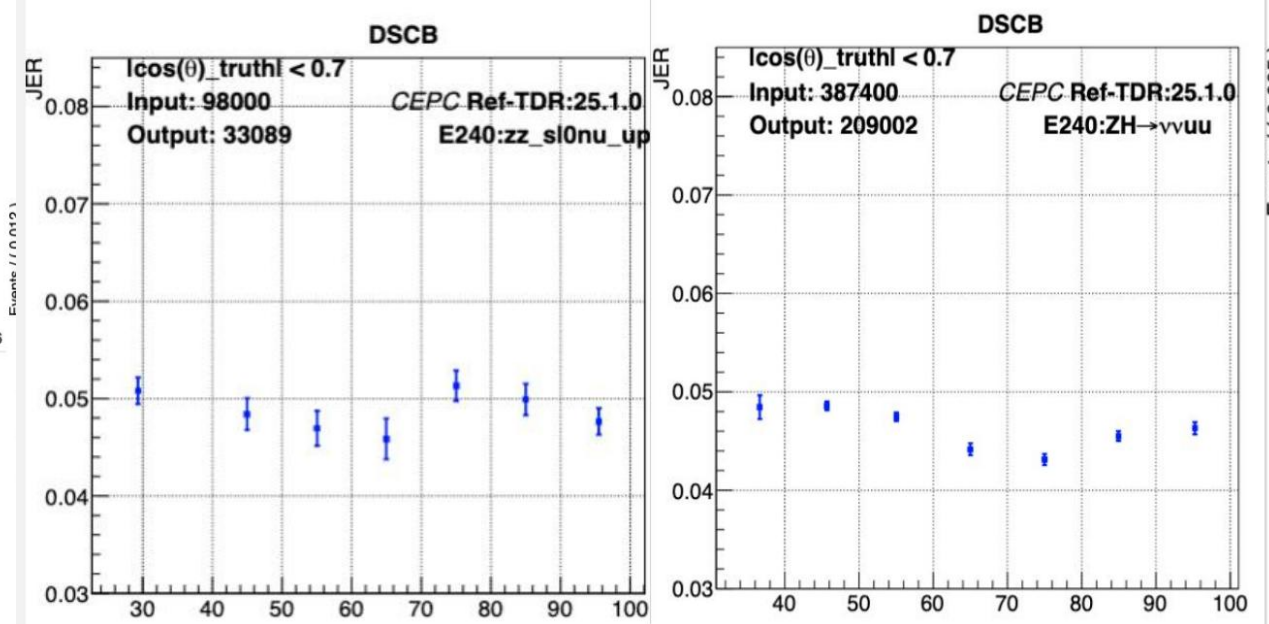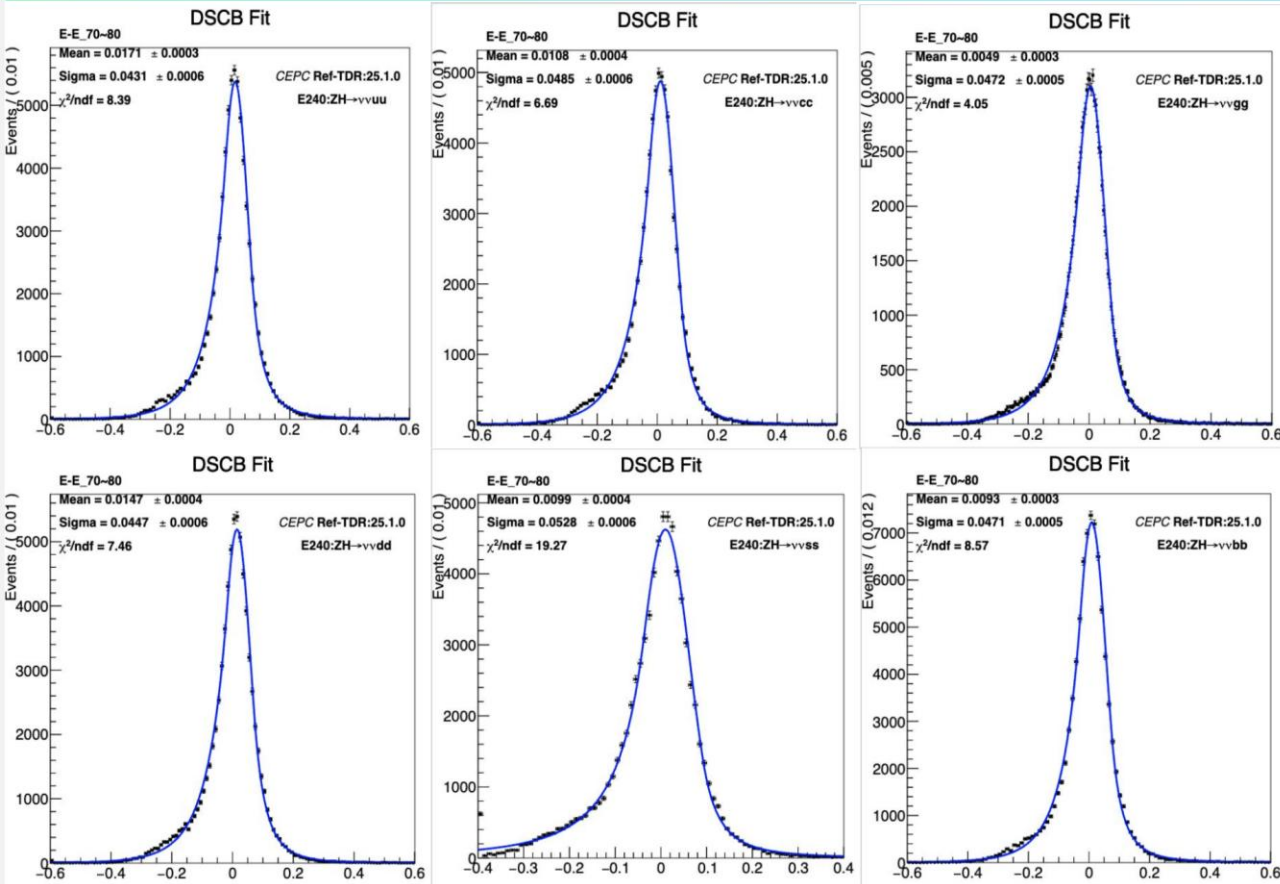# CEPC

Kaili Zhang

IHEP

zhangkl@ihep.ac.cn

CEPCSW

- New Release ready today(?)

- Ecal 10mm - 15mm

- Expect N_PFO 100% reduce, to ~120% of truth.
  - Most Hcal single hit are merged.

- New samples to check.

- MCParticle Pointer issue solved;
  - Sim hit information will not be kept after digi to reduce size.

JES/JER

Bump for E=70GeV -0.2
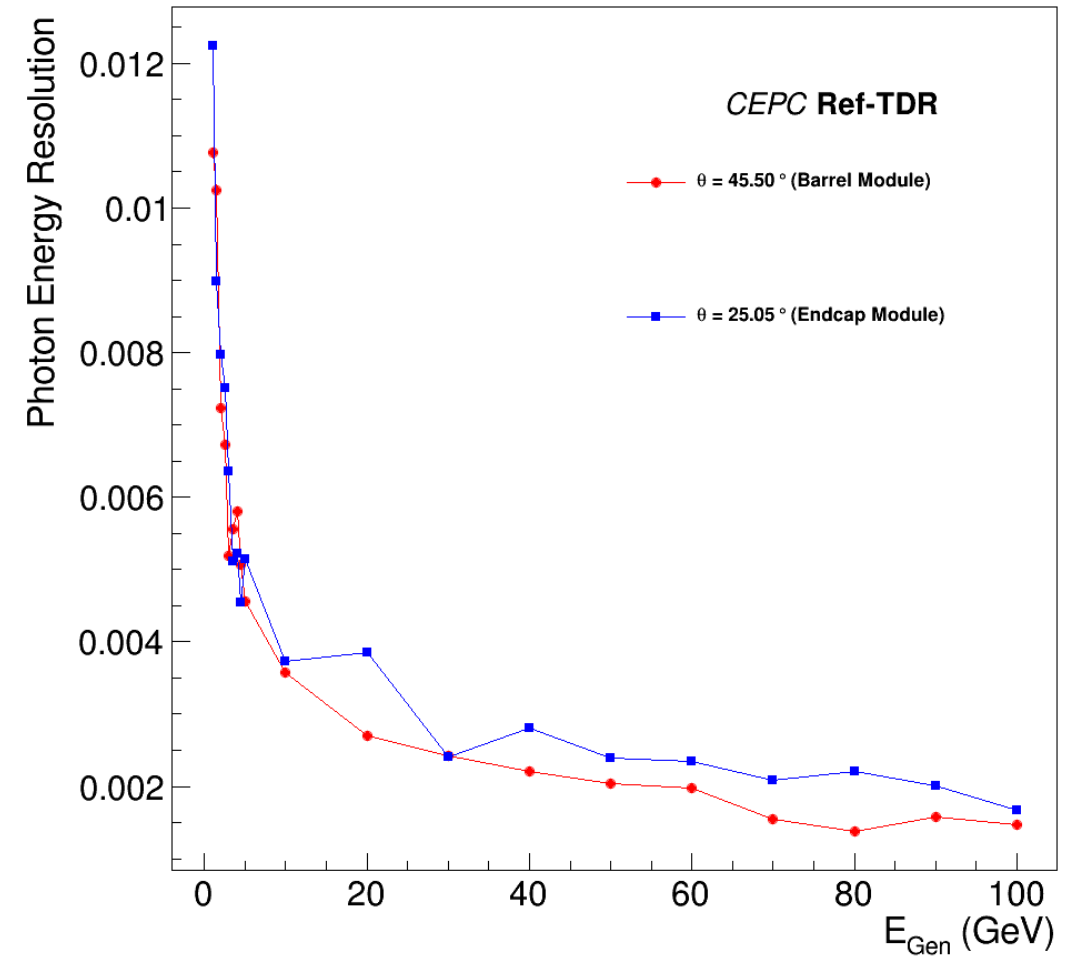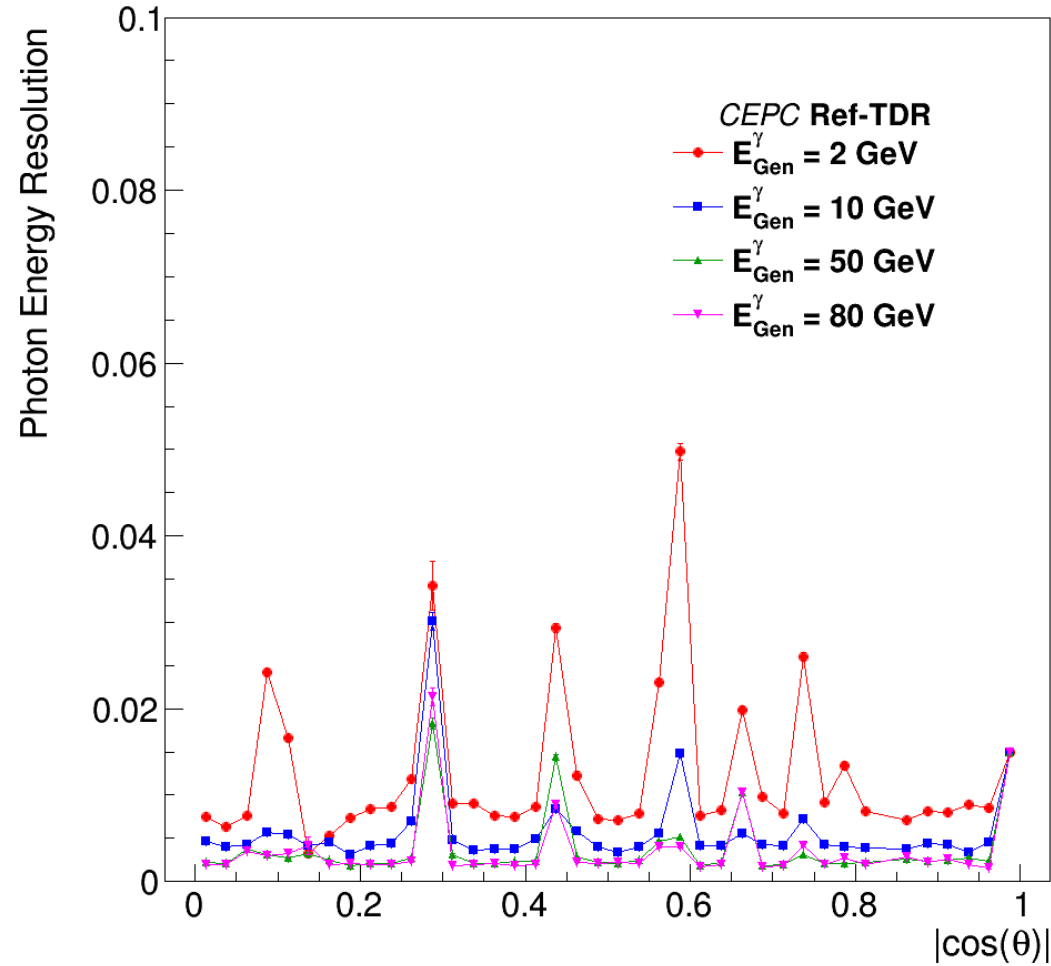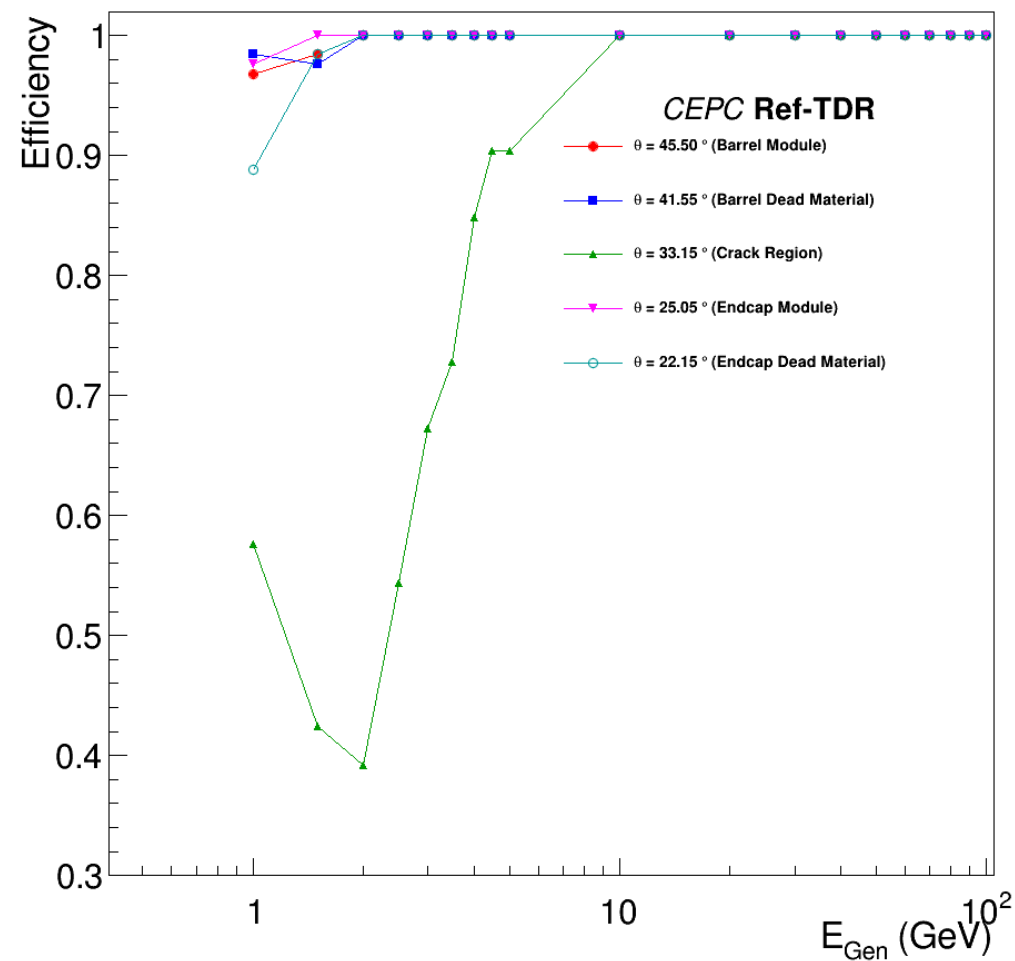

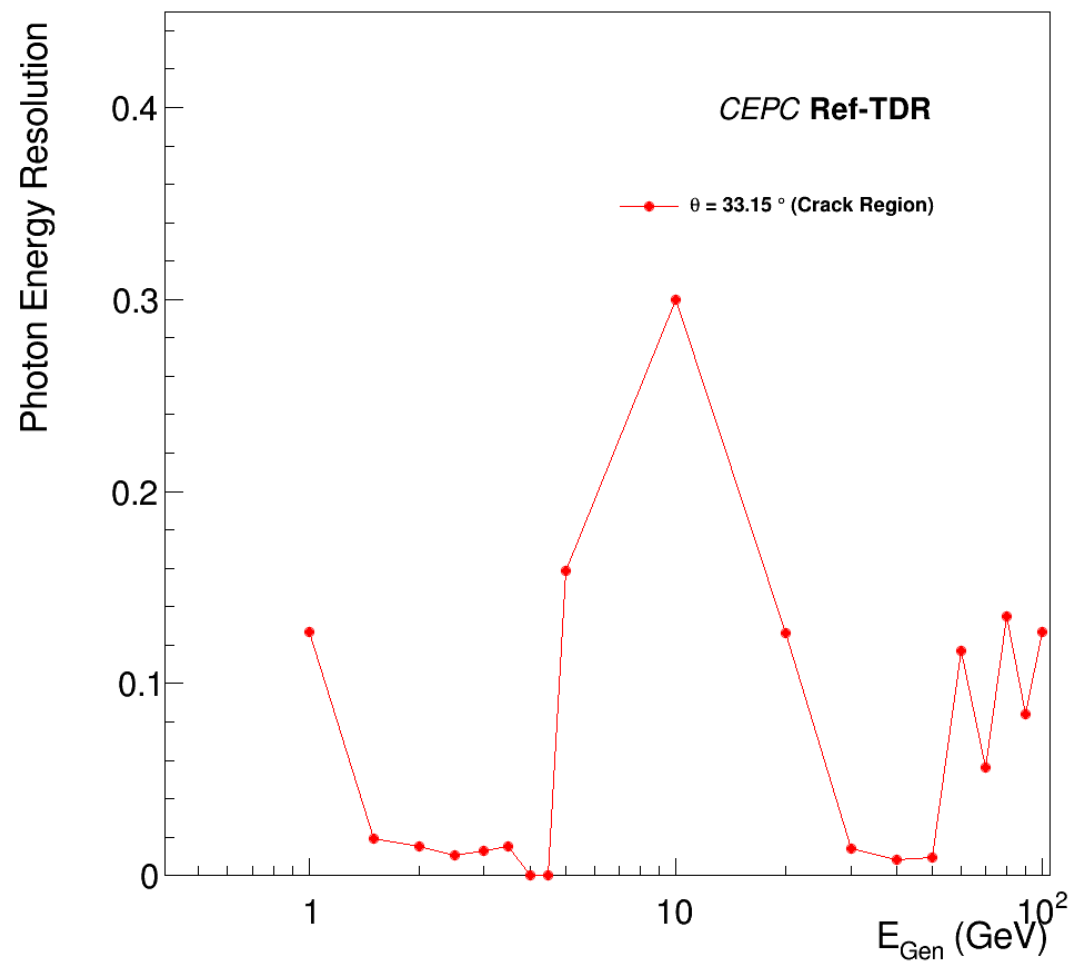ZZ->vvqq results consistent with ZH->vvqq.

Diphoton

Costheta ~0.83 Barrel/Endcap crack region showing strange behavior. Not shown in plot.

Crack region

Occasionally in crack region no single peak can be constructed.
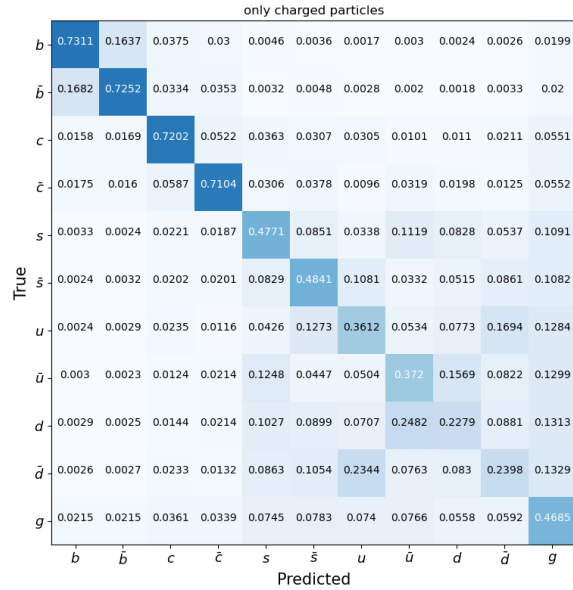Despite crack region, photon reco eff is 100% when E>2 GeV.

@Yongfeng Zhu, Zuofei Wu, Kaili zhang

For TDR Charged only ParT training, Yongfeng and Zuofei gives 2 independent result with different framework.
Best Metric: 0.5245.

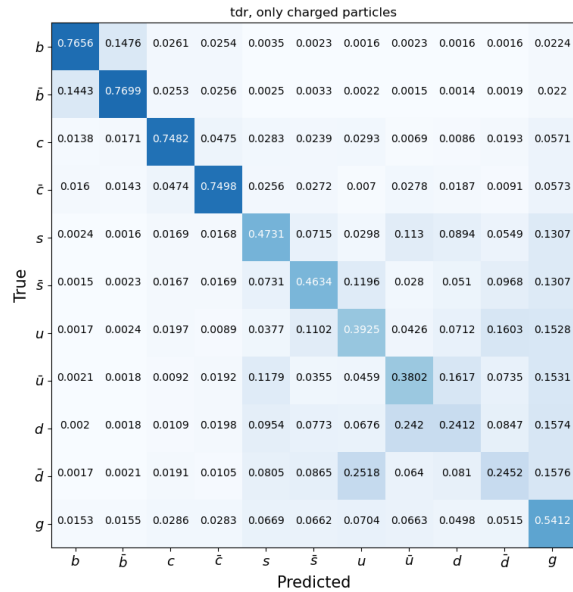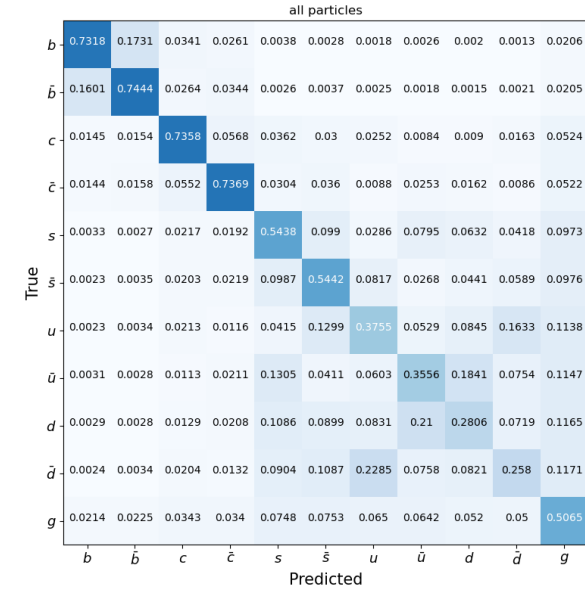tdr, only charged particles
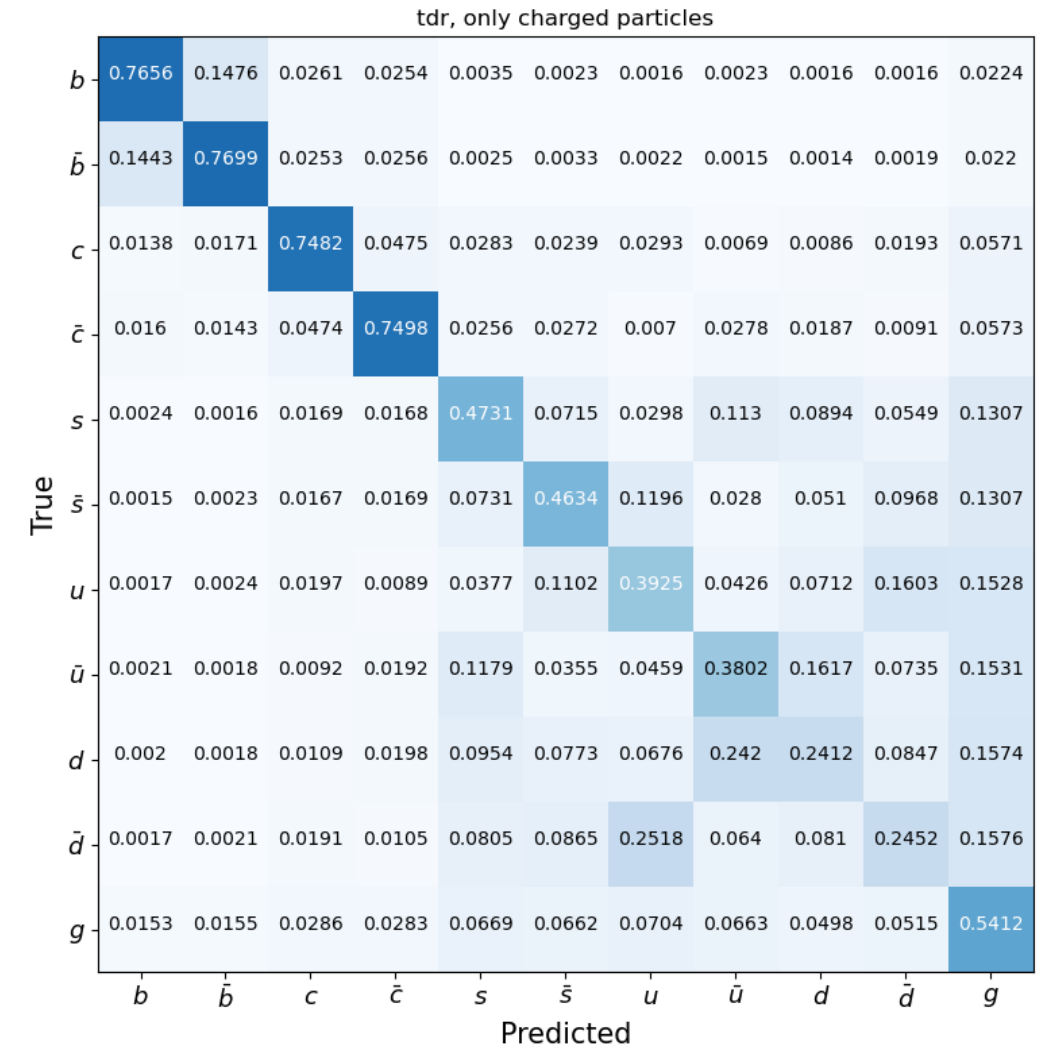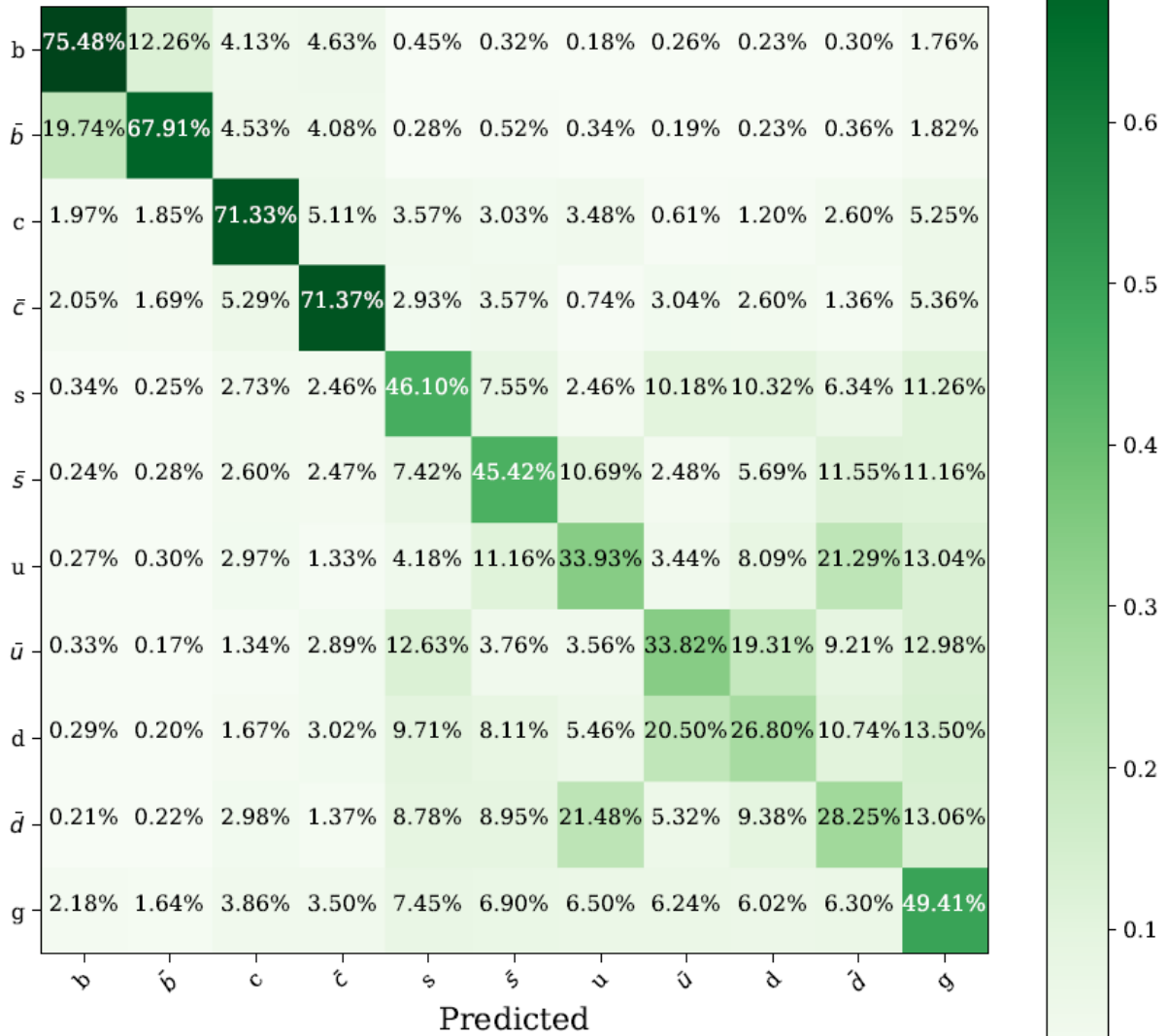
TDR/CDR Charged/Neutral

CDR Charged:0.50146

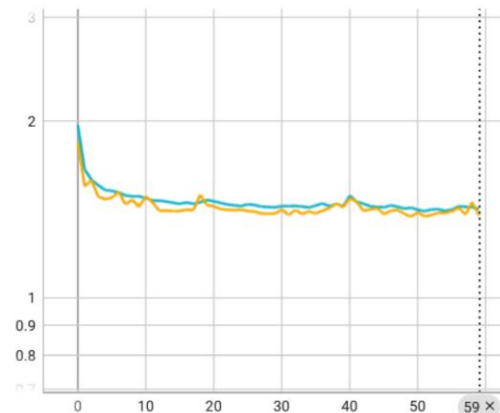TDR Charged:0.52457

- Charged only results,

TDR better a bit but worse than CDR all particles.

- Reason under check.
- New samples can even better.

Training Hyper parameters

Using config from Zuofei/Yongfeng, no overtraining.
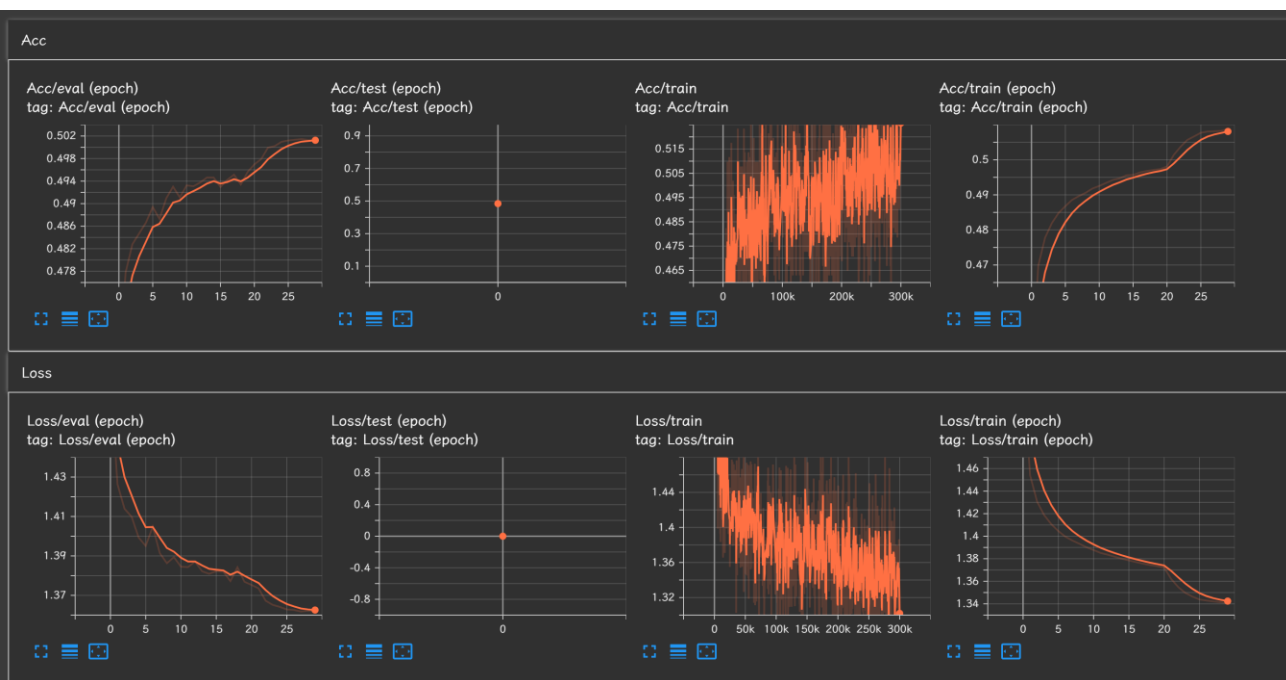
Loss vs epochs
Train and validation
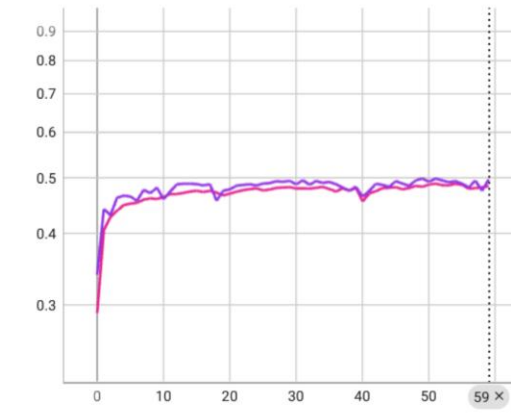
Acc vs epochs
Train and validation

Roc Curve

Basically, current TDR JOI are ready for TDR document.
For application, tomorrow, we have one JOI jumping start tutorial.
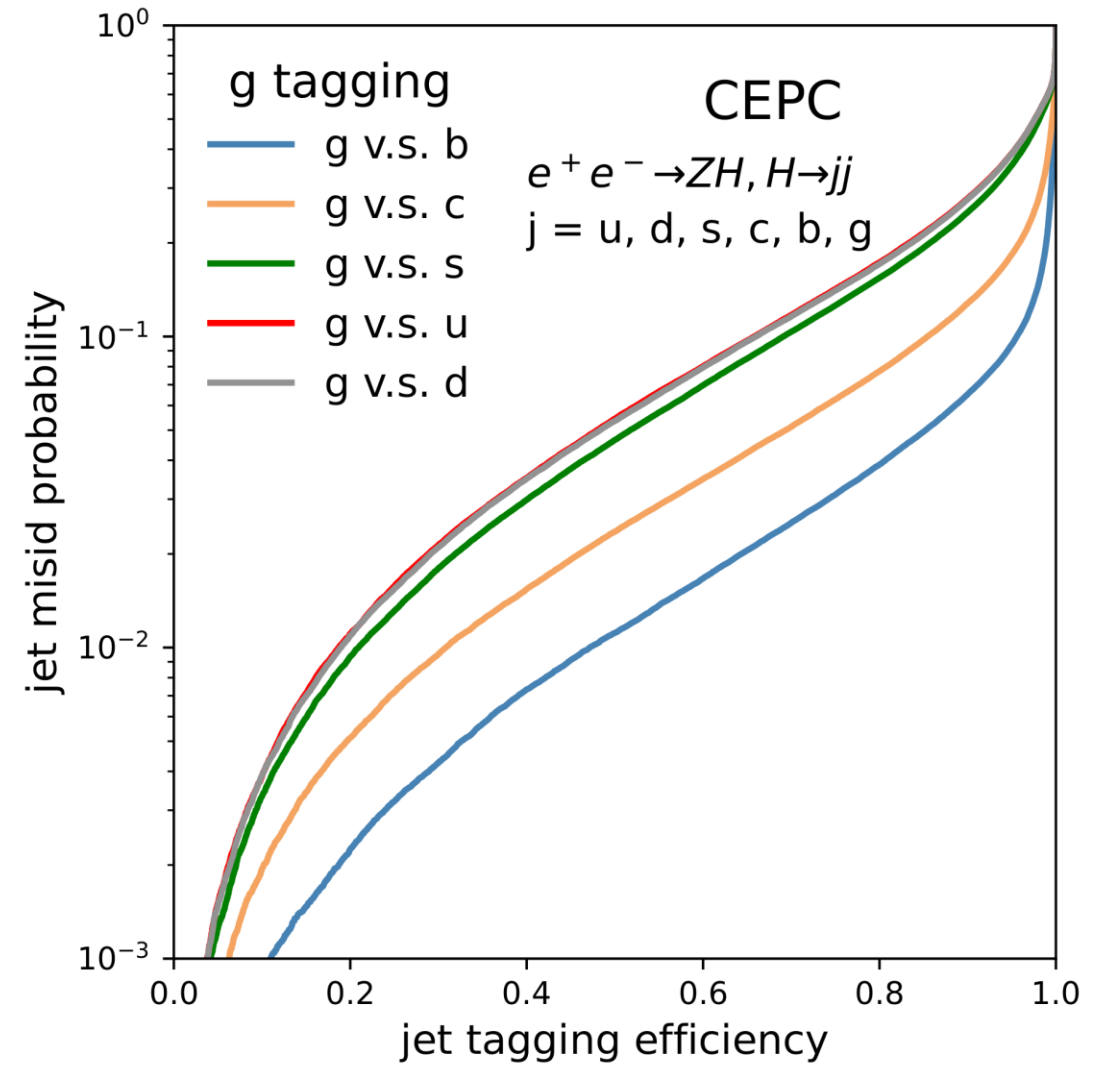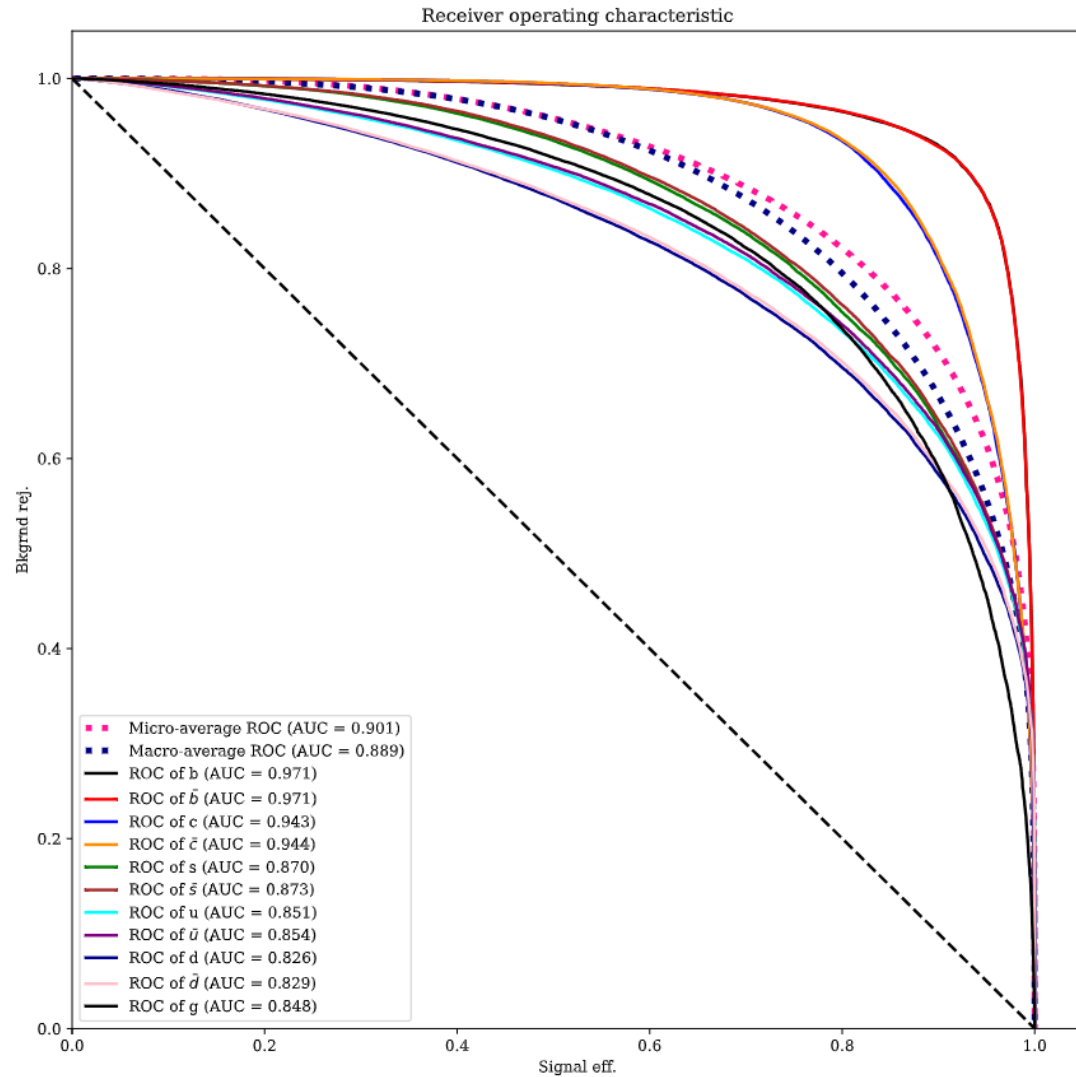
Event size

```
zhangkl@lxlogin003 zhangkl/test » ll -rt *.root
-rw-r--r-- 1 zhangkl atlas  53M Feb 28 13:49 sim_E91.2_eebb_00002.root
-rw-r--r-- 1 zhangkl atlas 3.1M Feb 28 13:53 dig_E91.2_eebb_00002.root
-rw-r--r-- 1 zhangkl atlas 5.5M Feb 28 13:57 trk_E91.2_eebb_00002.root
-rw-r--r-- 1 zhangkl atlas 240K Feb 28 13:59 rec_E91.2_eebb_00002.root
-rw-r--r-- 1 zhangkl atlas 9.9K Feb 28 13:59 joi2_E91.2_eebb_00002.root
-rw-r--r-- 1 zhangkl atlas 9.9K Feb 28 13:59 joi1_E91.2_eebb_00002.root
-rw-r--r-- 1 zhangkl atlas 6.0M Feb 28 13:59 ana_E91.2_eebb_00002.root
-rw-r--r-- 1 zhangkl atlas 342K Feb 28 13:59 jet_E91.2_eebb_00002.root
```

```
Out_ana.filename = "/cefs/higgs/zhangkl/test/rec_E91.2_eebb_00002.root"
Out_ana.outputCommands = [
    "drop *",
    "keep MCParticle",
    "keep CyberPFO",
    "keep CyberPFOPID",
    "keep CompleteTracks"
]
```

- This size for 5 events.
- Sim: 10.6MB per event.
  - (For E240, SimHits~15MB.)
- Drop SimHits: dig: 600k per event
- +tracking: 1.1M per event
- +reco: 1.2M per event
- (ana.root has all info of dig.root and trk.root, which can be deleted.)
- For analysis purpose only:
  - 50k per event.

- Plan to use 1MB per event to estimate the event size.

TDR/CDR D0/Z0 check