W Mass Measurement at CEPC

Presented by [1]Pei-Zhu Lai（賴培築）

Supervisor: [2]Man-Qi Ruan, [2]Gang Li, [2]Bo Liu, [1]Chia-Ming Kuo

[1]National Central University, Taiwan

[2]Institute of High Energy Physics, China

EW Meeting

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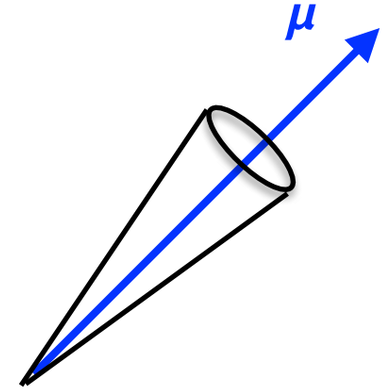
Outline

- **The veto criteria for prompt muon before jet clustering.**
- **Follow the ALEPH's paper to do the event selections.**

Veto Criteria for Prompt μ in V1

- **In order to veto the prompt muon in WW to $\mu\nu q\bar{q}$, there is a code called "ISOlatedLeptonFinderProcessor" before putting PFOs into the jet clustering algorithm.**
- **The veto criteria are as following(should satisfy all of them at the same time)**
  - **Pass μ ID (from Arbor)**
  - **R0 < 0.01 mm**
  - **Track energy > 30 GeV**
  - **Apply ISOlatedPolynomial decision**

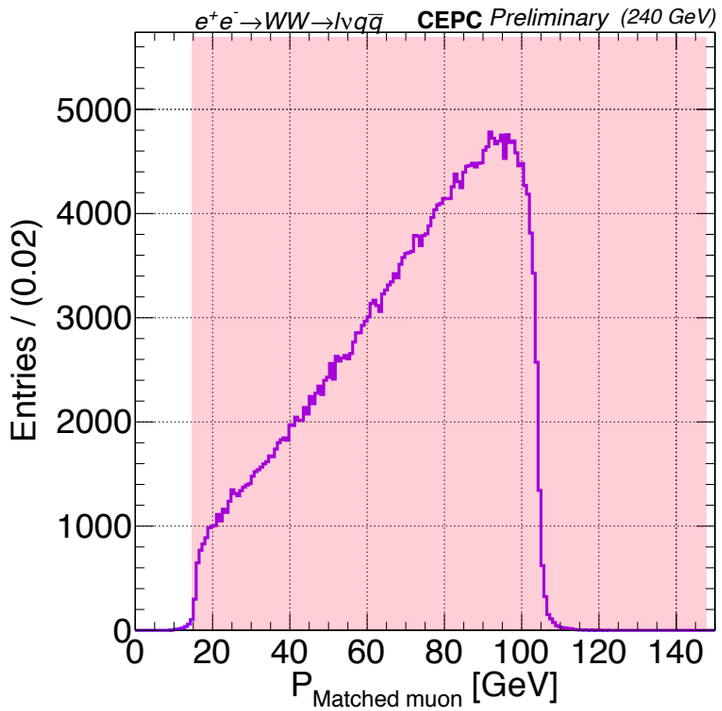


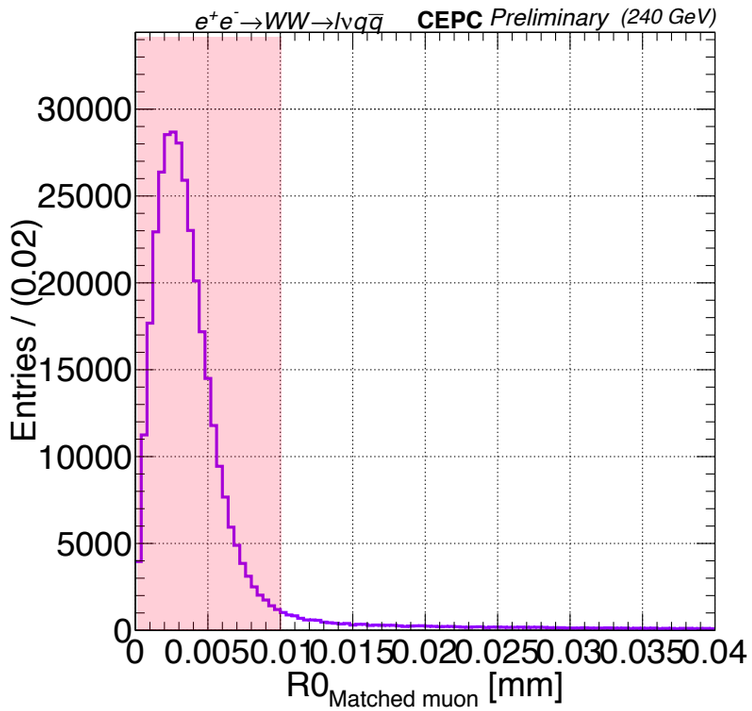
$$\cos\Delta\theta_{cone} = 0.98$$

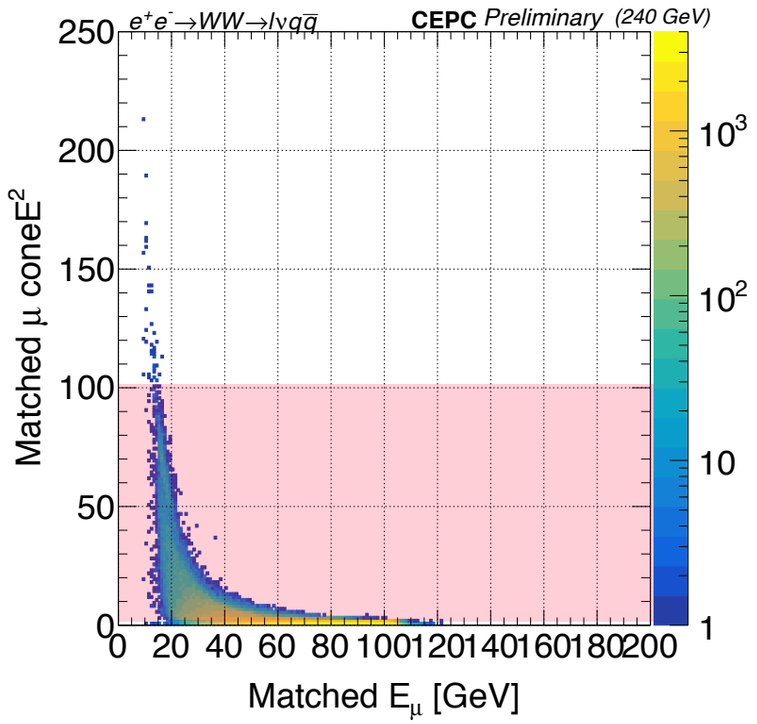
coneE = Energy in the Cone(excepts the muon) / Energy of muon

ISOlatedPolynomial: $(coneE)^2 <= 20E_{\mu} - 300$

Veto Criteria for Prompt μ in V4







- **These plots are done by the matched muon(prompt) muon.**
- **After studying these veto criteria, I made some changes(in read).**
  - **Pass μ ID (from Arbor)**
  - **R0 < 0.01 mm**
  - **Track energy > 15 GeV**
  - **Apply ISOlatedPolynomial decision**
- **If there are more than two muons pass through these selection, I will pick up the most energetic muon.**
- **I will do more detail study for the polynomial way.**

ISOlatedPolynomial: $(coneE)^2 <= 100$

Select the Final State($\mu\nu q\bar{q}$) in V4

V4	# of event	Efficiency
Tot # of event	383227	—
> 7 Tracks	383227	100%
E_{Miss} & P_{Miss} > 35 GeV	254242	66%
Select the μ	206939	54%
Detector acceptance $\|\cos(\theta_\mu)\| < 0.995$	206939	54%

- **I followed the ALEPH paper to do these selections(track, missing energy and momentum).**
- **"Select the μ" is used the selections in S4.**

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