

# 100 TeV Delphes study for electron efficiency

**Yiwen Wen** and Qiang Li

Peking University

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100 TeV future collider simulation meeting



## Quick Recap

- ★ We study the 100 TeV  $p p \rightarrow Z \rightarrow e^+ e^-$  production
- ★ Simulation framework: Madgraph5->PYTHIA6->Delphes3
- ★ Delphes detector simulation with  $\langle n_{pu} \rangle = 140$  with "Snowmass" detector
- ★ Aims: study electron efficiency
- ★ Smaller electron isolation cone  $< 0.1$  and do the RECO and GEN electrons matching

# The "turn-on" Curve

$$eff. = \frac{num(GenPT > x + RECOPT > 50)}{numGenPT > x}$$

# cone0.005, cone 0.025, cone 0.05

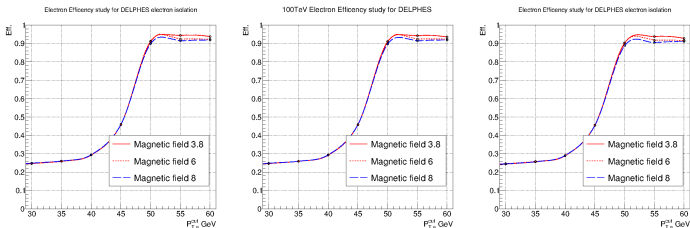
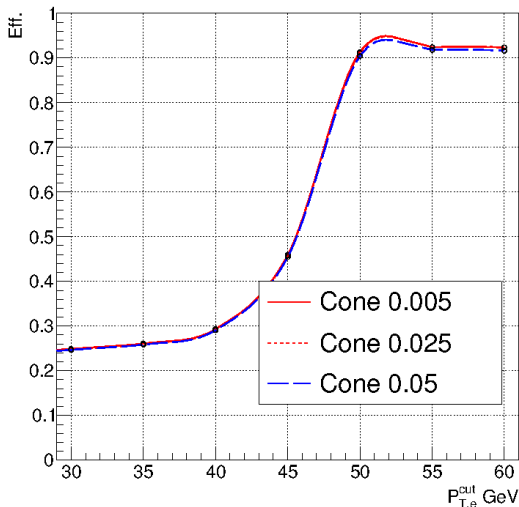


Figure: in different electron isolation 0.005, 0.025, 0.05

## in fixed magnetic field

Electron Efficiency study for DELPHES electron isolation



# definition

$$eff. = \frac{numRECOPT > X}{GenElectronNUM}$$

## cone0.005, cone 0.025, cone 0.05

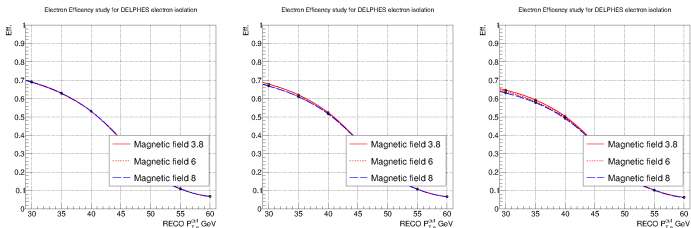
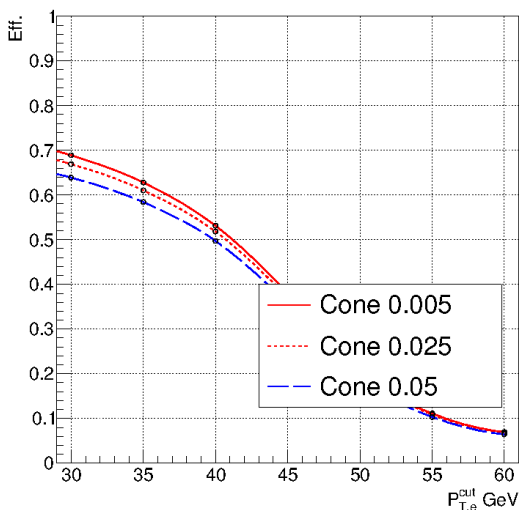


Figure: in different electron isolation 0.005, 0.025, 0.05

## in fixed magnetic field

Electron Efficiency study for DELPHES electron isolation





# Summary

- ★ Almost the same conclusions with previously.
- ★ The magnetic field seems has little influence on on electron efficiency even in smaller cone isolation.
- ★ Smaller the cone better the efficiency.