

LCFIPlus check2

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Start from here

Yonamine-kun's study

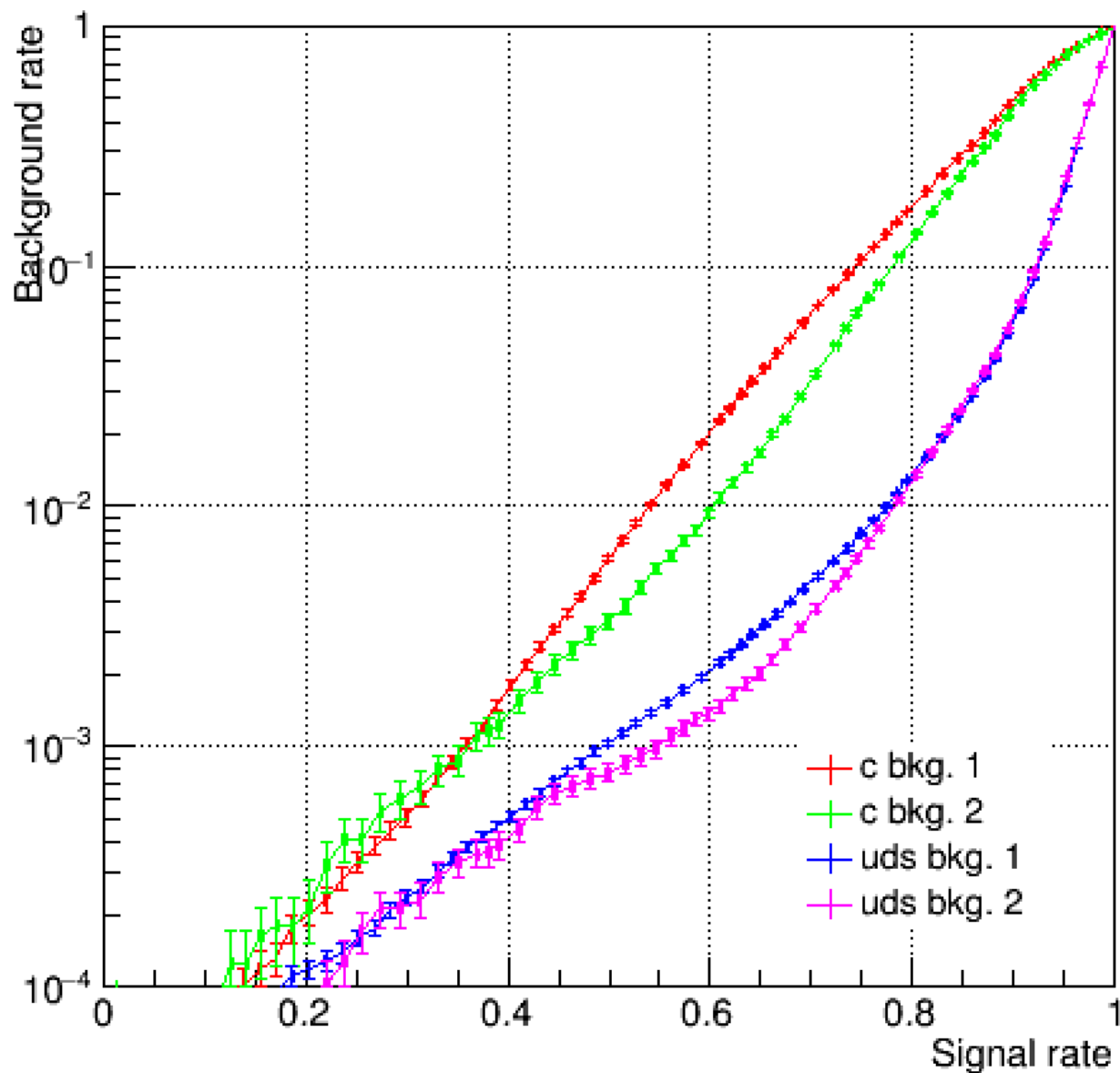
1: 50k samples

2: 20k samples

Fluctuation very large

And

Worse than DBD

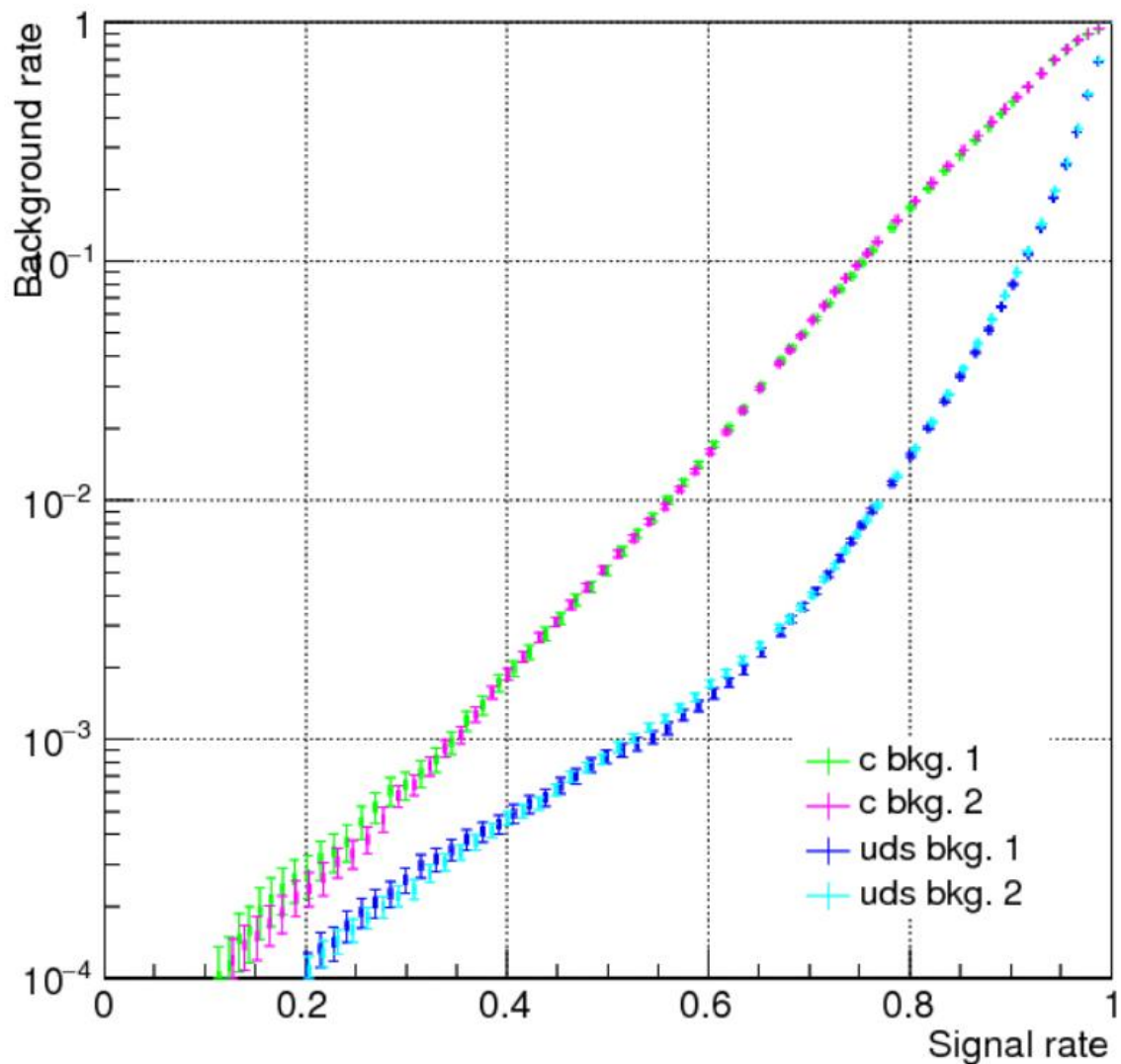


Check from my side

- Follow Yonamine-kun's study
 - Train with 25k/50k samples
 - Check efficiency with same plots as Yonamine-kun's
 - Can I get same results as Yonamine-kun's?
- Note: I fixed(changed?) some points related to primary vertex position in LCFIPlus
 - New change from Yonamine-kun's bug fix last week
 - I found some bugs in LCFIPlus

result

- Comparison between different amount of data
 - 1: 25k
 - 2: 50k
- Become stable!

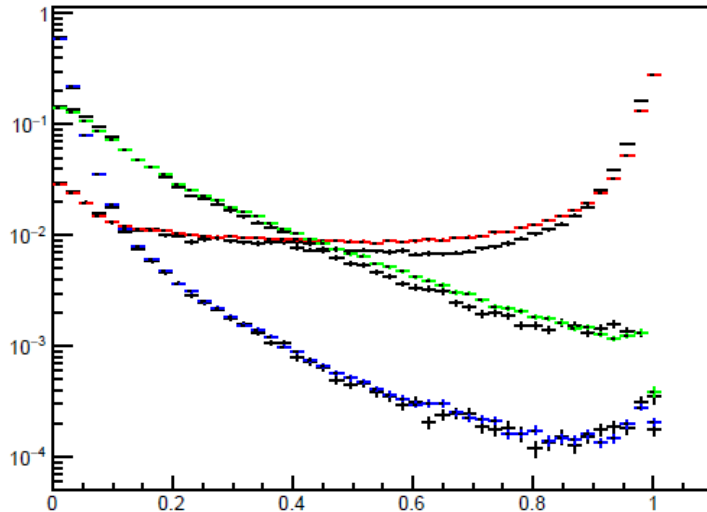


So,

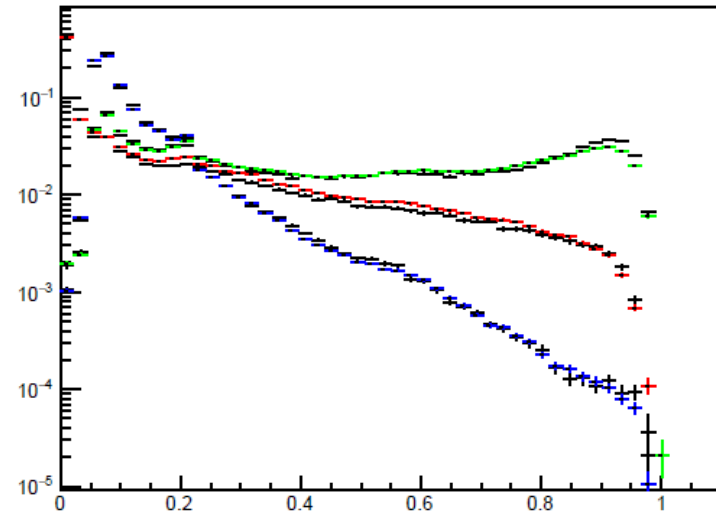
- Statistics problem looks **vanished**
 - One cause is related to primary vertex smearing
 - Another cause is strange input variables are used (simply bug!)
- But, efficiency degrades drastically from DBD...
 - We have to try to recover it with present situation

Lesson from Yonamine-kun's study

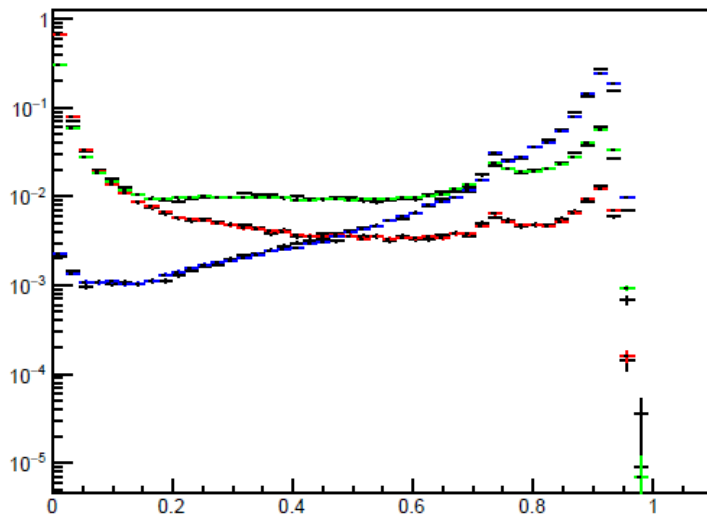
b likeliness



c likeliness



o likeliness



Black dots: 20k training output
Color dots: 50k training output

red: b jets
green: c jets
blue: light flavor

Log scale

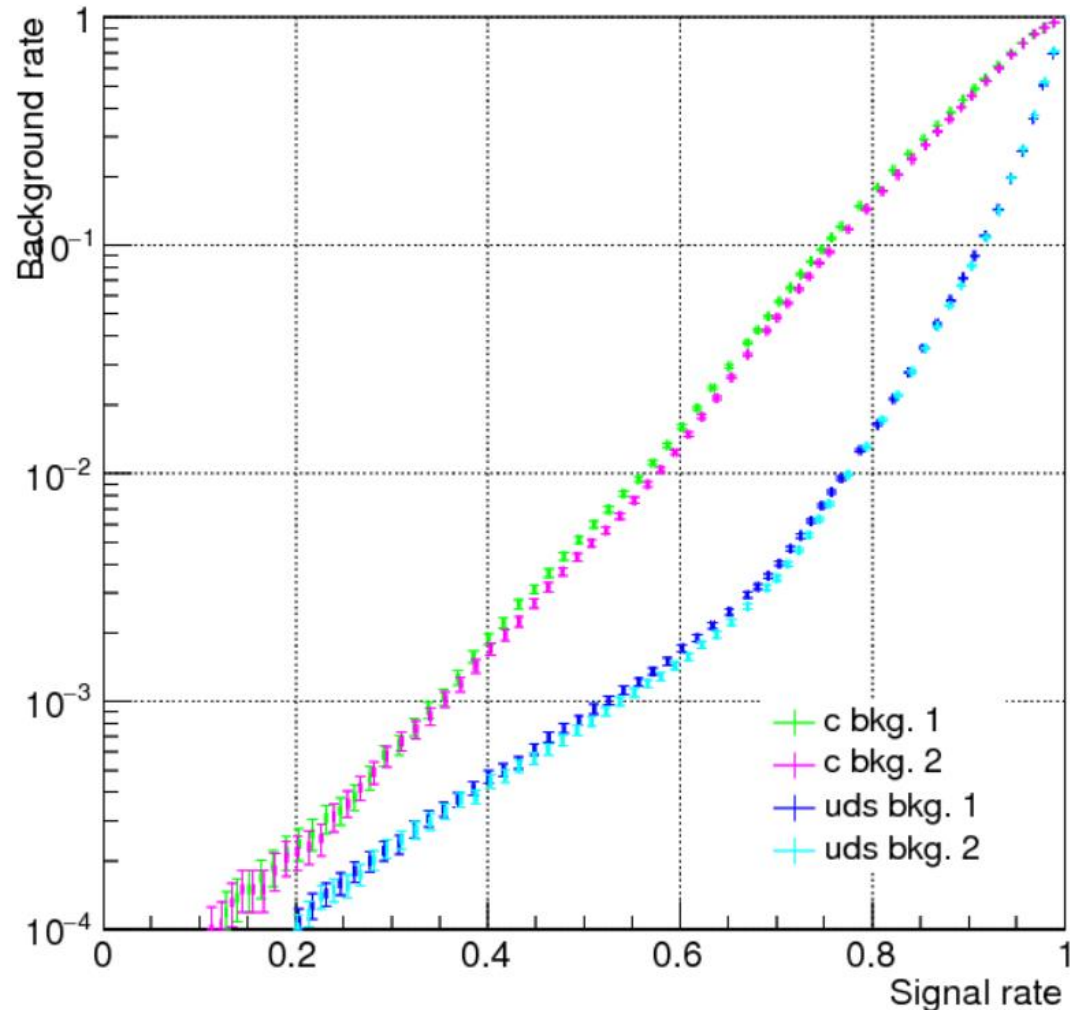
Different output distribution!

Lesson from Yonamine-kun's study

- There is no over-training
 - But, MVA outputs are different with different amount of data(even if some bugs were there)
- So,
 - It seems **under-training**
 - We can train more aggressive to separate jet flavors!
 - Tune BDT parameters in TMVA

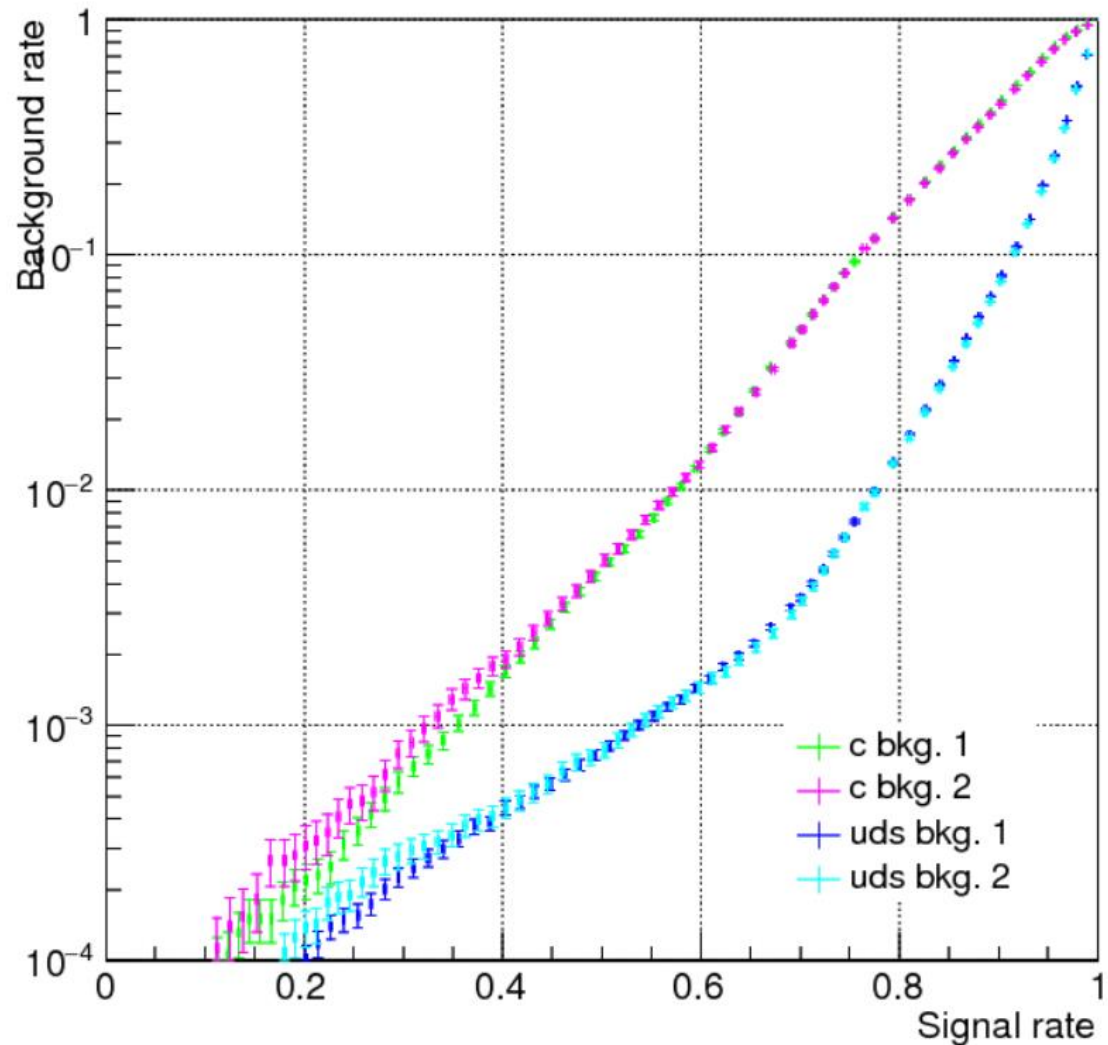
Comparison between 2

- Comparison between nominal and trial
 - Train with 50k samples
 - 1:nominal
 - 2:trial
 - **Going to good direction**
 - But still worse than DBD
- I think we can be more aggressive
 - Tune ongoing



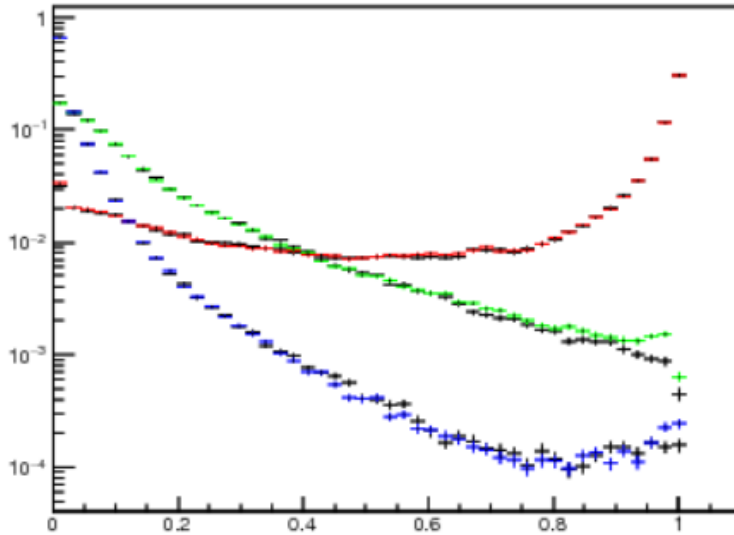
Stat. stability check

- Train with different amount of samples
 - 1:50k
 - 2:25k
- Very stable in stat.

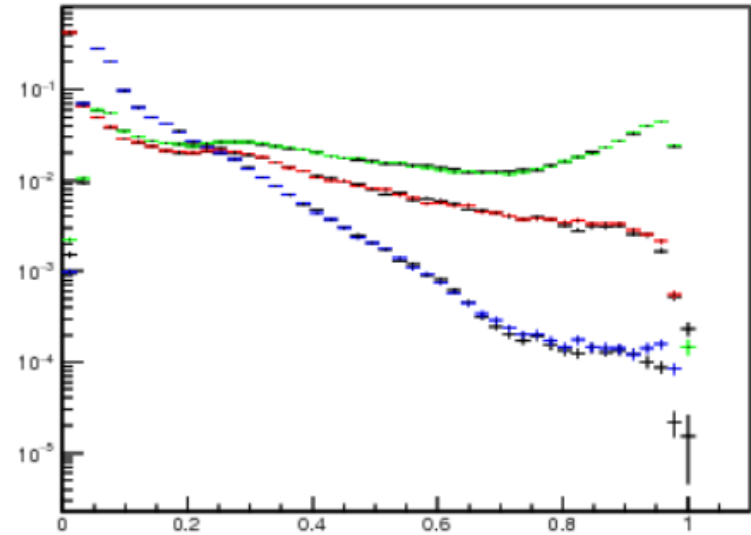


Over-training check

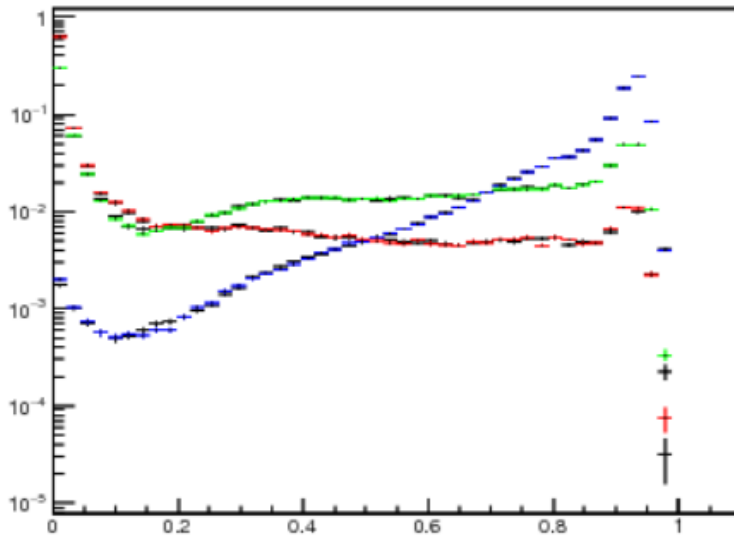
b likelihood



c likelihood



o likelihood



25k samples

Black dots: training output

Color dots: testing output

red: b jets

green: c jets

blue: light flavor

Looks OK

Maybe more aggressive?