Beam Halo Backgrounds to Physics Signals

R.J. Tesarek

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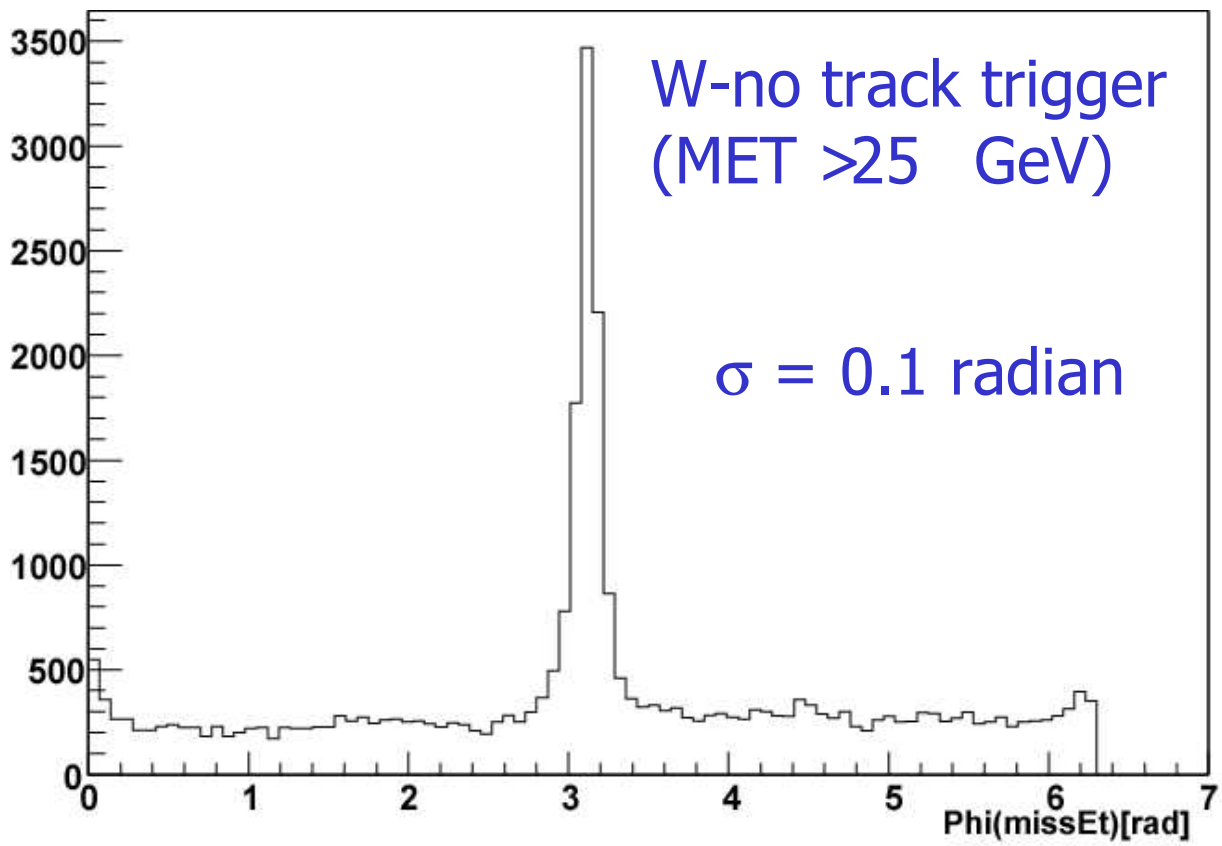
Template analyses

- $W \rightarrow e\ \nu$
  - Isolated electron
  - Missing Transverse Energy
- $p\bar{p} \rightarrow G\ \gamma$
  - Isolated photon
  - Missing Transverse Energy

Background Topology

Background estimate:

- Look for peak in MET at ϕ=180
- Estimate No. events in peak

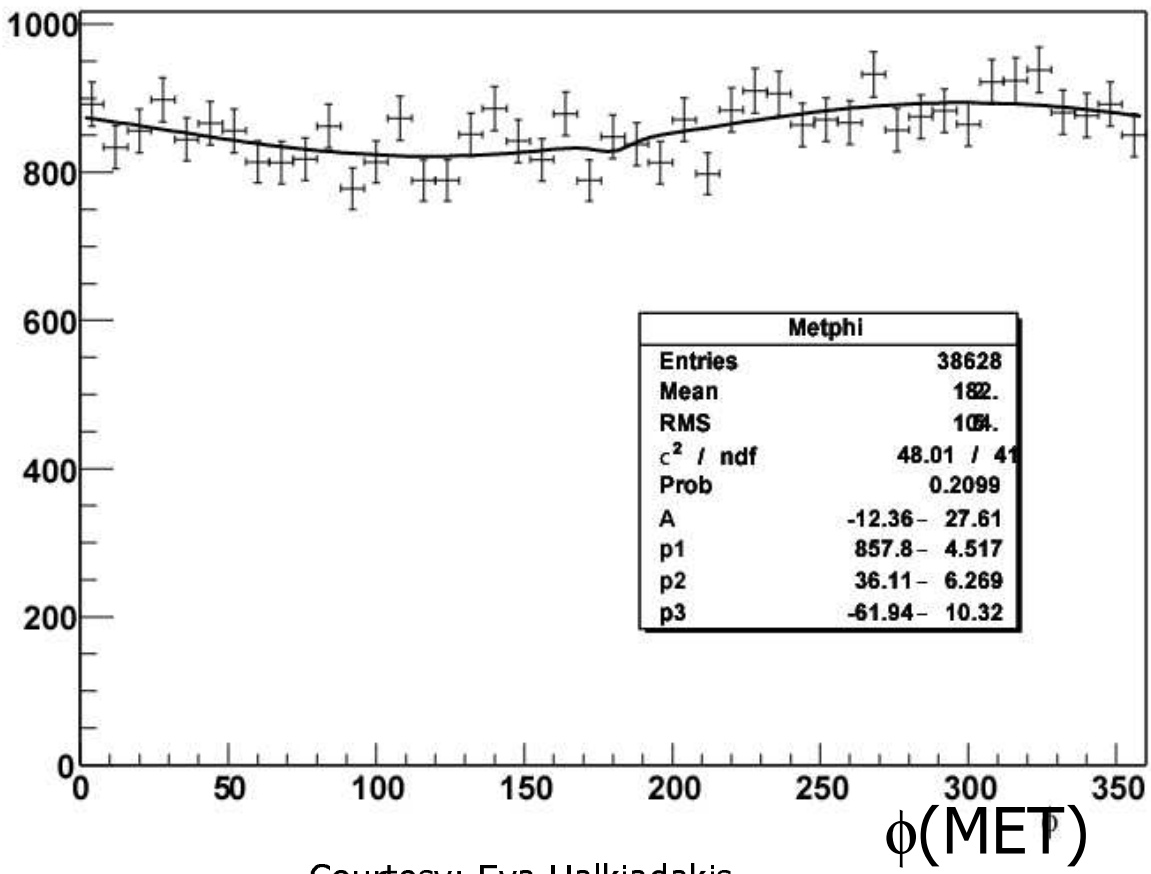


Courtesy: Julia Thom

$W \rightarrow e\,\nu$

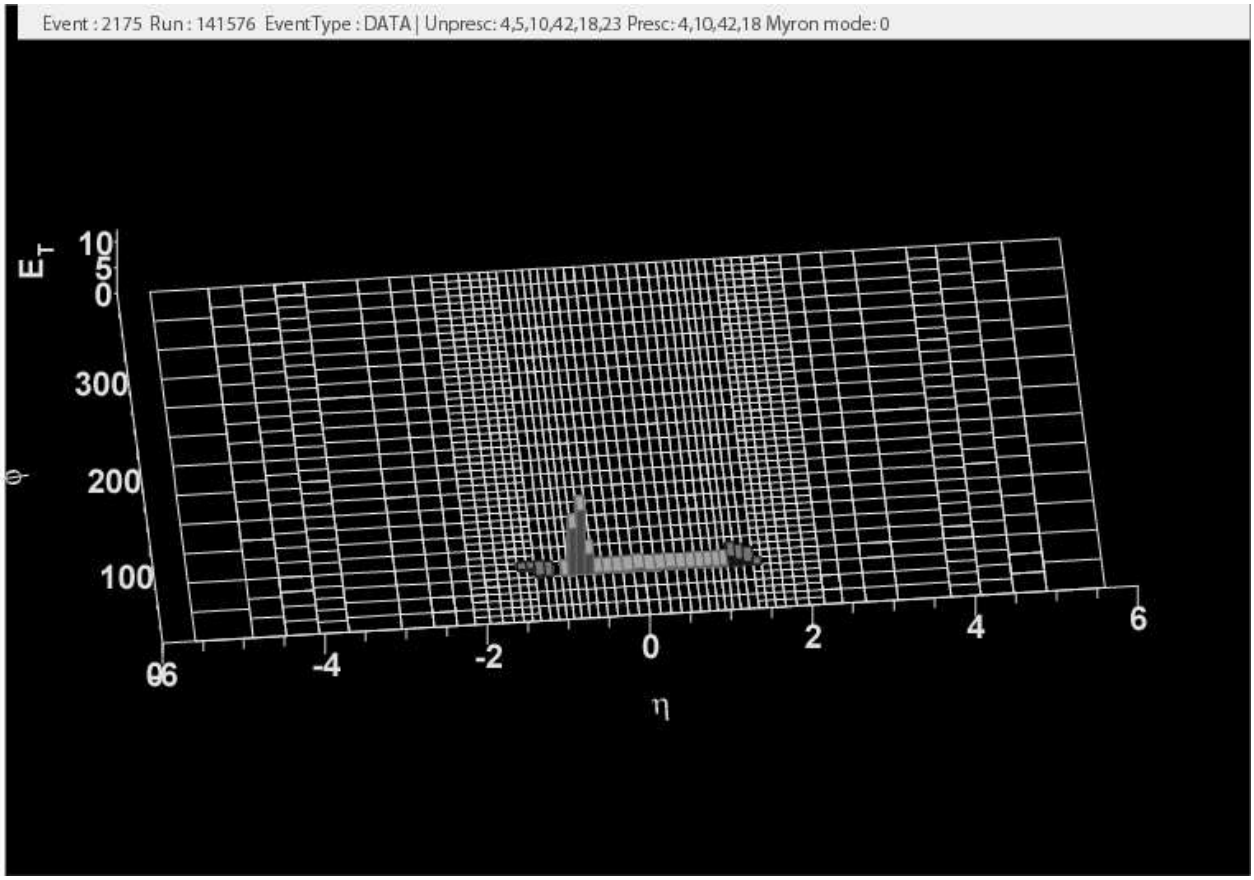
Fit METphi distribution for peak at ϕ=180.

Halo background < 108 evts/90 pb^{-1} (95% CL)
signal/halo ~ 358:1



Courtesy: Eva Halkiadakis

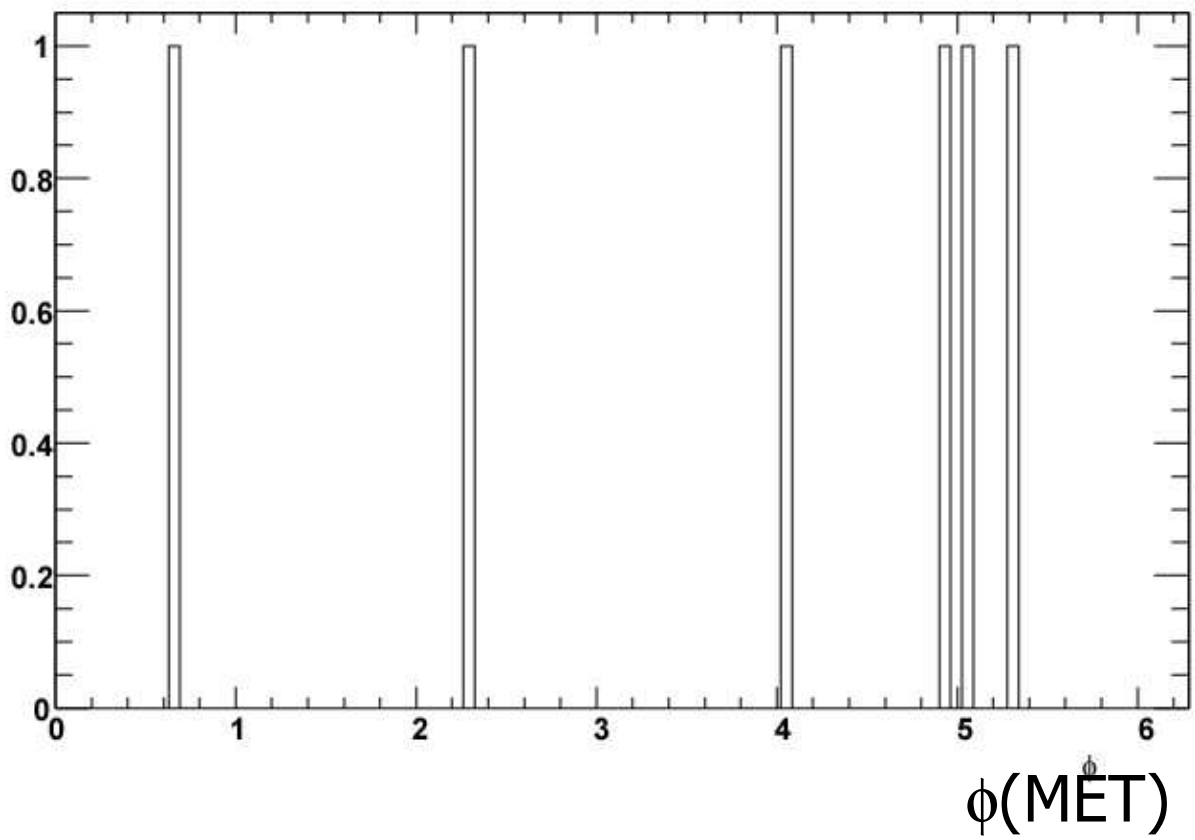
Background Event



MET + γ

- Good photon
  - shower shape
- Event topology
  - No contiguous energy in ϕ slice (CDFnote: 6009)

$\mathcal{L}$ = 60 pb^{-1}



Halo background < 0.2 evts/60 pb^{-1} (68% CL)
$Z \rightarrow \nu\nu\gamma$ background = 3.2 evts/60 pb^{-1}

Courtesy: Peter Onyisi, Bruce Knutesen

Conclusions

Background for MET + γ analysis limited by standard model processes.

Backgrounds for W $\rightarrow$ e ν measurements small withoutapplying clean up cuts.