

# Cross Cleaning on DiLepton Analysis

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# Initial Cuts

## Initial Cuts on PAT Layer 1

- Jets:  $p_T > 15$  GeV and  $n\text{Constituents} > 0$
- Electrons:  $p_T > 10$  GeV and  $|\eta| < 2.5$
- Muons:  $p_T > 10$  GeV and  $|\eta| < 2.5$
- Photons:  $p_T > 10$  GeV and  $|\eta| < 2.5$

Used Sample: /LM0/Summer09-MC\_31X\_V3\_7TeV-v1/GEN-SIM-RECO

# Cross Cleaning Reminder

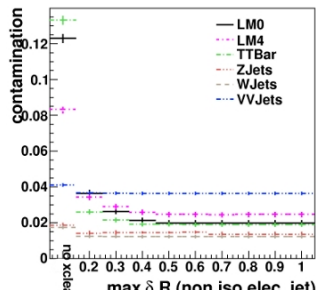
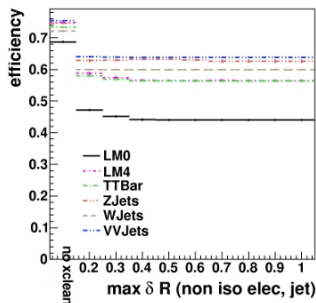
## Muon-Jet

- Non-isolated muons will be removed if a jet is in a certain  $\Delta R$  range
- Isolated muons will be left alone

## Electron-Jet

- Non-isolated Electrons will be removed if a Jet with shared Energy is in a certain  $\Delta R$  range
- Isolated Electrons will be left alone, but can remove a jet, if the relative shared Energy is over a certain threshold

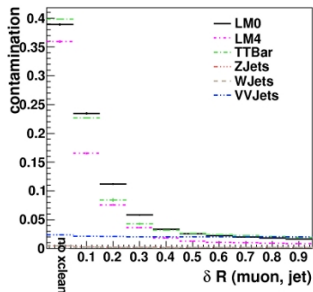
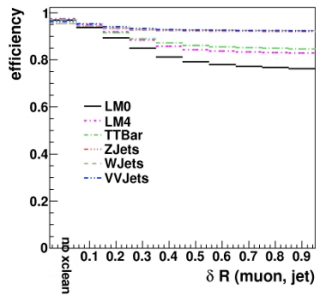
# Electron-Jet: Electrons



## Electron-Jet

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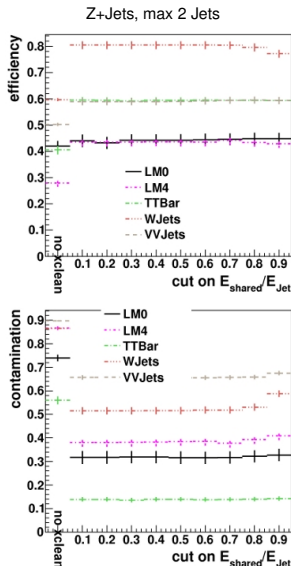
# Muon-Jet: Muons



## Muon-Jet

- Non-isolated muons will be removed if a jet is in a certain  $\delta R$  range
- Isolated muons will be left alone

# Electron-Jet: Jets



## Electron-Jet

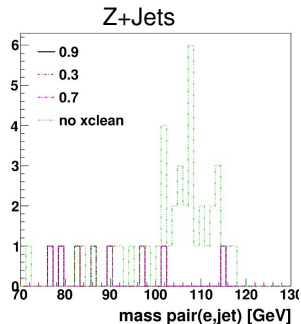
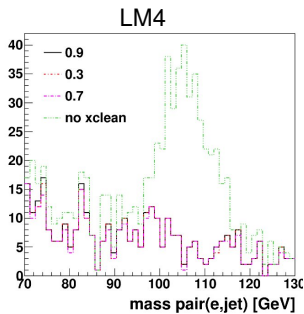
- Non-isolated Electrons will be removed if a Jet with shared Energy is in a certain deltaR range
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$$\text{eff} = n_{\text{matched}} / n_{\text{all\_gen}}$$

$$\text{cont} = n_{\text{notmatched}} / n_{\text{all\_reco}}$$

$$\text{ratio} = \text{eff} / \text{cont}$$

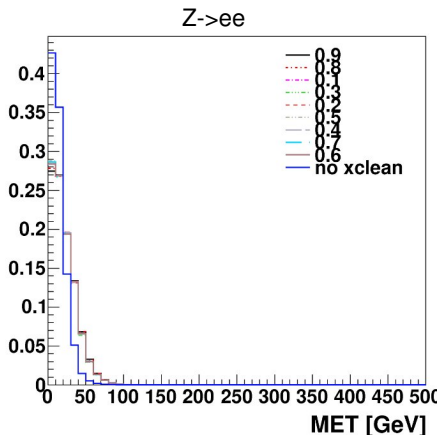
# Electron-Jet: Pseudo Z



## Electron-Jet

- Choose events with at least two isolated Electrons
- If one (or more) of these Electrons have a close Jet, form a diObject
- Without cross cleaning, there is a peak near the Z mass
- Cross-cleaning removes it

# Electron-Jet: Z->ee MET



## Electron-Jet

- MET for different cuts on shared energy
- something is going wrong here.