Sarah Eno
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Trigfest

Heavy Bosons in Run II

Signatures

Z' $ee, \mu\mu, \tau\tau$ 3.4%

qq 70%

bb with at least 1 mu

=15%x22%=3.3% worth a try?

$\nu\nu$ 20% impossible?

W' $e\nu, \mu\nu, \tau\nu$ 11%

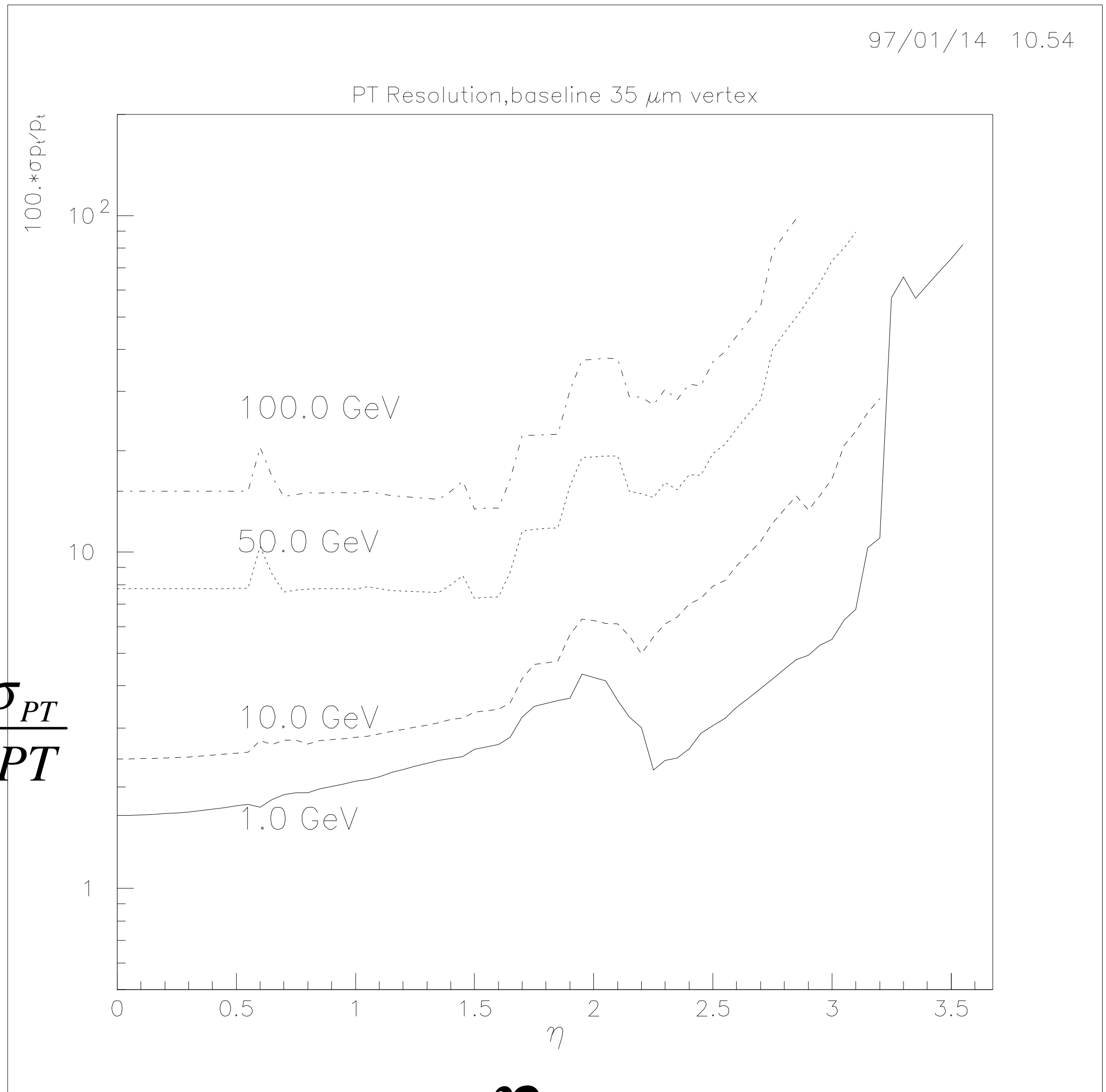
qq 67%

W_R

e e jet jet

inclusive e

Simple Zprimes Offline: Tracking

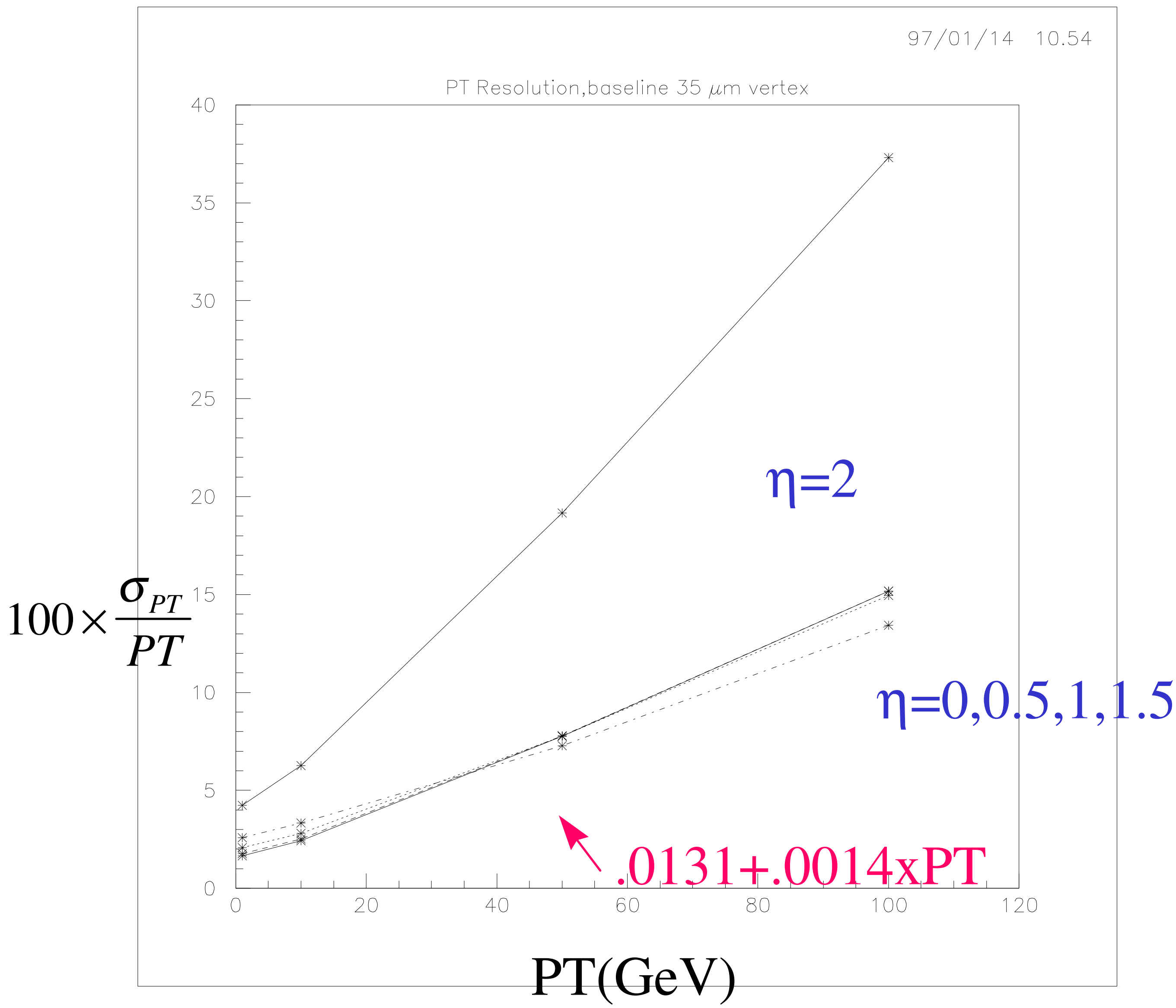


$100 \times \frac{\sigma_{PT}}{PT}$

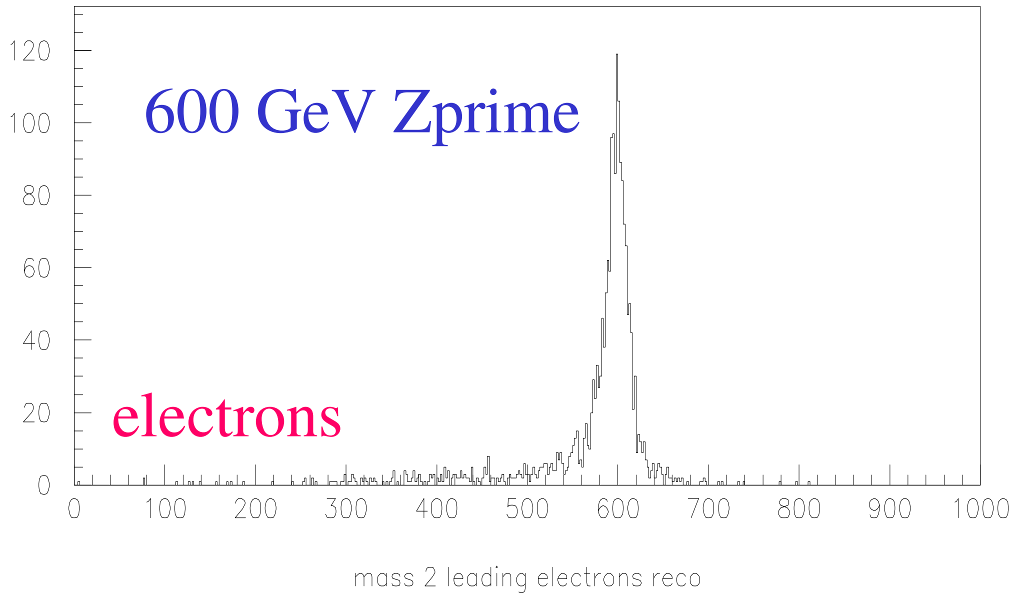
η

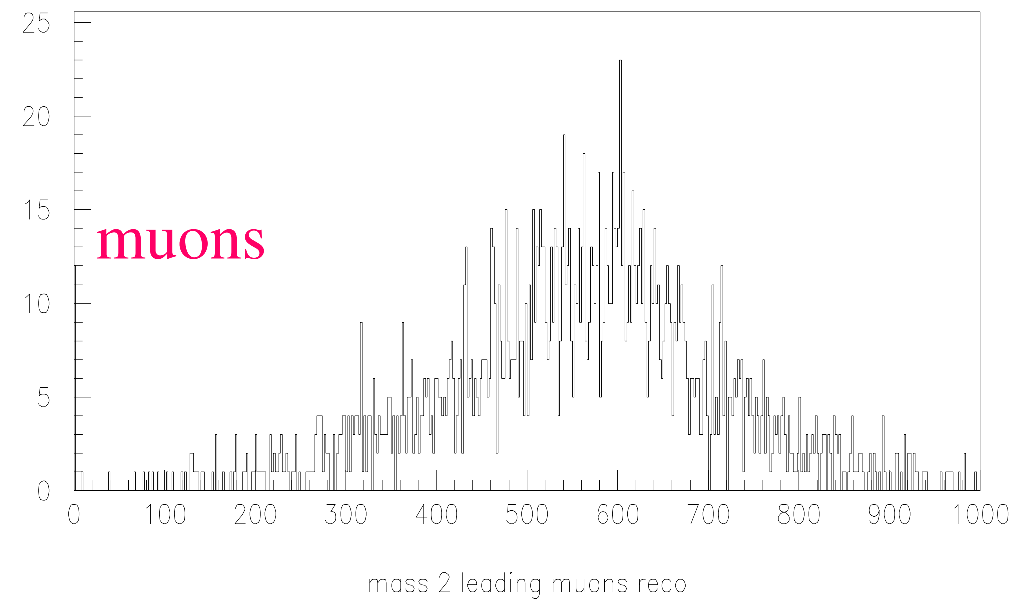
from upgrade documentation

Simple Zprimes Offline



Simple Zprimes Offline





Efficiency with Current Trigger Table

- UPG_GEANT SEP95
  - old muon geometry
  - old preshower
  - new preshower does not work with Cecilia's ntuple maker
  - used version 7 of Ken's code to match
- Samples
  - 567 Z'->ee
  - 143 Z'->$\mu\mu$
  - 1840 Z'->eν
  - 945 W'->$\mu\nu$
- SINGLE INTERACTION ONLY!
- see www page for easy instructions

Some Triggers

central single e: L1 requires em tower over 10 GeV and
track and preshower
L2 threshold raised to 15 GeV
adds EMF and ISO

forward single e: L1 requires em tower over 10 GeV
L2 raises to 15 GeV

di-electron : L1 require 2 em towers over 4 GeV
L2 require both have EMF and ISO

susy 1e : L1 1 em over 10 GeV
and 2 had tower over 5
L2 requires EMF and ISO
raises e to 15 GeV
raises jet to 30 GeV

muon triggers: I do not know...

ZP->ee

Output From Cecilia's ntuple maker

number of events = 868

L1

CENTRAL INCLUSIVE(C*C+C)	= 746		(151 Hz)
FORWARD INCLUSIVE(C)	= 270		(300 Hz)
DIELECTRON	= 832	(96%)	(2235 Hz)
JETMAX	= 431		
JETMULTI	= 431		
TRIELECTRON	= 779		
SUSY1E 1jet	= 867	(100%)	(220 Hz)
SUSY1E+MET	= 643		
LOW PT MUON	= 17		
2nd PT MUON	= 1		
3rd PT MUON	= 1		
high PT MUON	= 0		
L1TOTAL	= 867		

L2

CENTRAL INCLUSIVE (C*C*C&E&I)	= 690		
FORWARD INCLUSIVE (C&E&I)	= 236		
DIELECTRON	= 734	(84%)	(44 Hz)
JETMAX	= 425		
JETMULTI	= 22		
TRIELECTRON	= 726		
SUSY1E1jet	= 843	(97%)	(11 Hz)
SUSY1E+MET	= 580		
L2TOTAL	= 864		

WP->eν

NUMBER OF EVENTS = 1460 .

L1

CENTRAL INCLUSIVE(C*C+C)	= 1072 (73%) (151 Hz)
FORWARD INCLUSIVE(C)	= 260 (18%) (300 Hz)
DIELECTRON	= 685
JETMAX	= 187
JETMULTI	= 187
TRIELECTRON	= 605
SUSY1E1jet	= 874
SUSY1E+MET	= 874
LOW PT MUON	= 21
2nd PT MUON	= 1
3rd PT MUON	= 1
high PT MUON	= 1
L1TOTAL	= 1355

L2

CENTRAL INCLUSIVE(C*C*C&E&I)	= 925 (63%) (8.6 Hz)
FORWARD INCLUSIVE(C&E&I)	= 223 (15%) (14.4 Hz)
DIELECTRON	= 527
JETMAX	= 181
JETMULTI	= 2
TRIELECTRON	= 501
SUSY1E1jet	= 245
SUSY1E+MET	= 244
L2TOTAL	= 1240 (85%)

ZP->μμ

NUMBER OF EVENTS = 143 .

L1

CENTRAL INCLUSIVE(C*C+C)	= 9
FORWARD INCLUSIVE(C)	= 1
DIELECTRON	= 6
JETMAX	= 7
JETMULTI	= 7
TRIELECTRON	= 6
SUSY1E	= 15
SUSY1E+MET	= 15
LOW PT MUON	= 111 (77%) (100,000 Hz)
2nd PT MUON	= 85
3rd PT MUON	= 85
high PT MUON	= 79 (55%) (14.6 Hz)
L1TOTAL	= 117

WP->$\mu\nu$

NUMBER OF EVENTS = 945 .

L1

CENTRAL INCLUSIVE(C*C+C)	= 48
FORWARD INCLUSIVE(C)	= 6
DIELECTRON	= 32
JETMAX	= 27
JETMULTI	= 27
TRIELECTRON	= 32
SUSY1E	= 59
SUSY1E+MET	= 58
LOW PT MUON	= 559 (59%) (100,000 Hz)
2nd PT MUON	= 369
3rd PT MUON	= 369
high PT MUON	= 347 (37%) (14.6 Hz)
L1TOTAL	= 588

What to do?

1) Add Multiple Interactions

2) check muon results with Ken

3) Add di-muon trigger