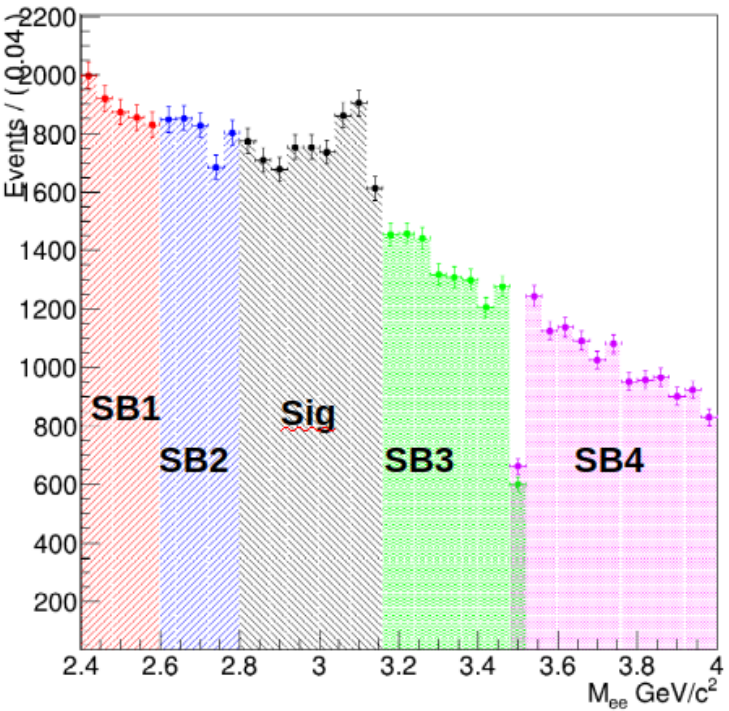
- Updates on:
  - Error bars in f_B
  - Projections of ML-fits

Other Ideas for model stability

Last week

- While checking for the abnormal errors in the fits
  - A bug was found in the model → To fit x-Bkg, x-Sig was passed in place of x-Bkg pdf.
  - Removed now !



f_B after Bug removal

Before

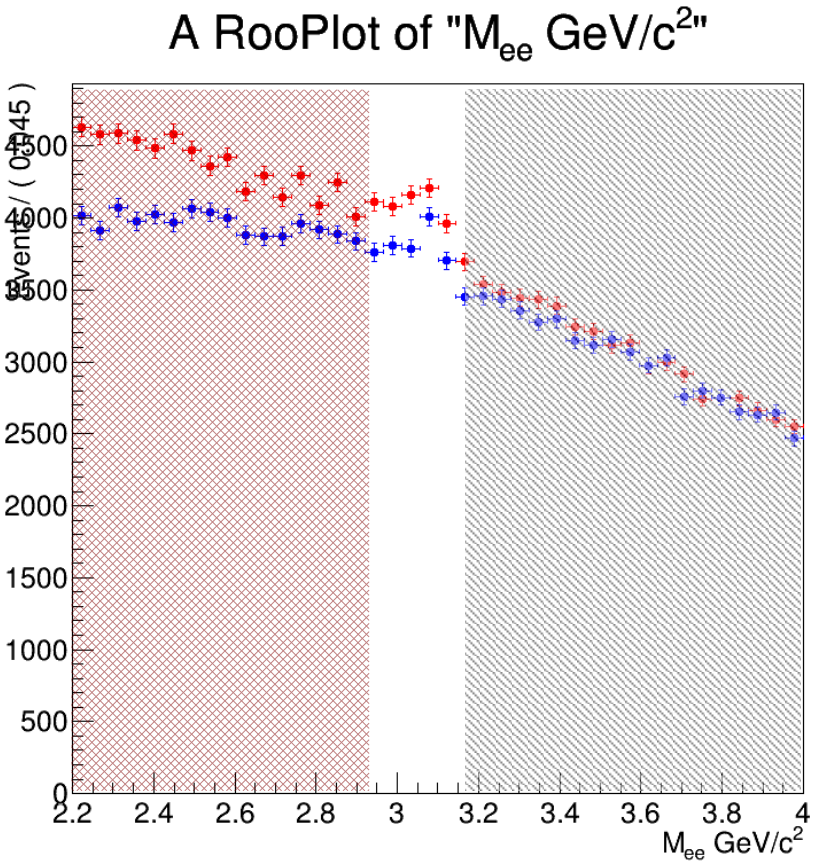
f_B-raw in Pb-Pb [LHC18(q + r) pass1]		
p_T [GeV/c]	0-10% (Central)	30-50%(Semi-central)
4 - 5	0.193 ±0.0014	0.180 ±0.0061
5 - 7	0.201 ±0.0024	0.196 ±0.0091
7 - 10	0.228 ±0.0067	

After

f_B from ML-fits with | TPC$_e{}^{n\sigma}$| < 3.0		
p_T [GeV/c]	0-10% (Central)	30-50%(Semi-central)
4 - 5	0.080 ±0.010 (−125%)	0.36 ±0.08 (+103%)
5 - 7	0.207 ±0.024 (+6%)	0.24 ±0.04 (+22%)
7 - 10	0.230 ±0.040 (−1%)	-

To check the Model's stability

- Split x-bkg into two-side bands rather than 4.



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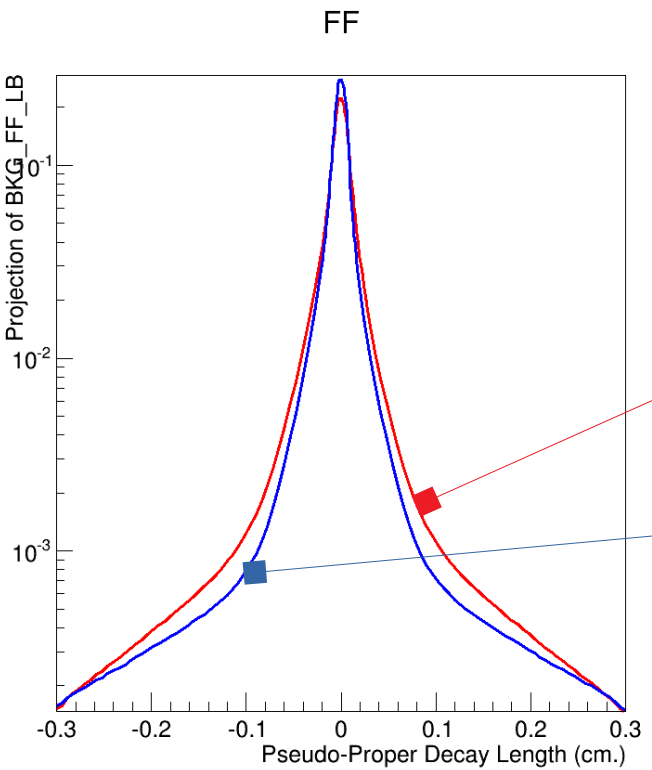
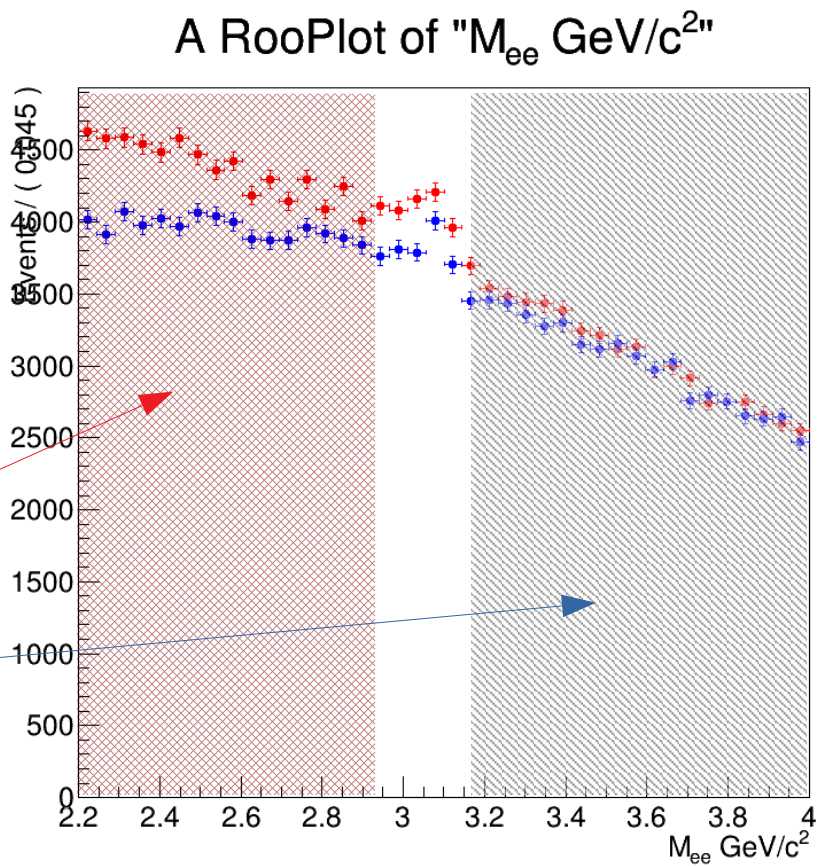
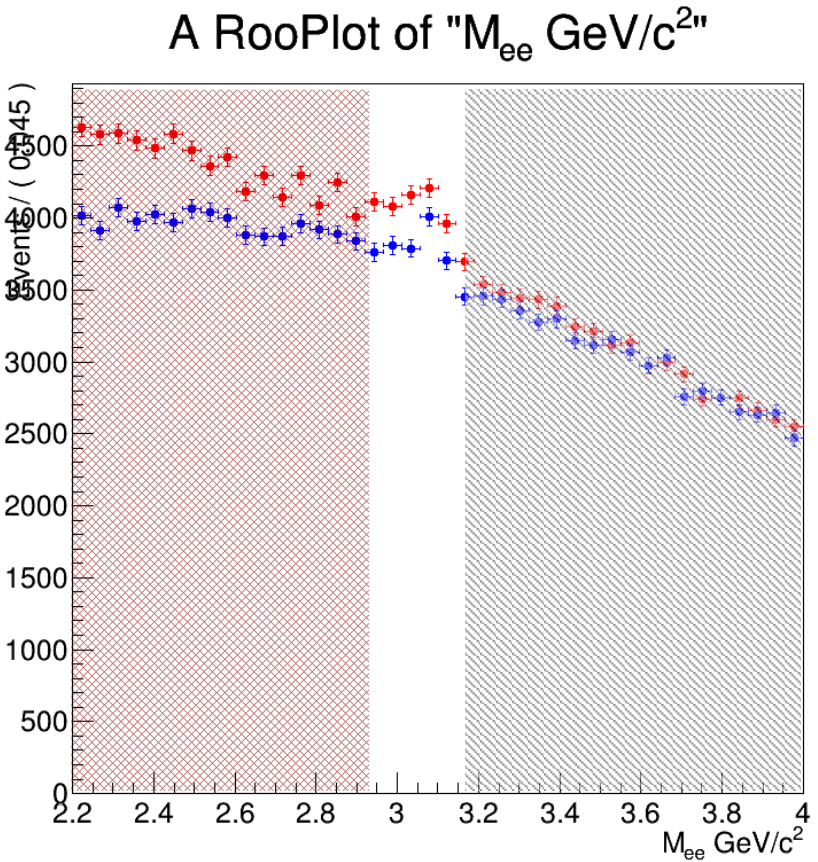




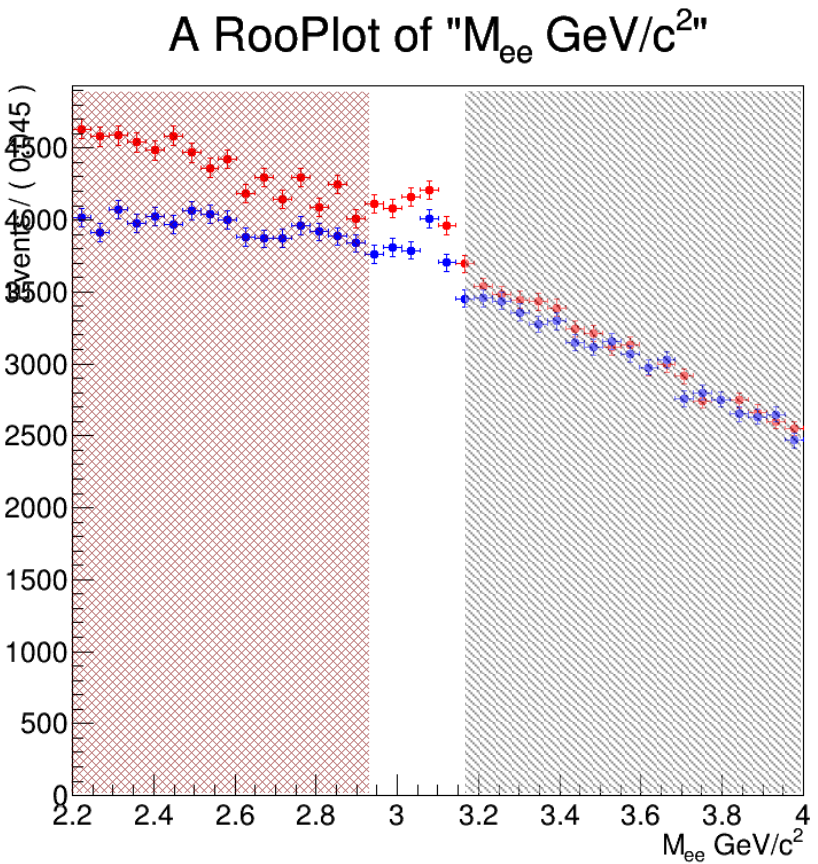
To check the Model's stability

- Split x-bkg into two-side bands rather than 4.
- No-extra pdf (for x-bkg) is passed for signal-region → interpolated with different weight factors (to be checked!)
- Inv Mass fitting range increased to [2.2 - 4.0] GeV/c^2.
- Easier to project the fit results.
- Similar approach as followed before.



Testing of this approach

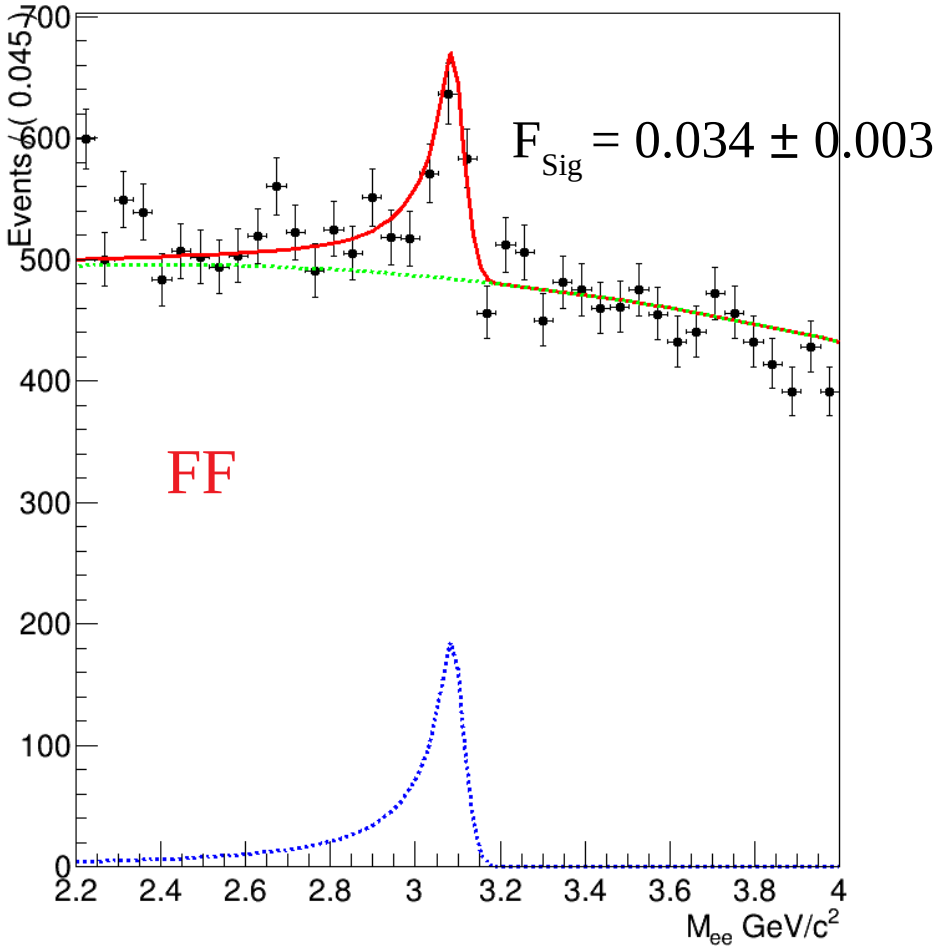
- As it can be seen from the picture FF FS have different S/B ratios.
- Model takes this fact in account.
- Tested on high-Pt first

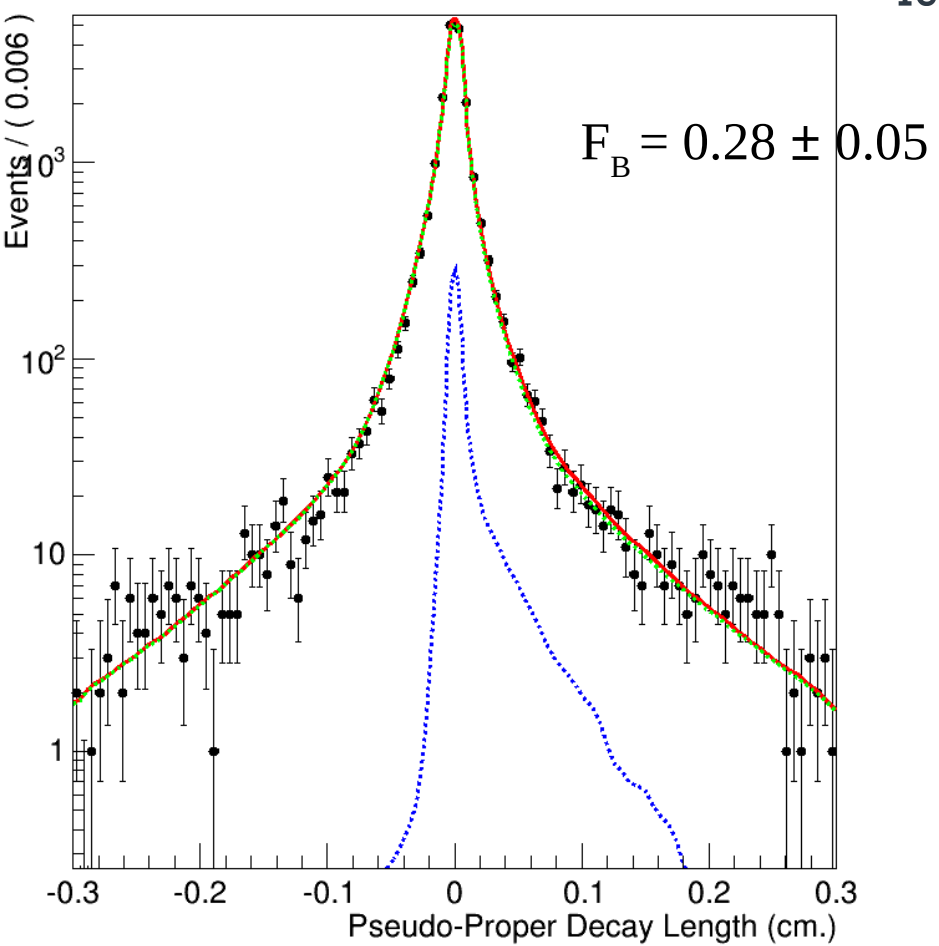


Testing of this approach

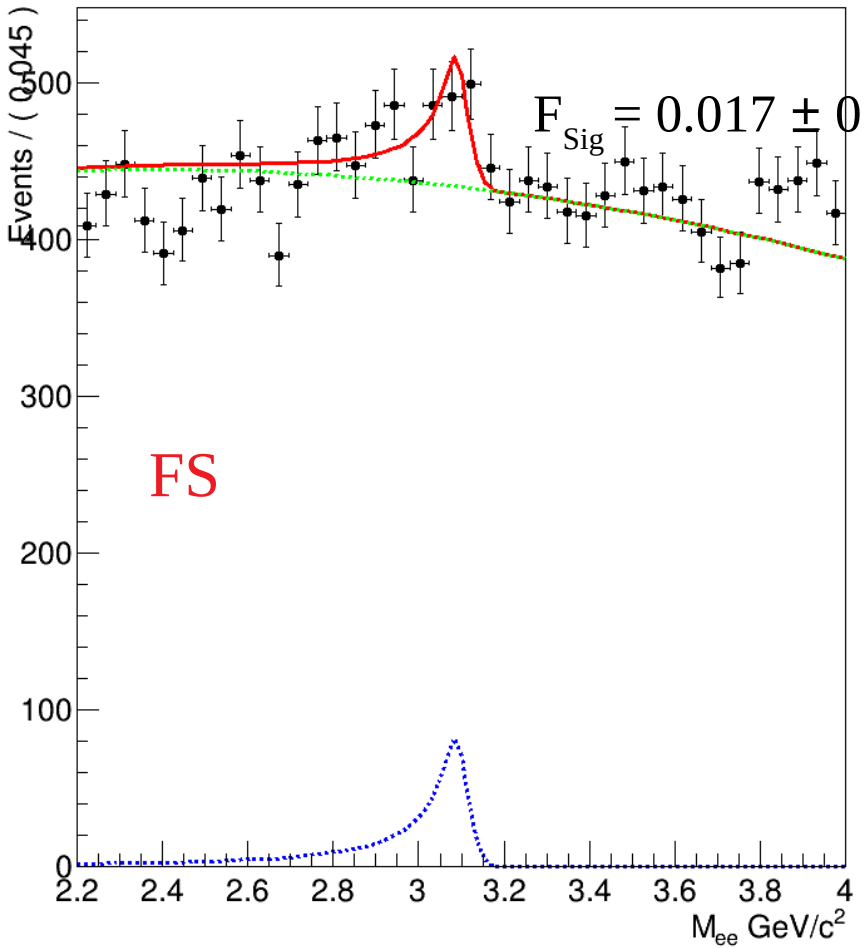
- As it can be seen from the picture FF (Red) FS (Blue) have different S/B ratios.
- Model takes this fact in account.
- Tested on high-Pt first

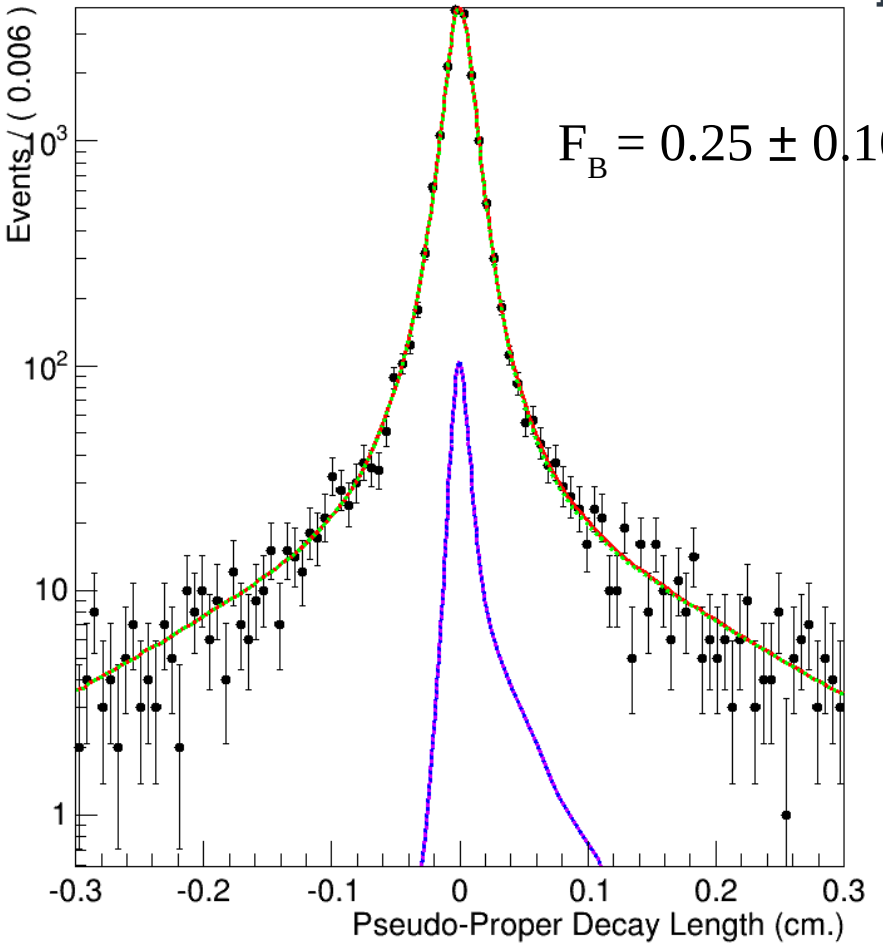
Testing of this approach (7-10 GeV/c^2)





Testing of this approach (7-10 GeV/c²)





Doing next...

- This model should be checked for different weights of $F_{bkg}(x)$ and observe the value of f_B → can be considered as systematic study on Bkg shape.
- And repeat it in other pT bins
- Summary :
  - Projection problem is solved by incorporating new approach
  - f_B errors are reasonable now.