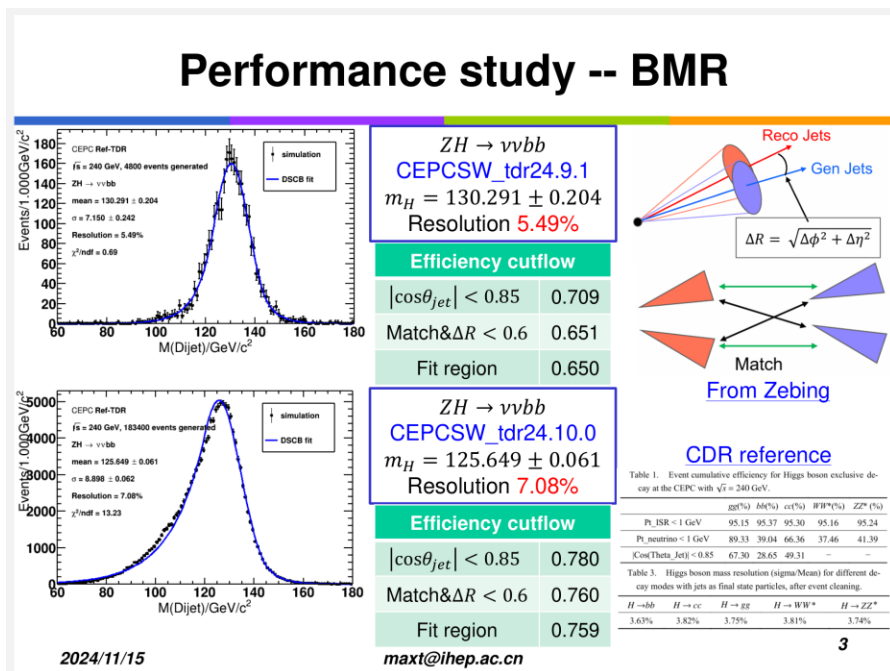# CEPC Jet&Samples

Kaili Zhang

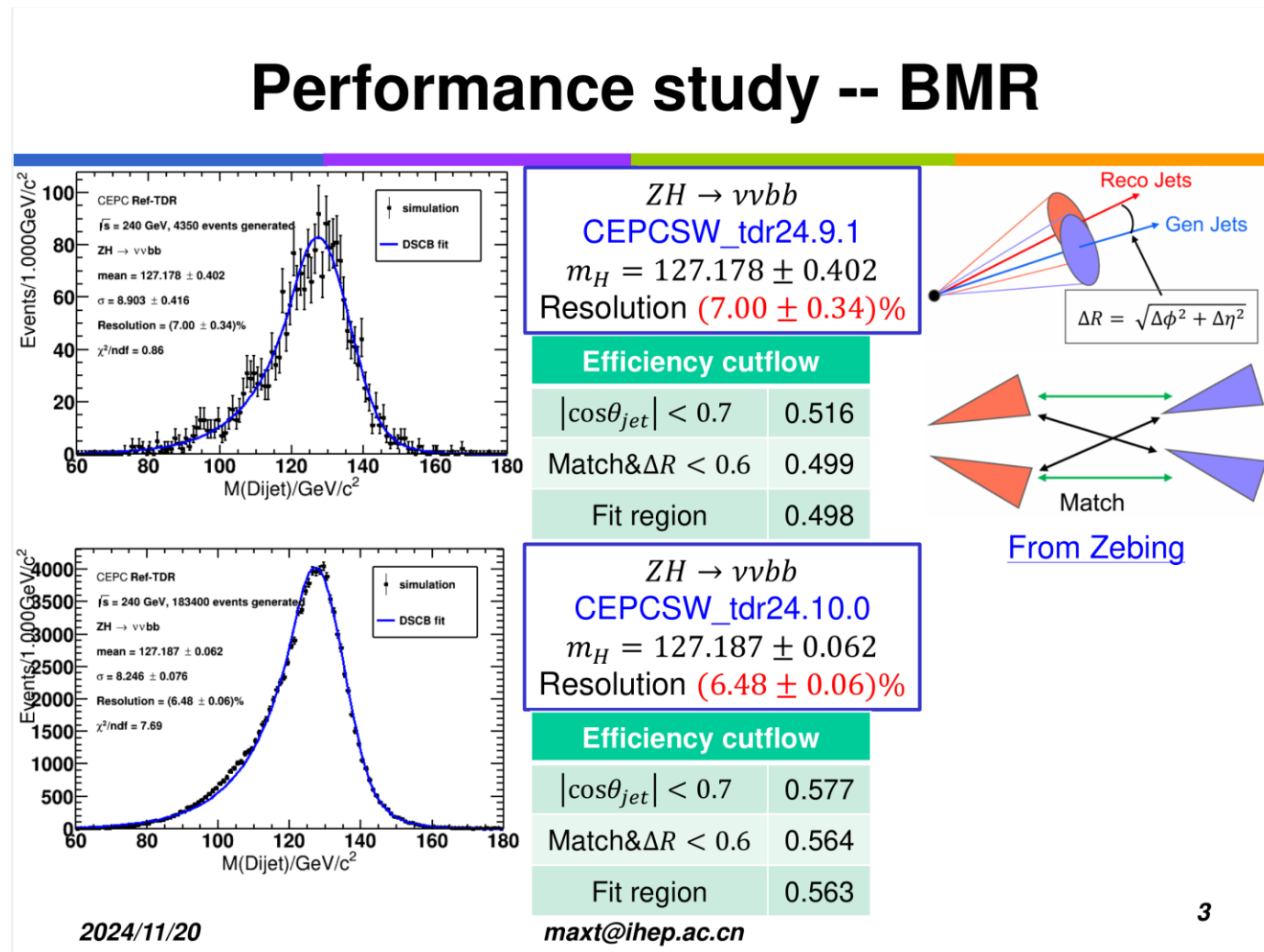IHEP

zhangkl@ihep.ac.cn

Flavor discrepancy

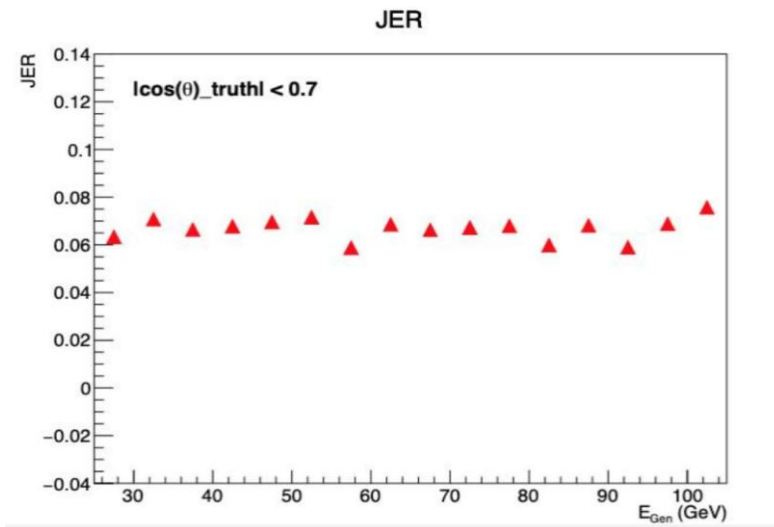Xiaotian here used the wrong 24.9 sample.

bb with more neutrinos, more energy loss, more long tails, and different JER behavior compared to other flavors.
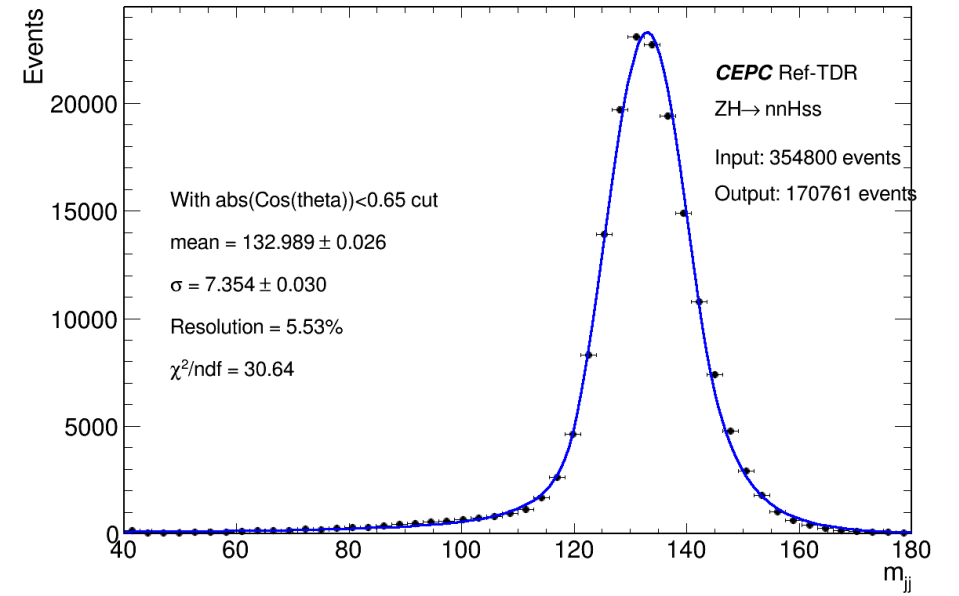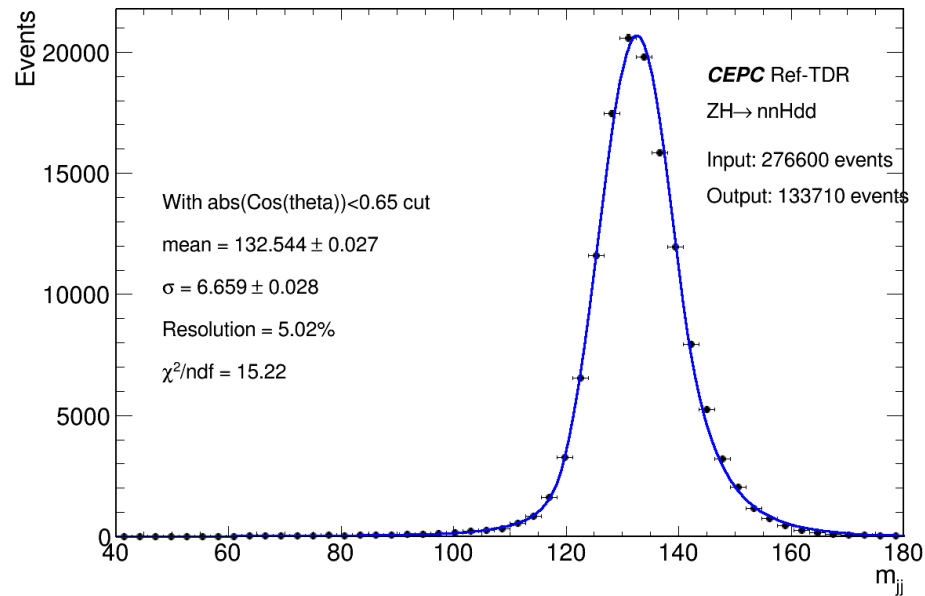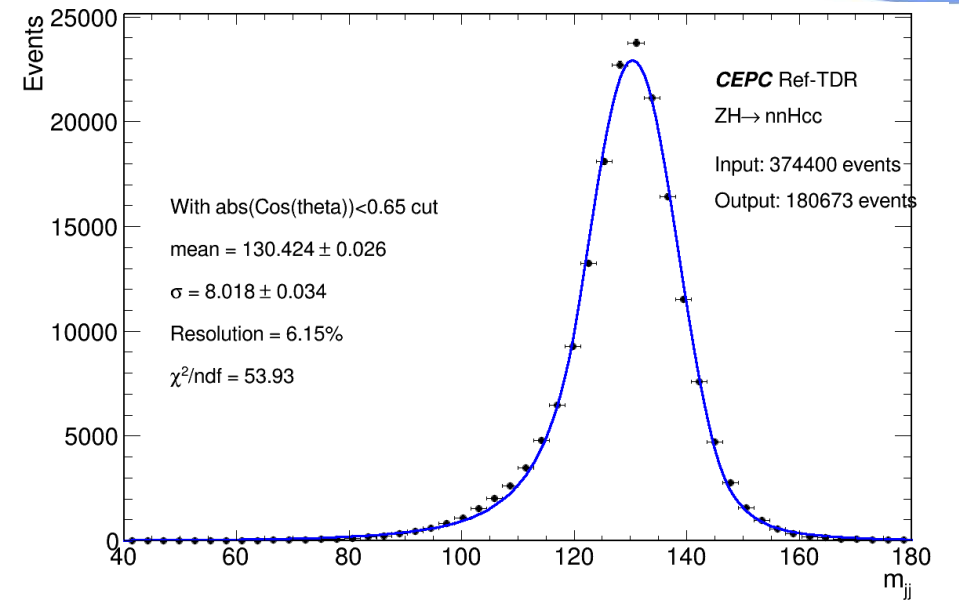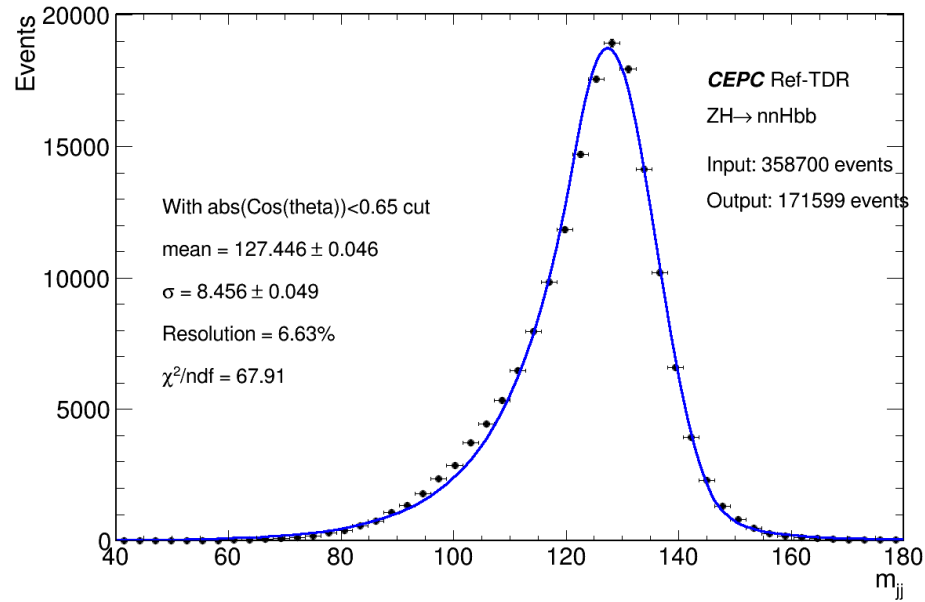
Correlated jet/photon performance

- To locate the problem, please try to draw the differtial plot like Yingqi did.
- For y axis: Energy/Angular Scale/Resolution
- For x axis: E/Pt/Costheta/phi......
- For sample: different flavor/type......

For convention, we encourage to use |cos_theta_truth|<0.7 in selection.

Jet with flavor

Top-left plot:
CEPC Ref-TDR
ZH→ nnHbb

Input: 358700 events
Output: 171599 events

With abs(Cos(theta))<0.65 cut
mean = 127.446 ± 0.046
σ = 8.456 ± 0.049
Resolution = 6.63%
χ²/ndf = 67.91

Top-right plot:
CEPC Ref-TDR
ZH→ nnHcc

Input: 374400 events
Output: 180673 events

With abs(Cos(theta))<0.65 cut
mean = 130.424 ± 0.026
σ = 8.018 ± 0.034
Resolution = 6.15%
χ²/ndf = 53.93

Bottom-left plot:
CEPC Ref-TDR
ZH→ nnHdd

Input: 276600 events
Output: 133710 events

With abs(Cos(theta))<0.65 cut
mean = 132.544 ± 0.027
σ = 6.659 ± 0.028
Resolution = 5.02%
χ²/ndf = 15.22

Bottom-right plot:
CEPC Ref-TDR
ZH→ nnHss

Input: 354800 events
Output: 170761 events

With abs(Cos(theta))<0.65 cut
mean = 132.989 ± 0.026
σ = 7.354 ± 0.030
Resolution = 5.53%
χ²/ndf = 30.64

Samples

- Samples under /cefs/higgs/zhangkl/Production
  - ~40k for each.
  - ~400k for vvHbb/cc/gg/uu/dd/ss.
  - Under tdr 24.10.0.
    - Endcap Calo still missing.
  - Let me know if further requirement.

```
E240_2f_ll
E240_2f_qq
E240_4f_ww_h
E240_eeHbb
E240_eeHcc
E240_eeHdd
E240_eeHgg
E240_eeHinclusive
E240_eeHss
E240_mmHbb
E240_mmHcc
E240_mmHdd
E240_mmHgg
E240_mmHinclusive
E240_mmHss
E240_nnHbb
E240_nnHbb_1101
E240_nnHbb_1105
E240_nnHbb_1105v2
E240_nnHcc
E240_nnHdd
E240_nnHddv2
E240_nnHgg
E240_nnHinclusive
E240_nnHss
E240_nnHtautau
E240_nnHuu
E240_nnHyy
E240_qqHbb
E240_qqHinclusive
E240_qqHmm
```