

# CEPC Jet&Clusters

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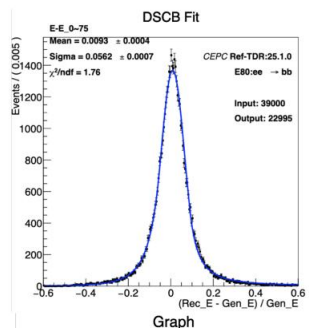
- Latest Release 25.1.2
  - Calo 15mm release in [https://code.ihep.ac.cn/guofangyi/cepcsw-release/-/tree/calorec\\_Ecal15mm?ref\\_type=heads](https://code.ihep.ac.cn/guofangyi/cepcsw-release/-/tree/calorec_Ecal15mm?ref_type=heads), under testing.
- Memory usage:
  - sim, digi, trk ~6GB. rec: 8GB.
  - New samples are generated in different step to reduce memory usage.
- Path:
  - /cefs/higgs/zhangkl/Production/2501
  - /cefs/higgs/zhangkl/Production/2501/eeqq
- Current cefs OK. (I take ~500T of them)

# Jet Performance before New Year

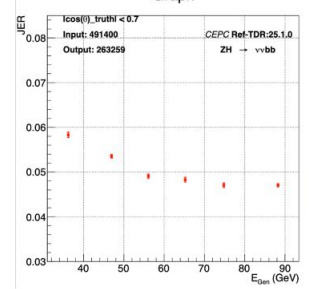


@Yingqi, Xiaotian

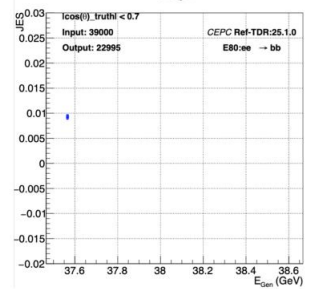
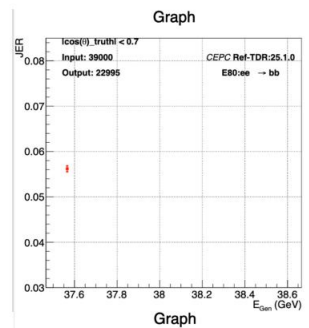
## JER/JES on ee->bb, 80GeV



JER~5.6%



H->bb, 40GeV ~5.6%.



Case	process	ZH → vv $\bar{g}\bar{g}$	ZH → vv $\bar{b}\bar{b}$	ZH → vv $\bar{c}\bar{c}$	ZH → vv $\bar{u}\bar{u}$	ZH → vv $\bar{d}\bar{d}$	ZH → vv $\bar{s}\bar{s}$
Physical level	BMR/%	4.00 ± 0.01	4.36 ± 0.03	4.15 ± 0.02	3.80 ± 0.01	3.97 ± 0.01	4.44 ± 0.01
	Efficiency/%	73.3	73.7	74.0	74.1	74.1	74.1

# Contents in TDR



- Jet Performance
- Jet Analysis
- Samples

书签

- 1 Detector and Physics performance
  - 1.1 Introduction
  - 1.2 Detector Performance
    - 1.2.1 Tracking (Chenguang Zhang, Hao Zhu, et al.)
      - 1.2.1.1 Tracking efficiency
      - 1.2.1.2 Momentum resolution
      - 1.2.1.3 Impact parameter resolution
    - 1.2.2 Performance of Photon, Electron and Muon (Ligang Xia, Reda, Danning Liu, et al.)
      - 1.2.2.1 Identification of Photon, Electron and Muon
      - 1.2.2.2 Photon energy resolutions
      - 1.2.2.3 Electron momentum resolutions
      - 1.2.2.4 Muon momentum resolutions
    - 1.2.3 PID for Charged Hadrons (Chenguang Zhang, Xiaotian Ma, et al.)
    - 1.2.4 Jets (Kaili Zhang, Xiaotian Ma, Yingqi Hou, Chenguang Zhang, Jiarong Li, et al.)
      - 1.2.4.1 Jet Energy Resolution in events
      - 1.2.4.2 Jet performance in physics events
    - 1.2.5 Vertexing (Chenguang Zhang, et al.)
      - 1.2.5.1 Vertex Efficiency
      - 1.2.5.2 Vertex Resolution
    - 1.2.6 Jet Flavor Tagging - traditional way (Chenguang Zhang, et al.)
    - 1.2.7 Jet Origin ID (Manqi Ruan, Kaili Zhang, et al.)
  - 1.3 Physics Benchmarks
    - 1.3.1 Event Generation (Kaili Zhang, Gang Li, et al.)
      - 1.3.1.1 Monte Carlo event generators
      - 1.3.1.2 Generated signal and background samples
    - 1.3.2 Analysis Tools
      - 1.3.2.1 Multivariate analysis tools
    - 1.3.3 Higgs mass and production cross-section through recoil mass (Mingshui Chen, et al.)
    - 1.3.4 Branching ratios of the Higgs boson in hadronics final states (Yanping Huang, et al.)
    - 1.3.5 (Yaquan Fang, et al.)
    - 1.3.6 (Mingshui Chen, et al.)
    - 1.3.7 Weak mixing angle (Zhijun Liang, Bo Liu, et al.)
    - 1.3.8 A channel in flavor physics (Shanzhen Chen, et al.)
    - 1.3.9 top mass and width (Xiaohu Sun, et al.)
    - 1.3.10 W fusion cross section (Hongbo Liao, et al.)
    - 1.3.11 Long-lived particles (Liang Li, et al.)
    - 1.3.12 smuon (Xuai Zhuang, et al.)
    - 1.3.13
    - 1.3.14
  - 1.4 Challenges & Plan
    - 1.4.1 Strategy for the measurement of absolute luminosity
    - 1.4.2 Plan of the use of resonant depolarization for W/Z mass (Zhe Duan)
    - 1.4.3 Methods & Considerations for Calibration, Alignment (Jin Wang)
    - 1.4.4 Further technology decisions/detector optimization
  - 1.5 Summary

# Tech issues



- Endcap, overlap region check (by mono photon scan?)
- Jet Origin ID eff( $\sim 0.5$  currently, overfit?)
- Electron Reco multi count(See Geliang's report)

# New tutorial based in 25.1



- [https://code.ihep.ac.cn/zhangkl/cepcsw\\_tutorial](https://code.ihep.ac.cn/zhangkl/cepcsw_tutorial)
- For CEPCSW env, sample, analysis
- Please share to new comers.