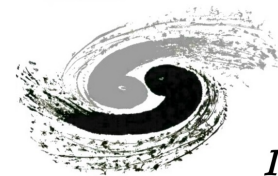




# Update in CyberPFA

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# Update in CyberPFA



- **A new MR !153 in CEPCSW: harmonize with standalone analysis.**

- ECAL and HCAL digitization: add some effects from electronics.
  - Energy resolution may go worse.
- Tracking: improve the precision in G4 simulation [[MR !159](#) by Zhihao Li and Chengdong Fu]
  - Track momentum bias is fixed.
- PFA:
  - Add a BDT-based track cleaning.
  - Add separate scale constant for charged/neutral ECAL and HCAL constant.

```
+ CyberPFAAlg.TrackIDFile = "/cvmfs/cepcsw.ihep.ac.cn/prototype/releases/data/latest/CEPCSWData/offline-data/Reconstruction/CyberPFA_trackID/TrkID_BDT_BDTG.weights.xml"
+ CyberPFAAlg.TrackIDMethod = "BDTG"
+ CyberPFAAlg.EcalChargedCalib = 1.26
+ CyberPFAAlg.HcalChargedCalib = 4.0
+ CyberPFAAlg.EcalNeutralCalib = 1.0
+ CyberPFAAlg.HcalNeutralCalib = 4.0
```

BDT weight file might not in /cvmfs/ yet, can be found in  
/afs/ihep.ac.cn/users/g/guofy/TrkID\_BDT\_BDTG.weights.xml

- Jet clustering in GenMatch:
  - add a branch:  $\text{barrelRatio} = N_{MC}^{|\cos \theta| < 0.85} / N_{MC}^{all}$ .
- A set of scripts in Reconstruction/RecPFACyber/script/
- *Detailed performance will be updated this week.*

# Update in CyberPFA



- **BMR in new MR**

- Different criteria in standalone and CEPCSW:
  - in standalone: barrelRatio > 95%,  $m_{jj} = 124.3 \pm 4.8$  GeV, BMR =  $3.83\% \pm 0.05\%$
  - in GenMatch for physics analysis:  $|\cos \theta_j| < 0.7$ ,  $m_{jj} = 123.7 \pm 4.9$  GeV, BMR =  $4.00\% \pm 0.05\%$
  - in CDR with Arbor: ISR pT < 1 GeV, neutrino pT < 1 GeV. BMR ~ 3.7%.
  - A script: `Reconstruction/RecPFACyber/script/roofit_jets.cpp`.

