LCFIPlus for 6-jets@500GeV

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Concerns

❖ **LCFIPlus**
  ‣ Is LCFIPlus software (more focusing on vertexing for now) working well at least at the same level as in DBD era?

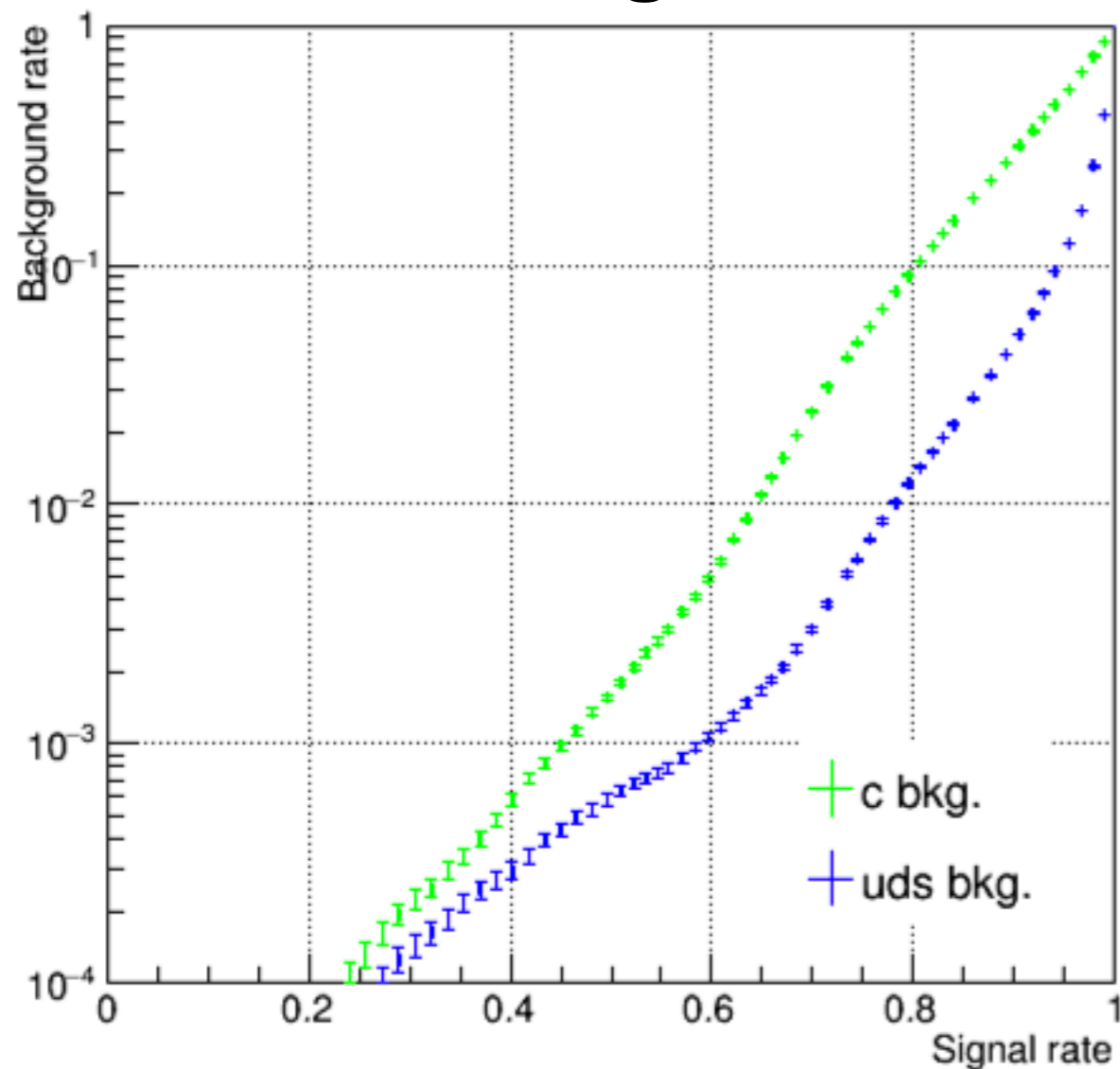❖ **Samples**
  ‣ Is there any problem in sample production?

❖ **Detector models (Next step)**
  ‣ Comparison between l5 and s5.
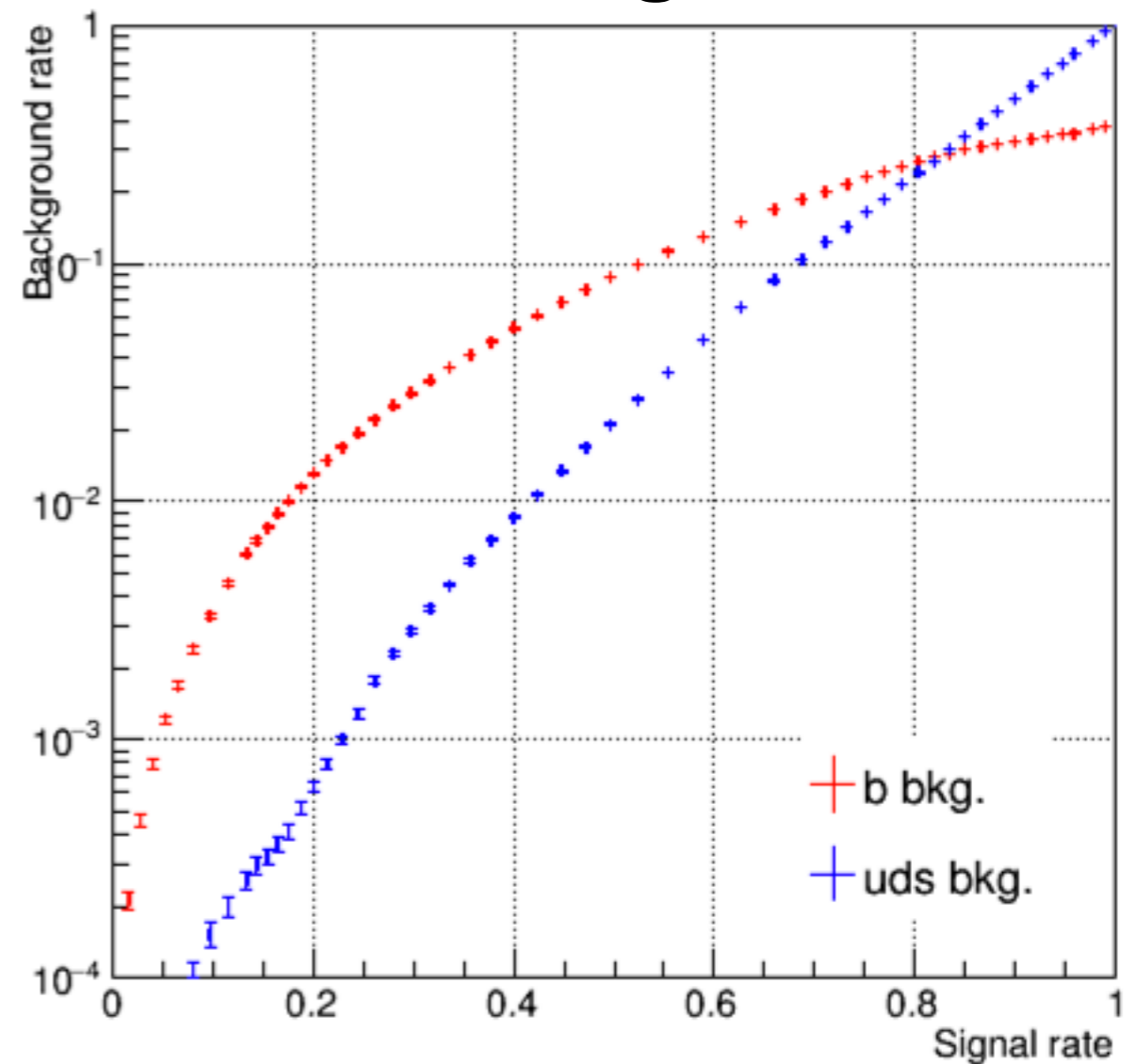 ‣ I will not discuss in this presentation.

FlavourTagging

(Example plot just for explanation for later slides)

Background(c, uds) rate wrt btag eff.

Background(b,uds) rate wrt ctag eff.
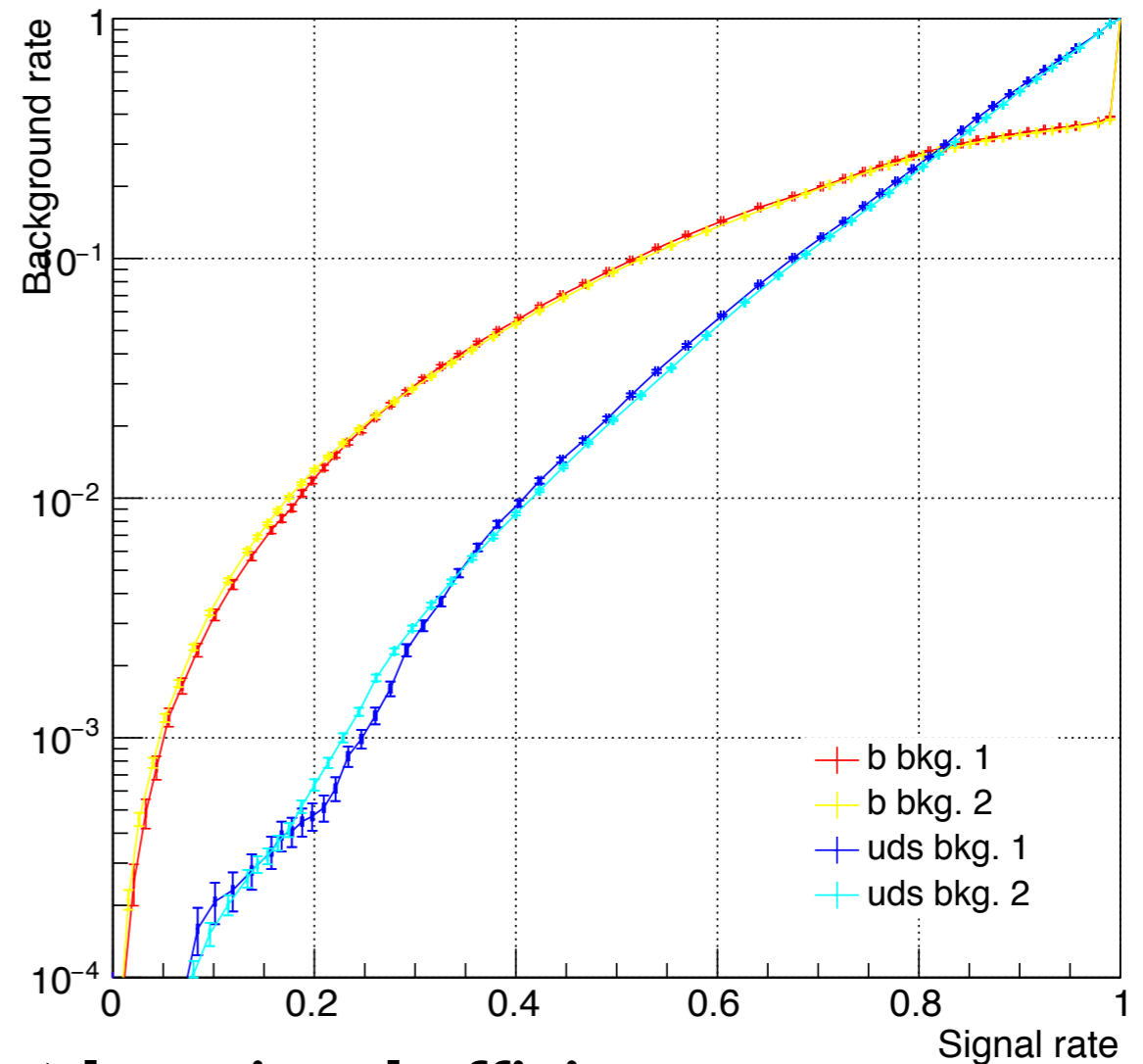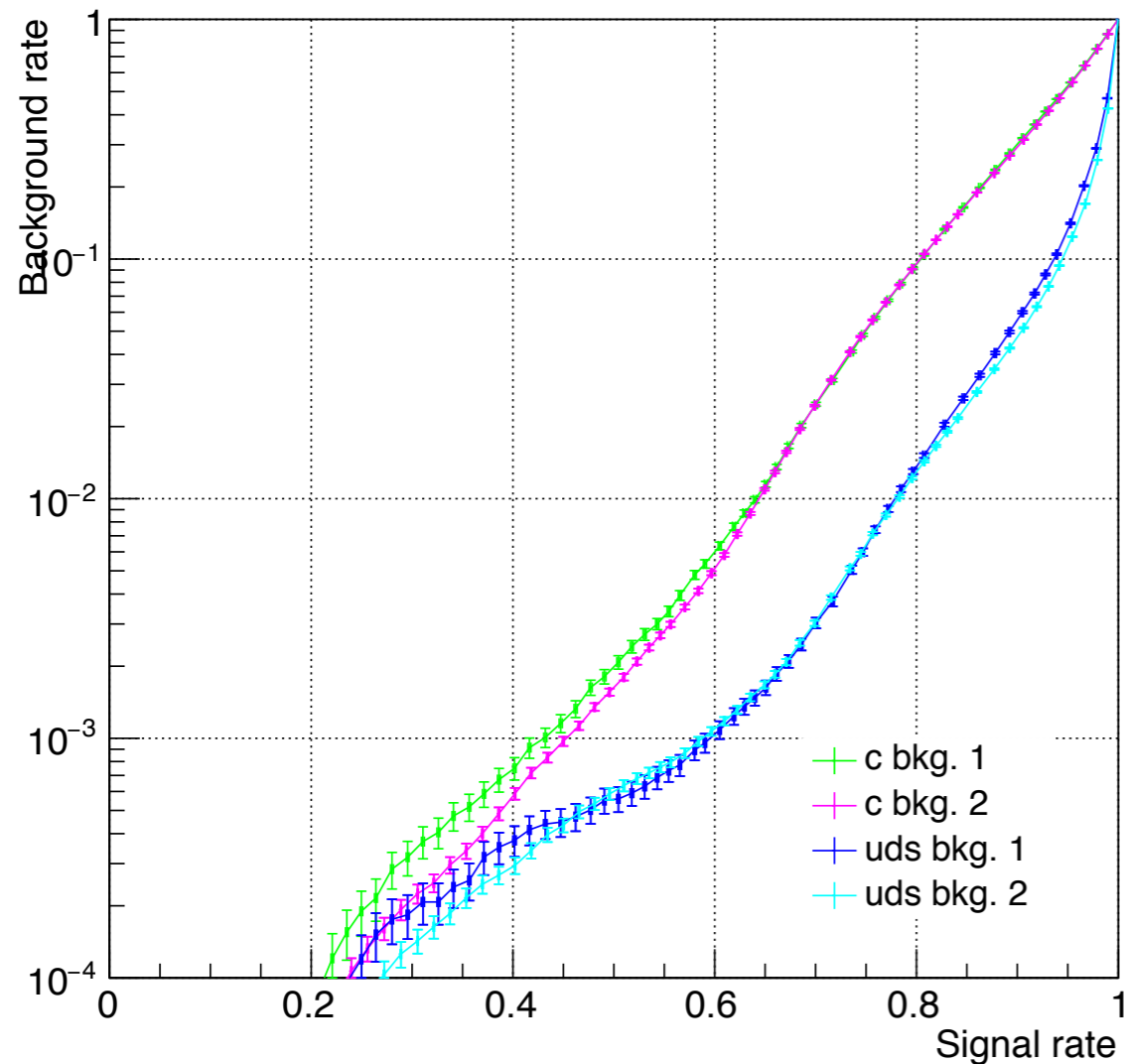
sample: **1)** Test production sample (last Dec.)

2) DBD sample (2012?)

Both are $\sqrt{s}$=91.2GeV, bb, cc, qq samples

Software: **1)** latest vertexing, **2)** DBD vertexing,

Both are processed with latest flavour tagging.

'1':=l5, '2':=DBD

They look slightly different at low signal efficiency.
We can't conclude this caused by sample or by vertexing from this result.
—> next pages

vertexing comparison

sample : DBD sample, √s=91.2GeV, bb, cc, qq samples for both.

Software: **1)** latest vertexing, **2)** DBD vertexing,
Both are processed with latest flavour tagging.

Unfortunately one of output files I got
today was somehow broken.
I couldn't investigate the cause in detail.

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the error message :

```
Error in <TFile::ReadBuffer>: error reading all requested bytes from file Training_DBD_newvtx/lcfiweights/
qq91_v03_p01_c1.root, got 260 of 300
Error in <TFile::Init>: Training_DBD_newvtx/lcfiweights/qq91_v03_p01_c1.root failed to read the file type data.
```
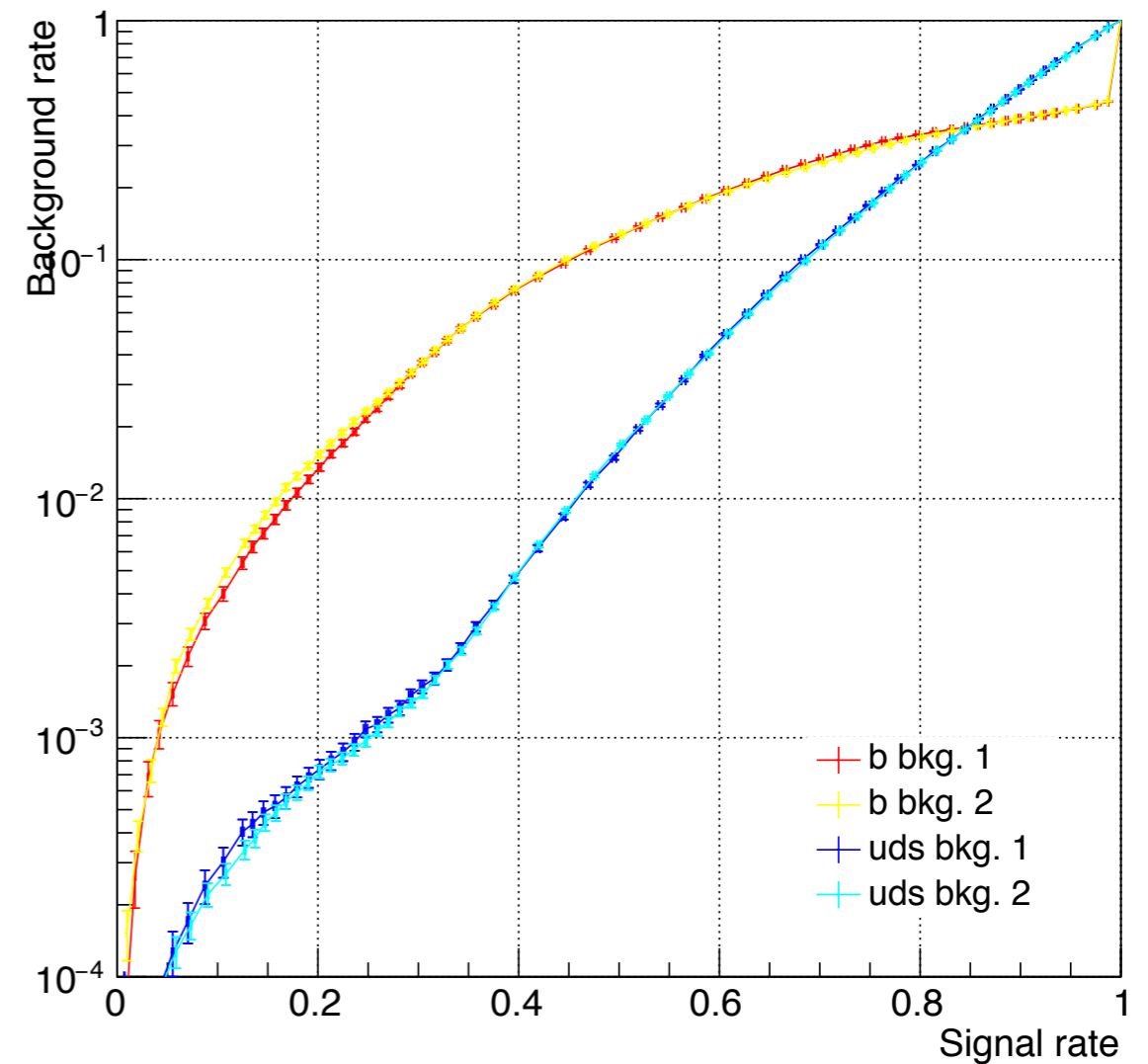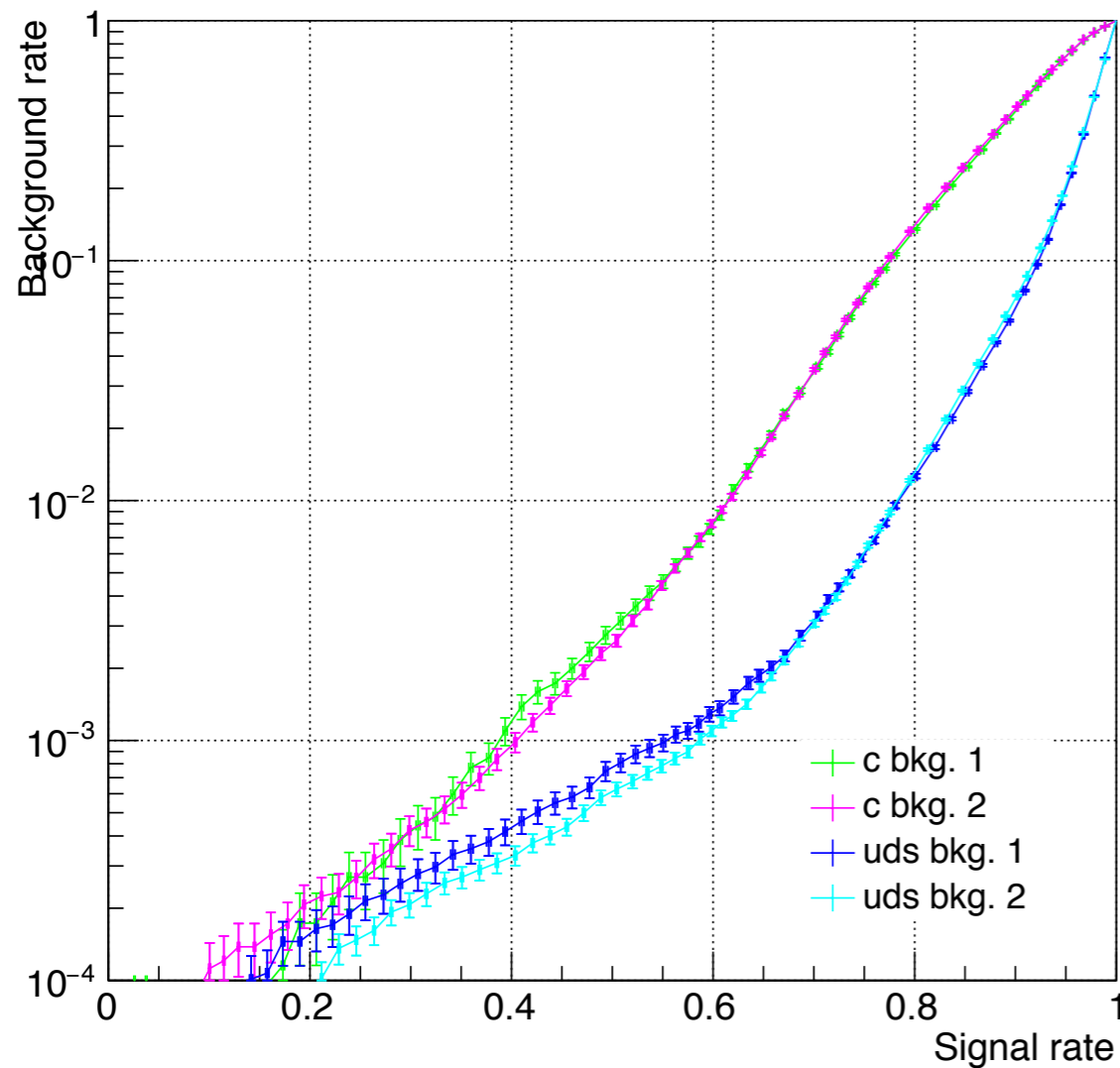
(Please let me know if anyone
knows how to fix this kind of problem.)

sample : DBD sample, √s=500GeV, 6b, 6c, 6q (6u+6d+6s) samples.
No beam bkg.

Software: 1) latest vertexing, 2) DBD vertexing,
Both are processed with latest flavour tagging.

'1':=DBD, '2':=DBD_with_newvtx

Consistent

sample : DBD sample, √s=**500**GeV, 6b, 6c, 6q (6u+6d+6s) samples.
Beam bkg. included

Software: **1)** latest vertexing, **2)** DBD vertexing,
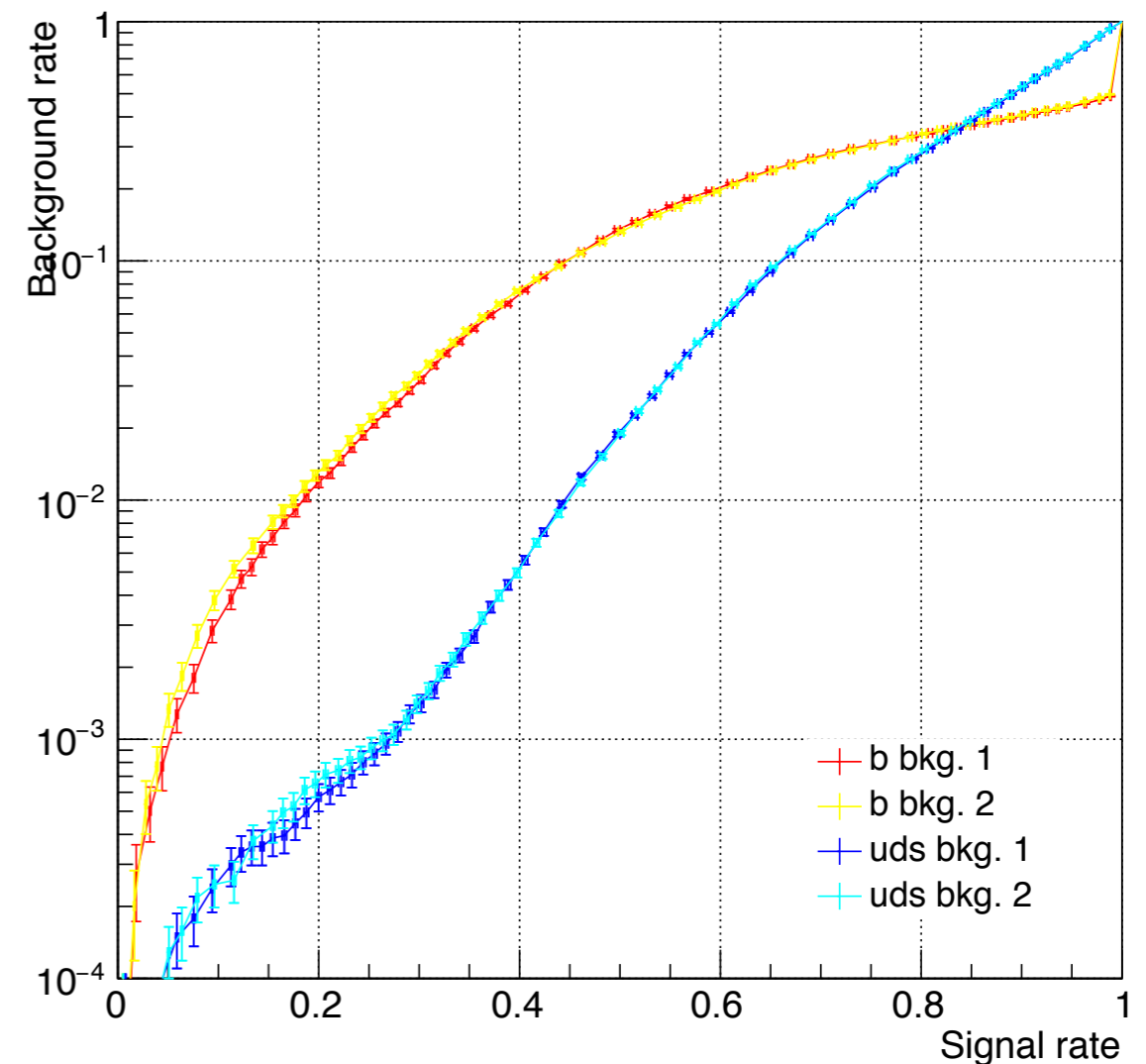Both are processed with latest flavour tagging.

'1':=DBD, '2':=DBD_with_newvtx

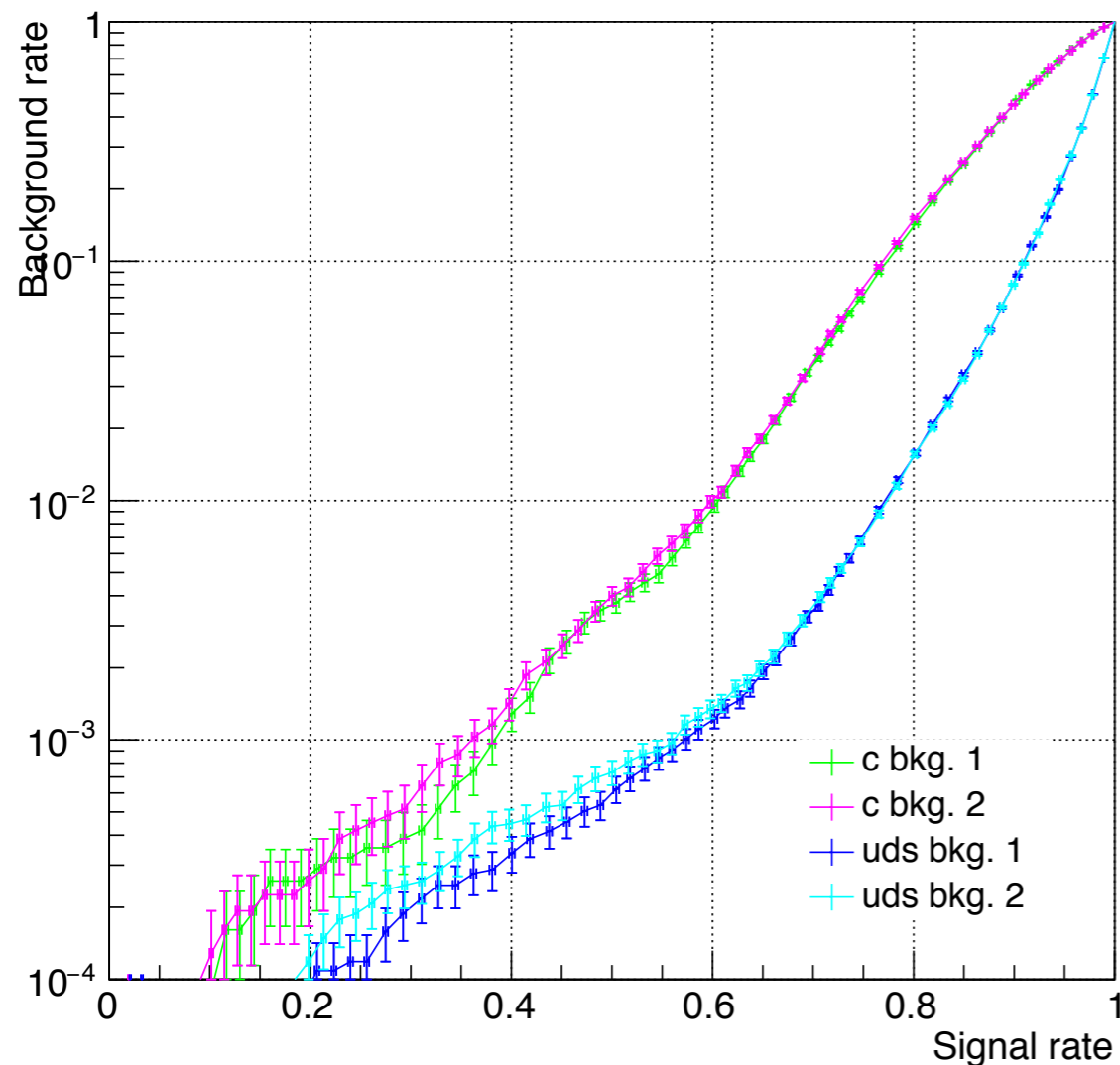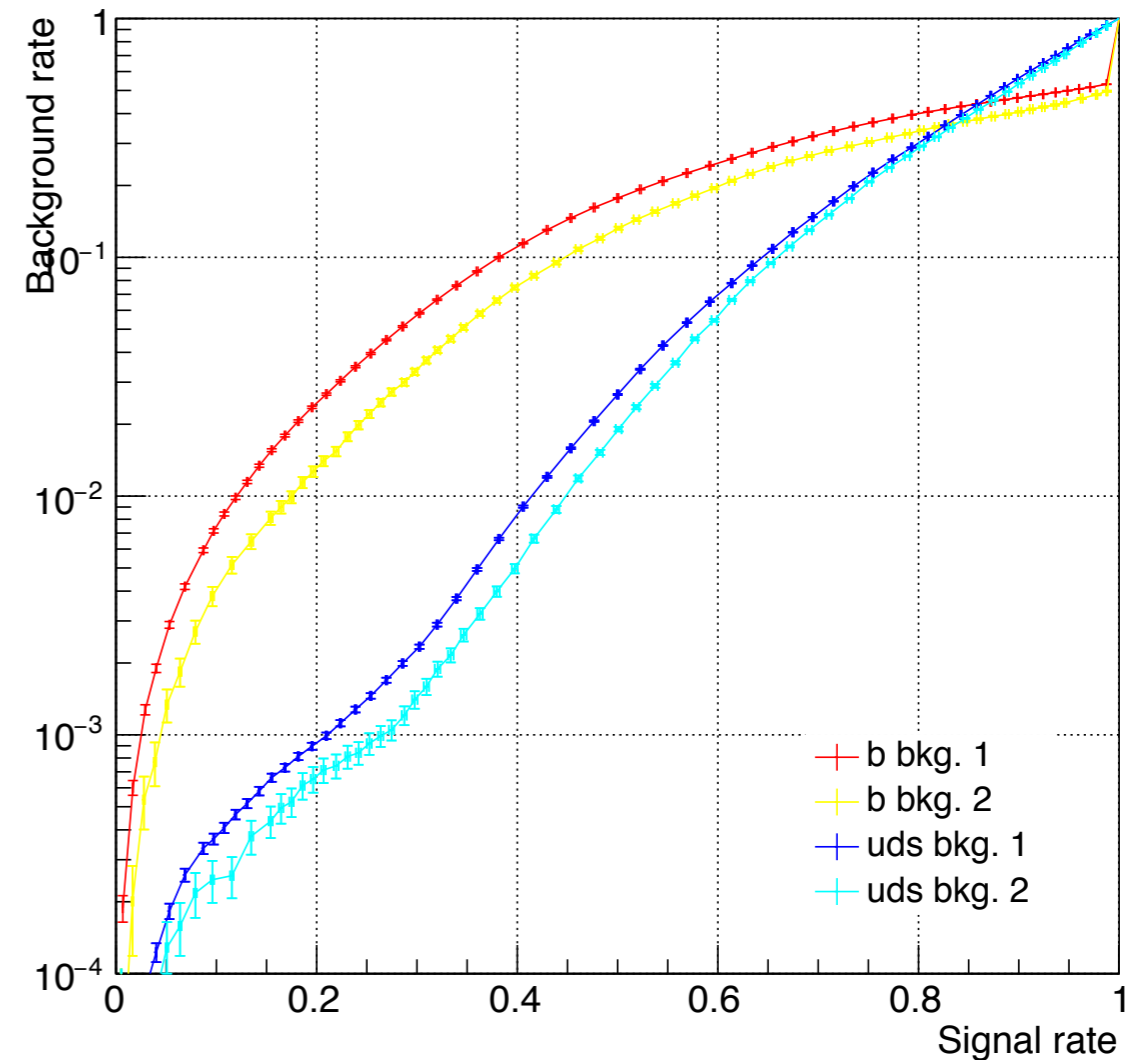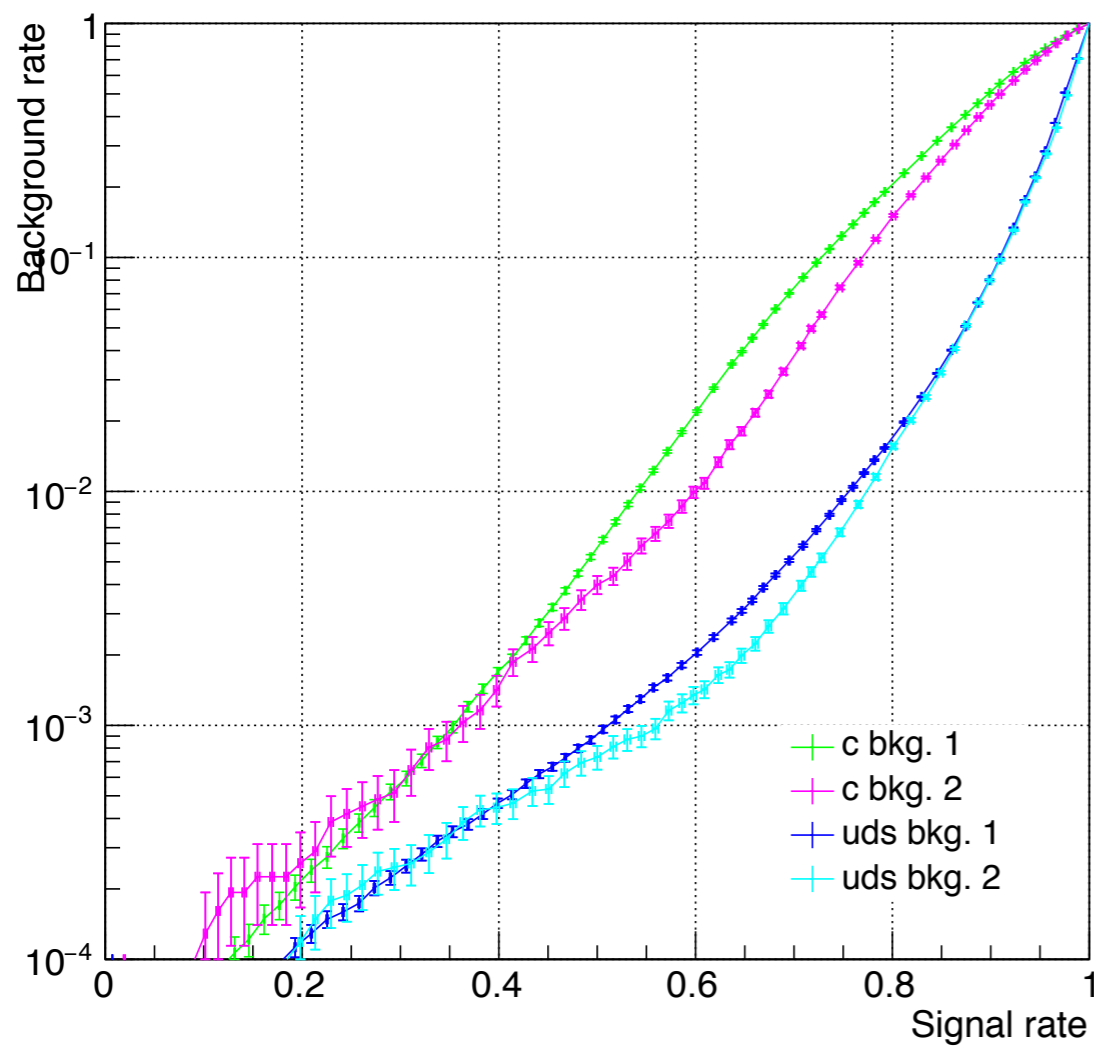**Consistent**

sample :
1) **Test production l5 sample (last Dec.)**
2) **DBD sample (2012?)**

Software: v01-19-05 (vertexing, jet clustering, flavour tagging)

'1':=l5, '2':=DBD

I'm confused with these new plots...
Why larger differece than p4?? Any reasonable explanation?
Need to understand.

My tentative conclusion

❖ **According to the results I have,**
  ‣ Looks no crucial problem on vertexing itself from p6 and p7.
  ‣ Need to understand the difference between DBD sample and the test samples from p8 to be more confident.
❖ **Any suggestions are welcome!**