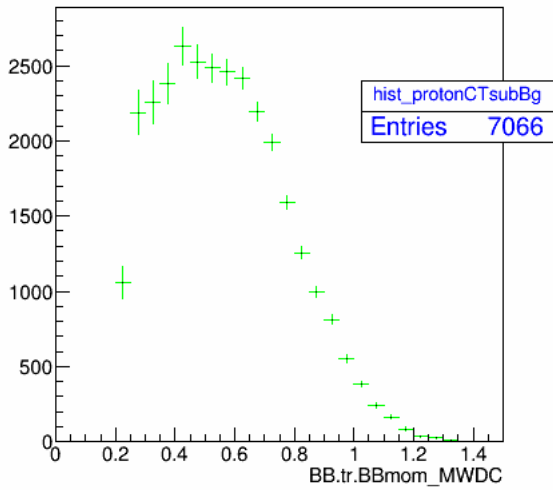


hist_protonCTsubBgCV

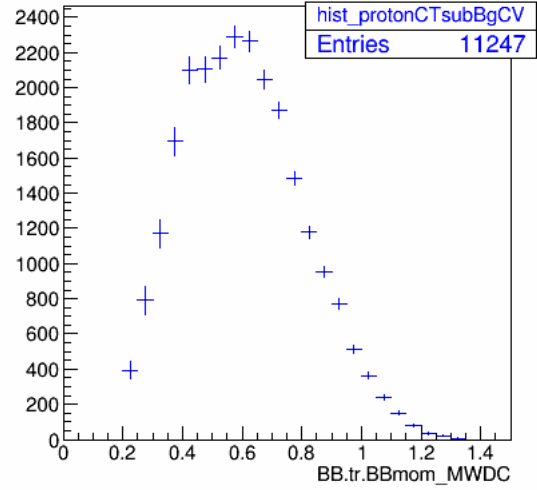


Momentum distribution with background subtraction
10 MeV/c/bin

hist_protonCTsubBg

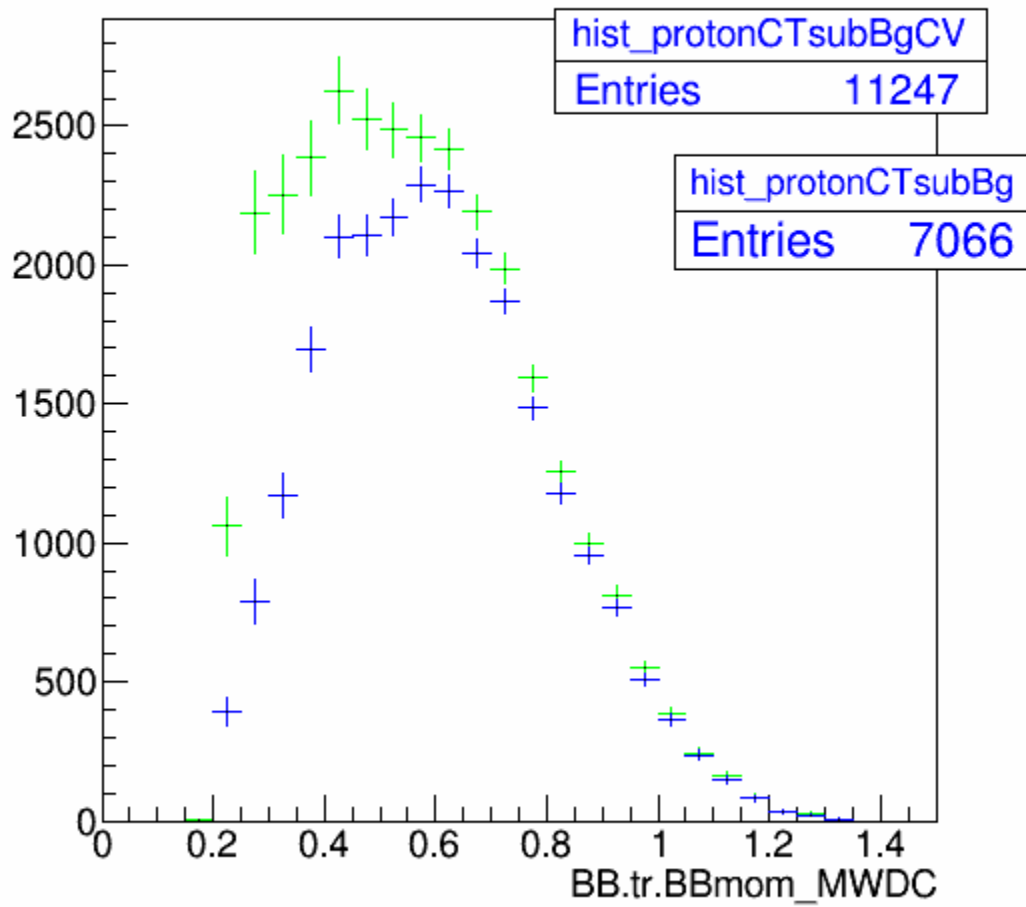


hist_protonCTsubBgCV



Momentum distribution with background subtraction
in 50 MeV/c/bin

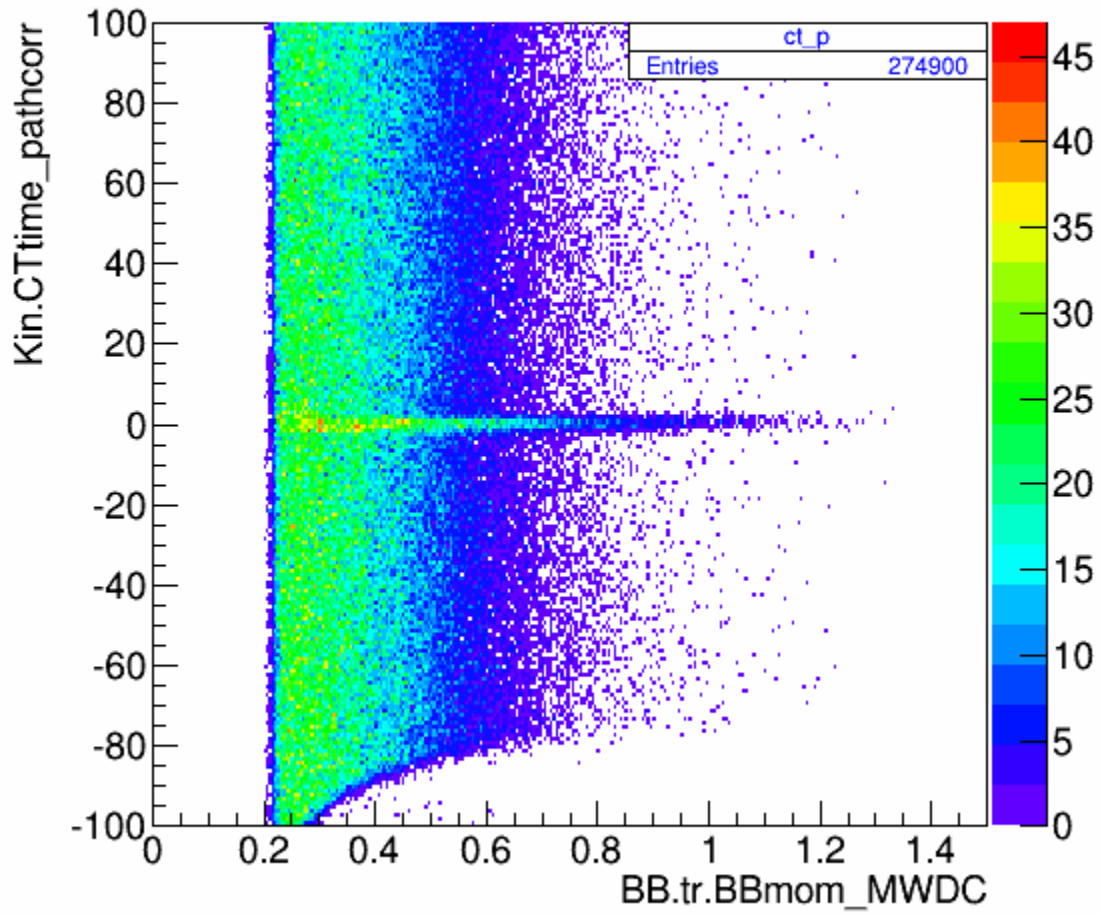
hist_protonCTsubBg



Momentum distribution with background subtraction
in 50 MeV/c/bin
green: protonCTsubBg
blue: protonCTsubBgCV

With this the proton with addition CV cut reduce the data in the low momentum section.

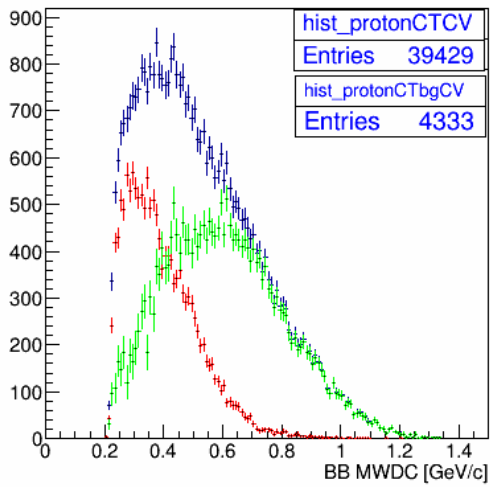
ct_p



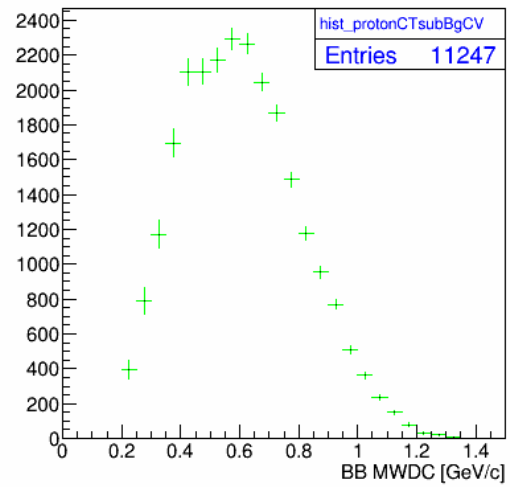
The CT vs momentum showing the background in term of momentum dependence.

Test variation of the CV cut

hist_protonCTCV_4_cm

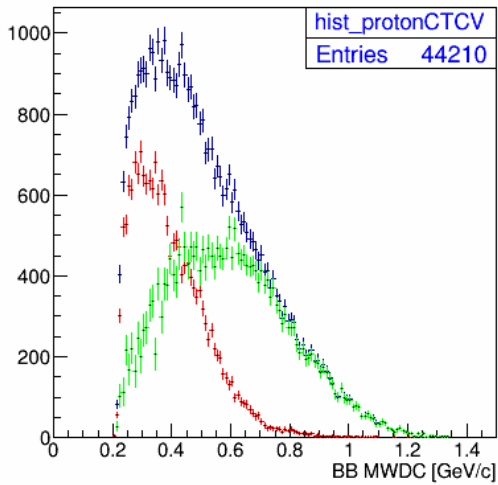


hist_protonCTsubBgCV

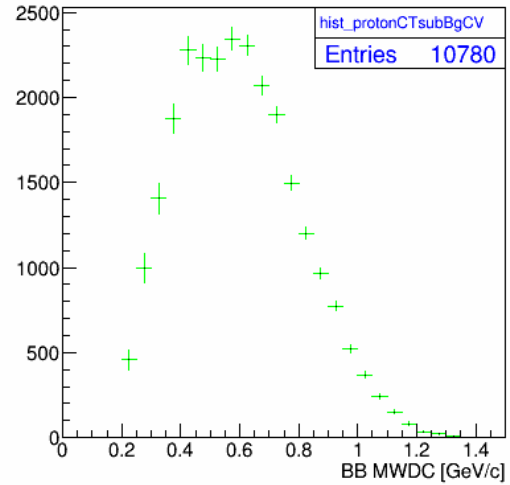


CTCV: 39429 CTbgCV: 14745 CTCV-bg: 24684 +/- 198 +/- 121

hist_protonCTCV_5_cm

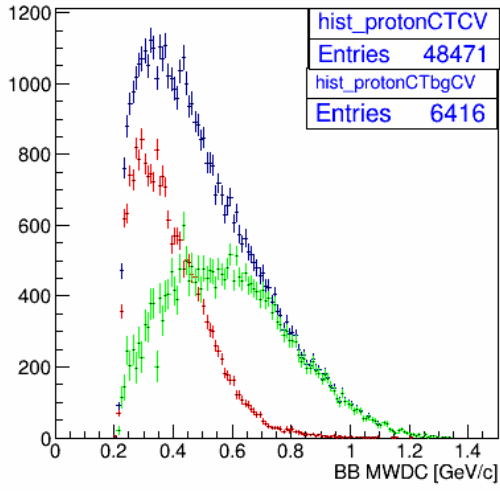


hist_protonCTsubBgCV

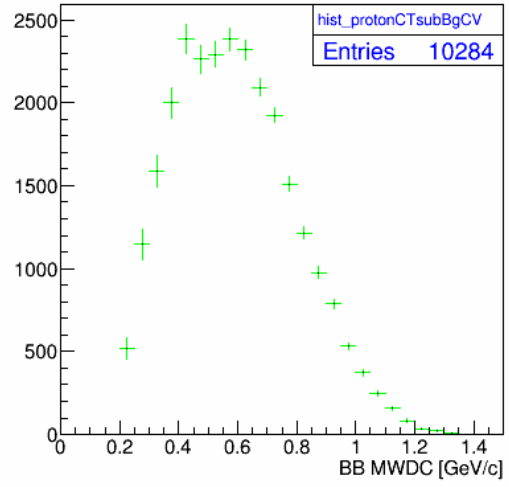


CTCV: 44210 CTbgCV: 18260 CTCV-bg: 25950 +/- 210 +/- 135

hist_protonCTCV_6_cm

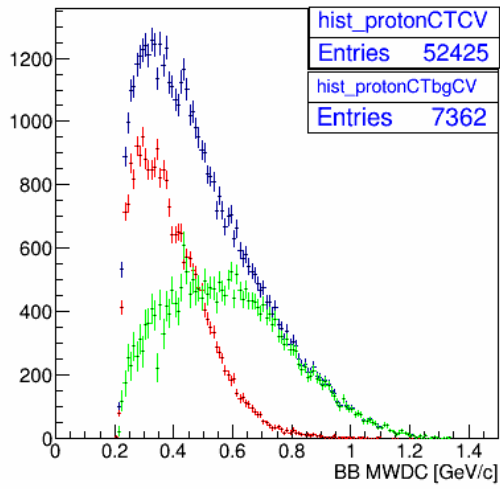


hist_protonCTsubBgCV

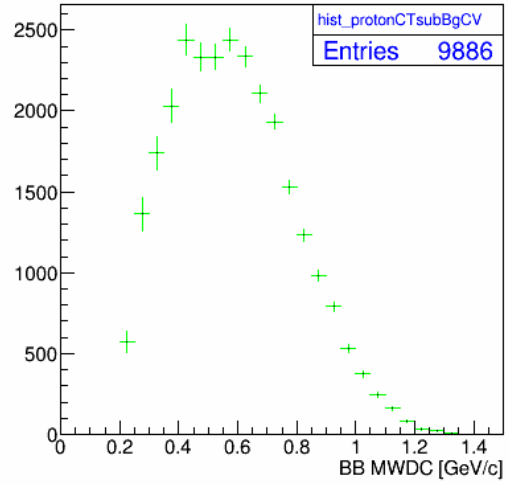


CTCV: 48471 CTbgCV: 21622 CTCV-bg: 26849 +/- 220 +/- 147

hist_protonCTCV_7_cm

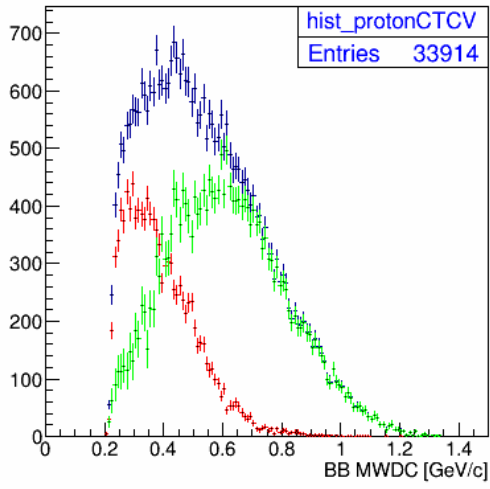


hist_protonCTsubBgCV

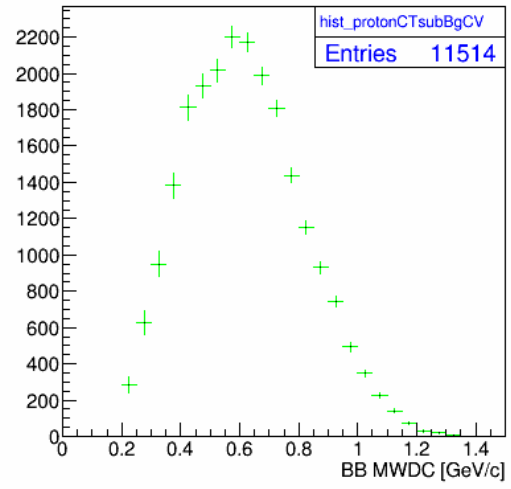


CTCV: 52425 CTbgCV: 24795 CTCV-bg: 27630 +/- 228 +/- 157

hist_protonCTCV_3_cm



hist_protonCTsubBgCV



CTCV: 33914 CTbgCV: 11138

CTCV-bg: 22776 +/- 184 +/- 105