LCFIPlus

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Samples used in this study

File path at KEKCC:

l5, 500 GeV sample

`/hsm/ilc/grid/storm/prod/ilc/mc-opt.dsk/ild/dst/500-TDR_ws/flavortag/ILD_l5_o1_v02_nobg/v01-19-06-p01`

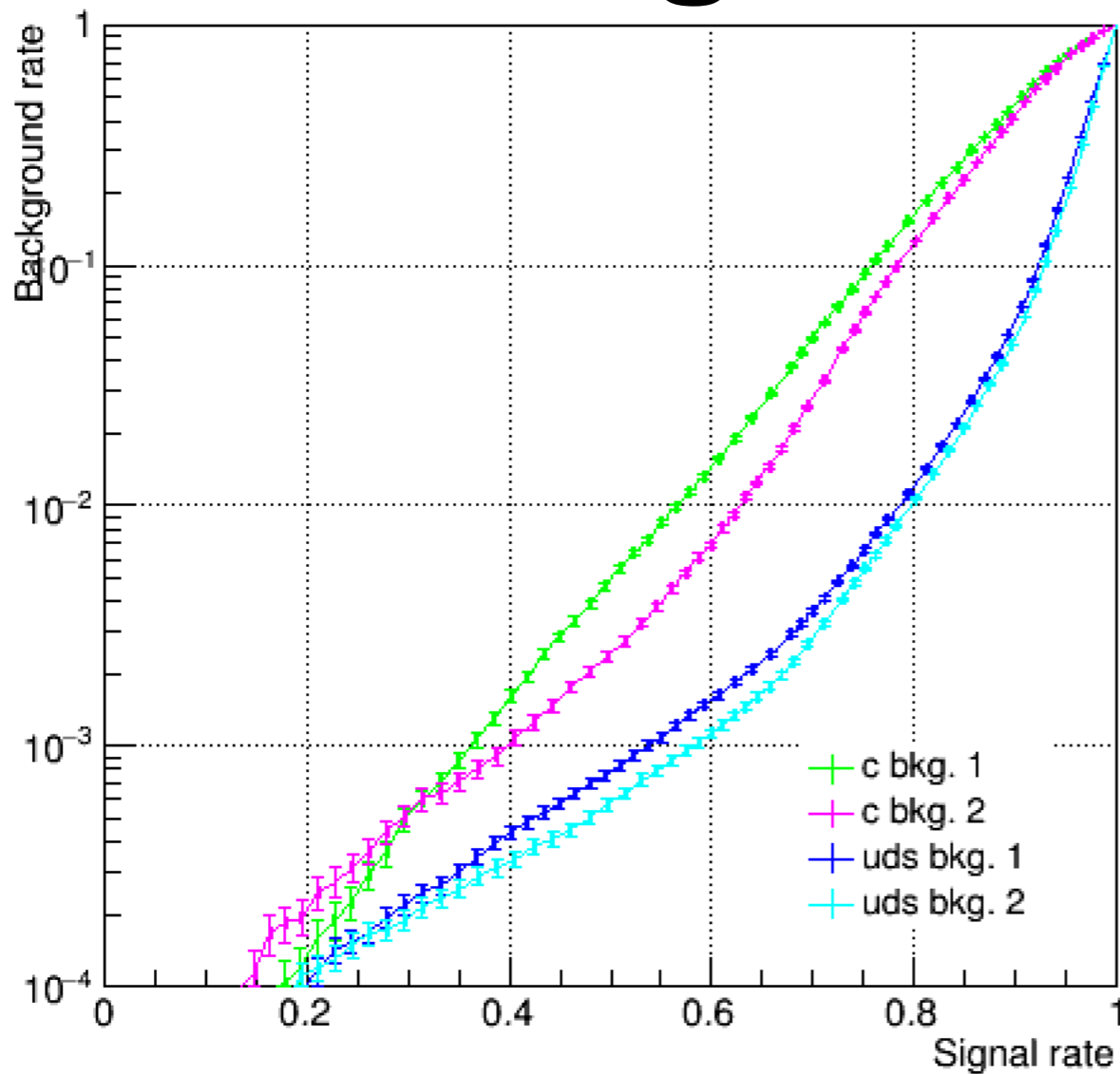**DBD, 500 GeV sample (produced privately by Junping)**

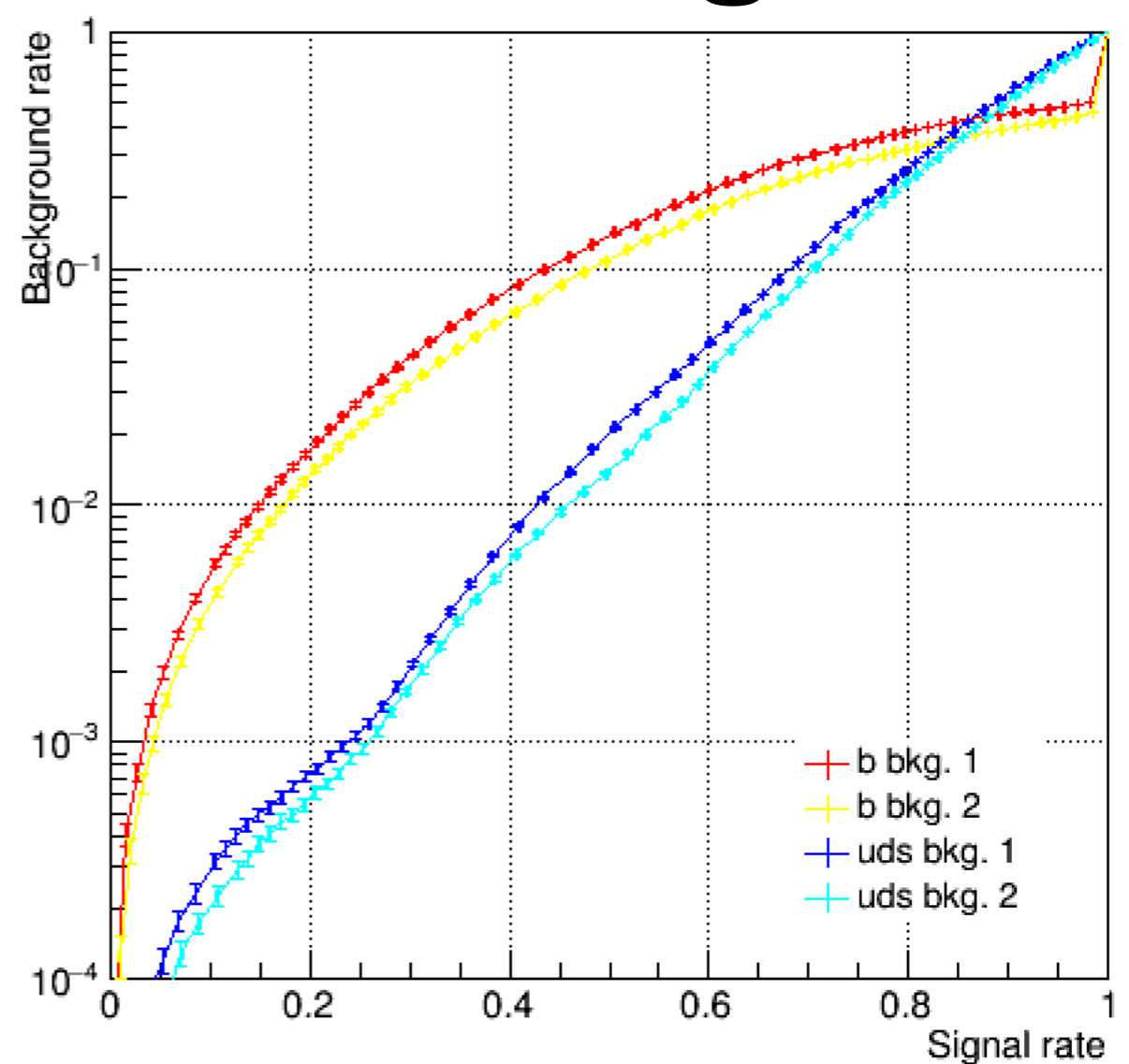`/group/ilc/suehara/reco/dbd/train-lcfiplus/6q-jp/dst_E500`

- 6b, 6c, 6u, 6d, 6s processes
- No beam background
- Processed with v01-19-06
- Reprocess from vertexing to set beam constraint

Flavour Tagging (Nominal)

btag

ctag

Legend (btag): c bkg. 1, c bkg. 2, uds bkg. 1, uds bkg. 2

Legend (ctag): b bkg. 1, b bkg. 2, uds bkg. 1, uds bkg. 2

1: l5_500GeV flavour tag sample (w/o beam bkg.)
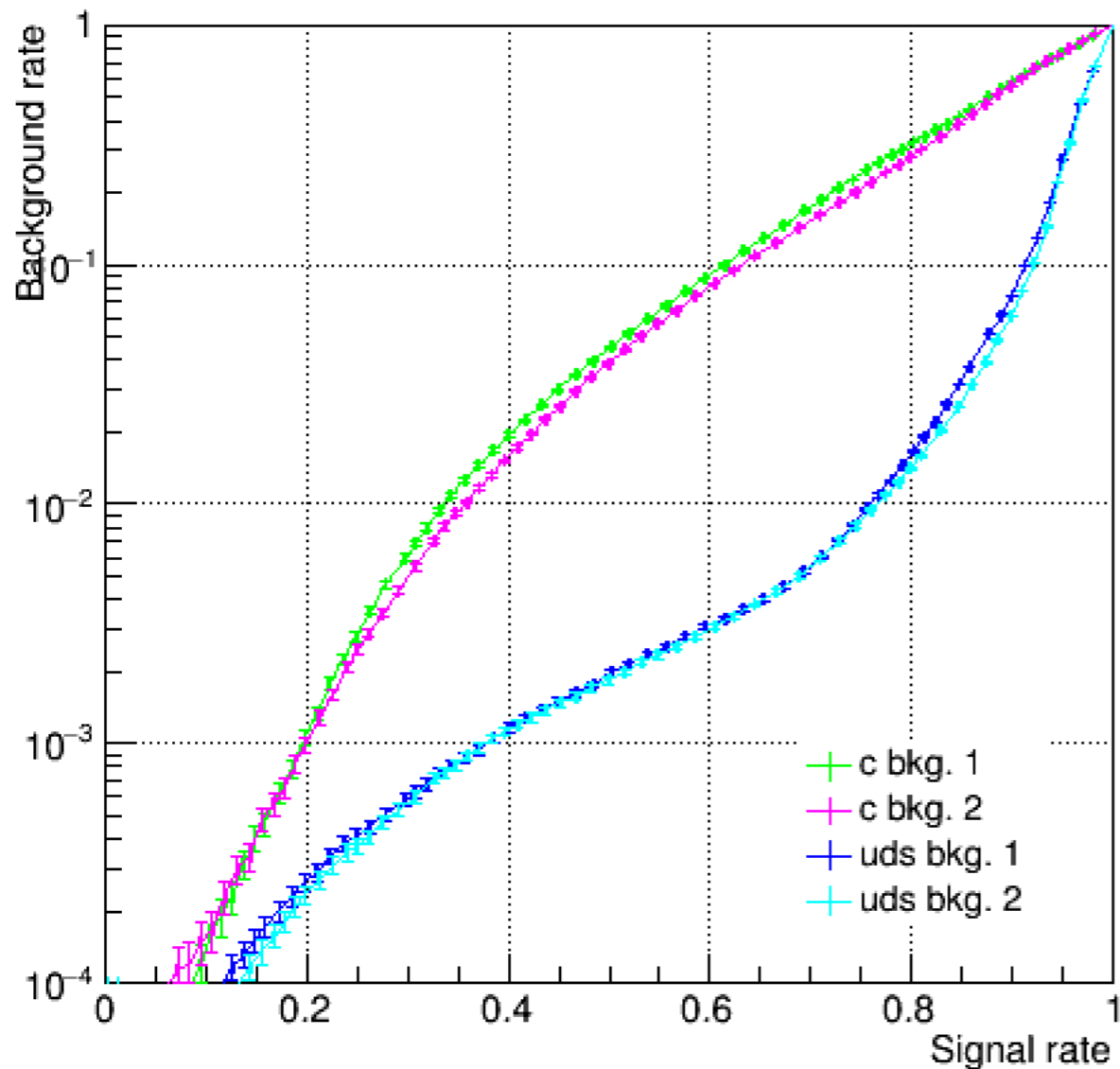**2: DBD_500GeV flavour tag sample (w/o beam bkg.)**

Beam (constraint) size is set to be the latest configuration.

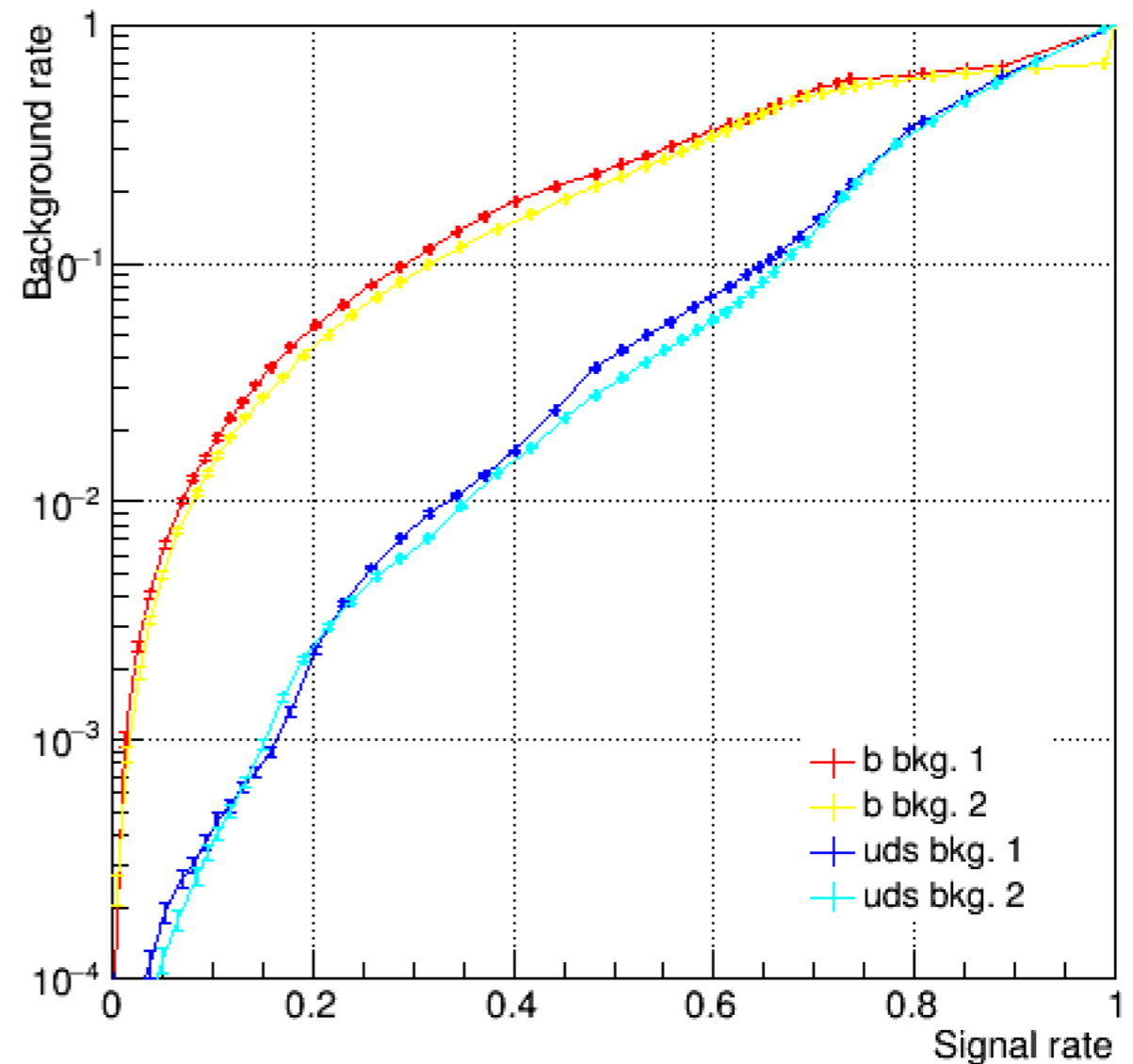**Need to find what causes this difference.**

Flavour Tagging (A trial)

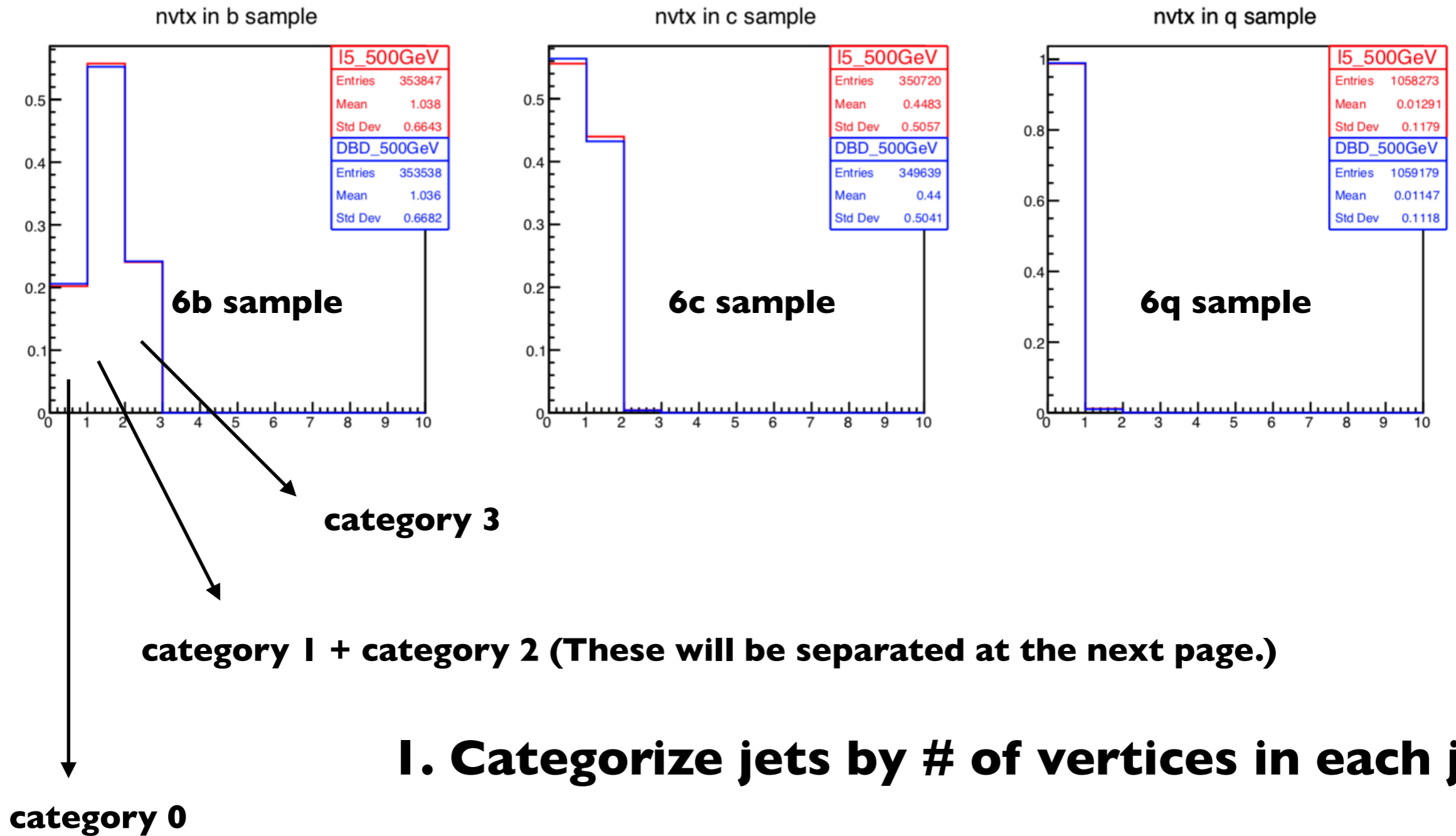## Remove some variables (e.g. vtxmass) for training.

btag

ctag

Variables removed for this trial are probably the key.
But still need more investigation.
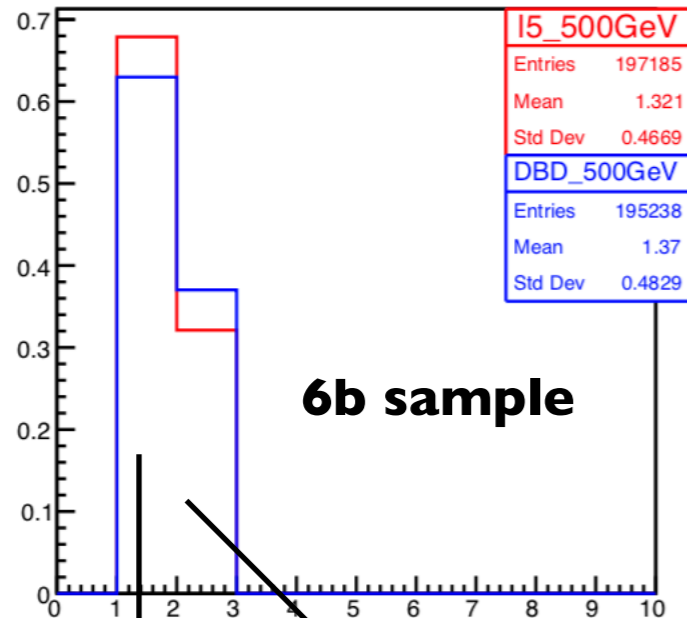
Categorize jets for Flavour tagging (I)

nvtx in b sample

I5_500GeV	
Entries	353847
Mean	1.038
Std Dev	0.6643

DBD_500GeV	
Entries	353538
Mean	1.036
Std Dev	0.6682

6b sample

nvtx in c sample

I5_500GeV	
Entries	350720
Mean	0.4483
Std Dev	0.5057

DBD_500GeV	
Entries	349639
Mean	0.44
Std Dev	0.5041

6c sample

nvtx in q sample

I5_500GeV	
Entries	1058273
Mean	0.01291
Std Dev	0.1179

DBD_500GeV	
Entries	1059179
Mean	0.01147
Std Dev	0.1118

6q sample

category 3

category 1 + category 2 (These will be separated at the next page.)

category 0

1. Categorize jets by # of vertices in each jet

6q sample likely has no vertex in jets.

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Categorize jets for Flavour tagging (2)
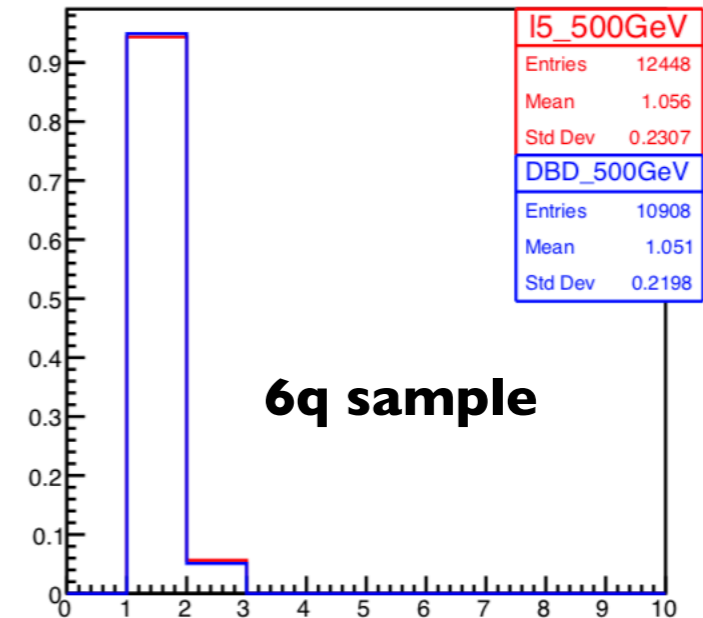

nvtxall in b sample

I5_500GeV	
Entries	197185
Mean	1.321
Std Dev	0.4669

DBD_500GeV	
Entries	195238
Mean	1.37
Std Dev	0.4829

6b sample

nvtxall in c sample

I5_500GeV	
Entries	154248
Mean	1.032
Std Dev	0.1756

DBD_500GeV	
Entries	151129
Mean	1.029
Std Dev	0.1671
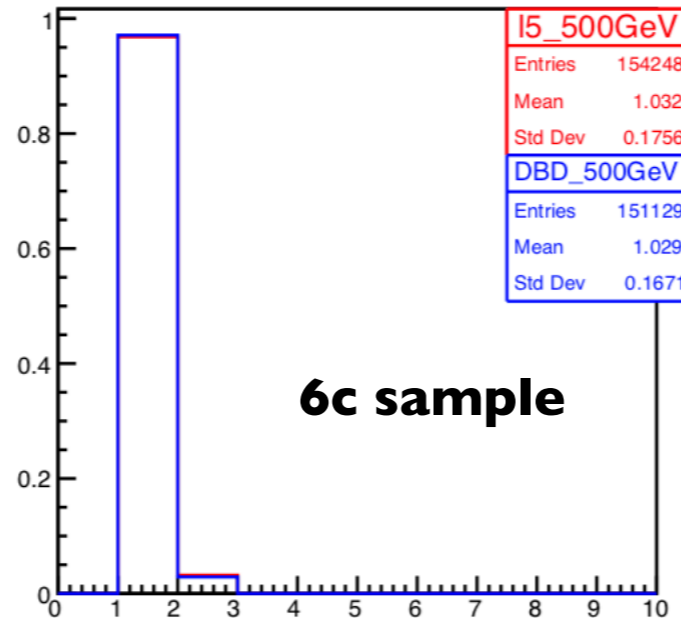
6c sample

nvtxall in q sample

I5_500GeV	
Entries	12448
Mean	1.056
Std Dev	0.2307

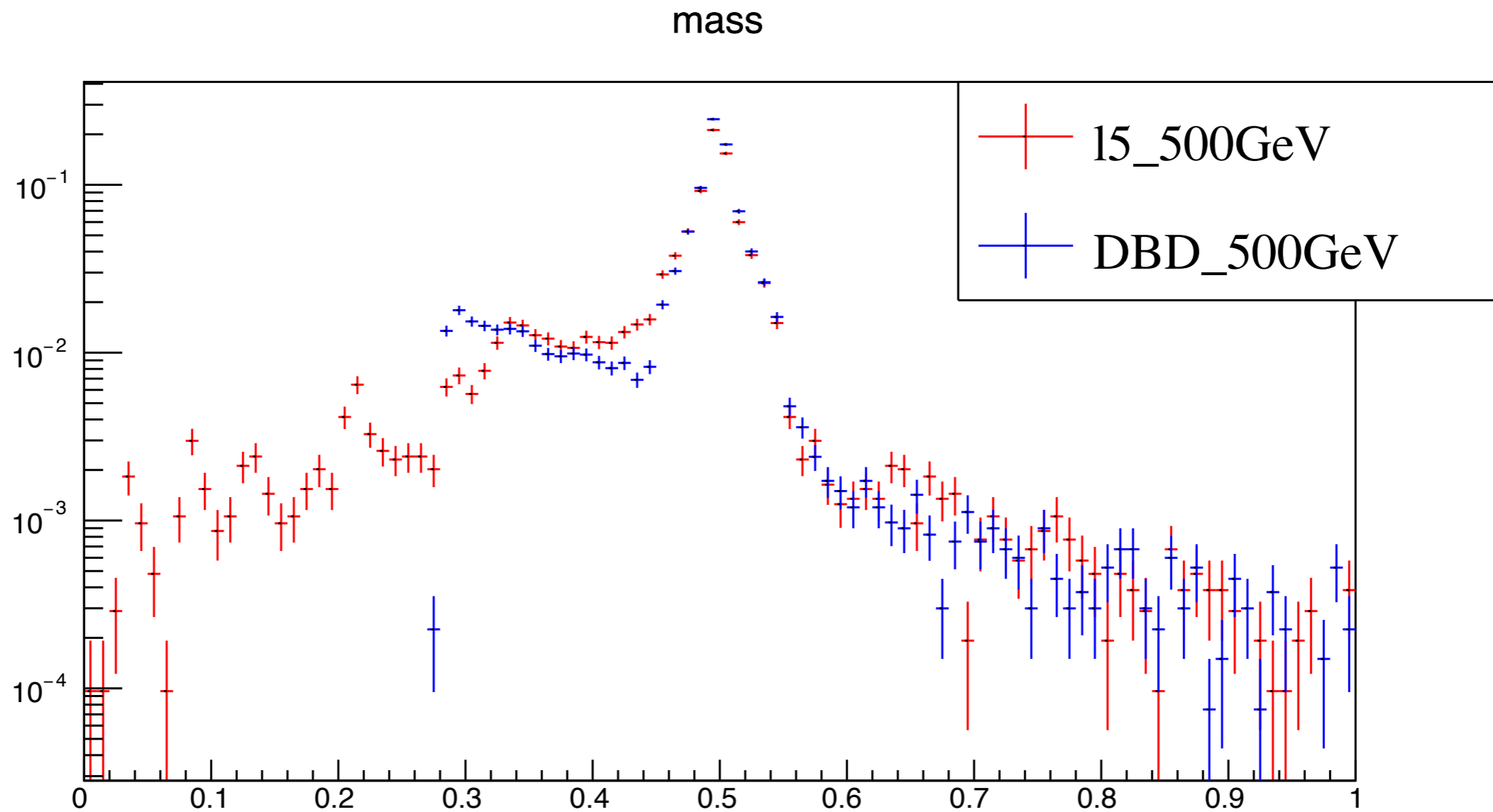| DBD_500GeV	
Entries	10908
Mean	1.051
Std Dev	0.2198

6q sample

**category 2
(# of pseudo vtx = 1)**

**category 1
(# of pseudo vtx = 0)**

category 1 + category 2 (These will be separated at the next page.)

2. For jets having one vertex, check # of pseudo vertex (=1track vertex)

of pseudo vertex may also be a clue.

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V0 vertex mass

mass

V0 vertex may also be a clue.