



Differential K-Factor Study

May 19, 2011

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V(H→bb) signal production

- Private production using CMSSW_3_9_7 (and now 4_3_2)

- ◆ Pythia6 (LO), PDF CTEQ6L1 (via LHAPDF)
- ◆ Herwig++ (NLO) POWHEG, PDF MRST2002nlo

- Produced 100,000 events each $W \rightarrow l\nu$, $Z \rightarrow l^+l^-$, $Z \rightarrow \nu\nu$

$M_H = 120 \text{ GeV}$

$\sqrt{s} = 7 \text{ TeV}$

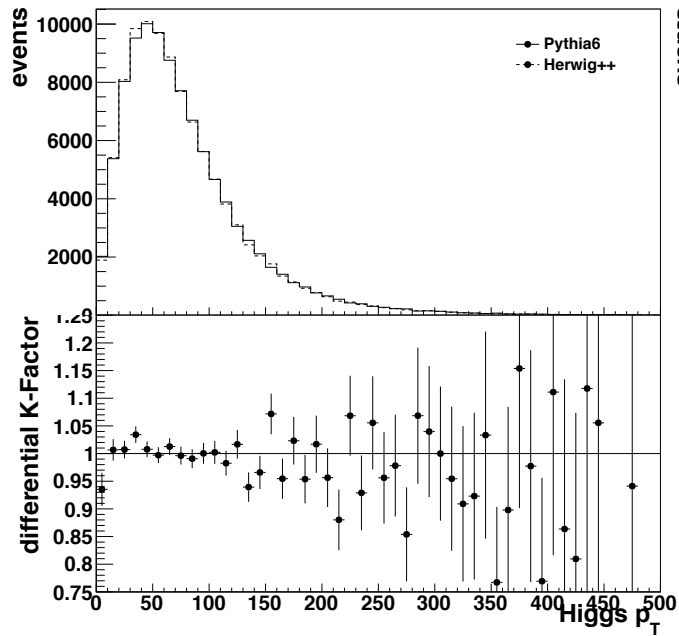
$(l = e, \mu, \tau \text{ and } \nu = \nu_e, \nu_\mu, \nu_\tau)$

	pythia6 (pb)	herwig++ (pb)	K-factor
$H \rightarrow bb \ W \rightarrow l\nu$	0.1074	0.1327	1.235
$H \rightarrow bb \ Z \rightarrow ll$	0.0177	0.0231	1.302
$H \rightarrow bb \ Z \rightarrow \nu\nu$	0.0353	0.0458	1.299

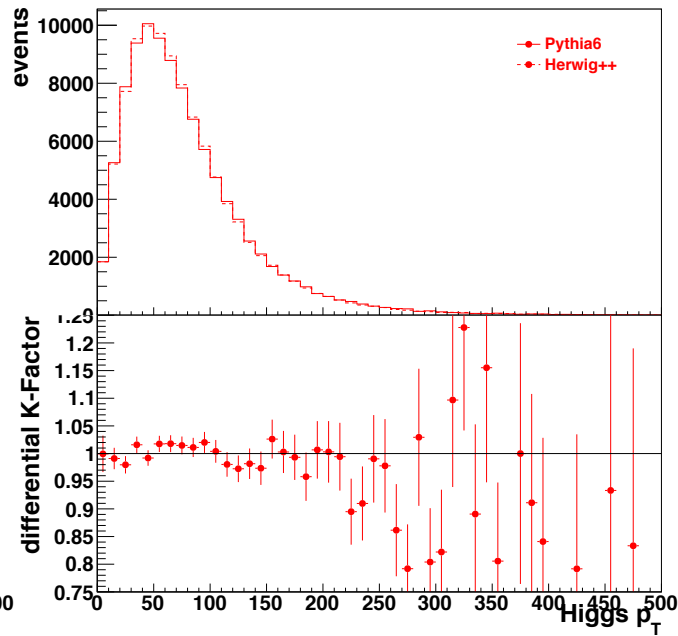


Higgs p_T

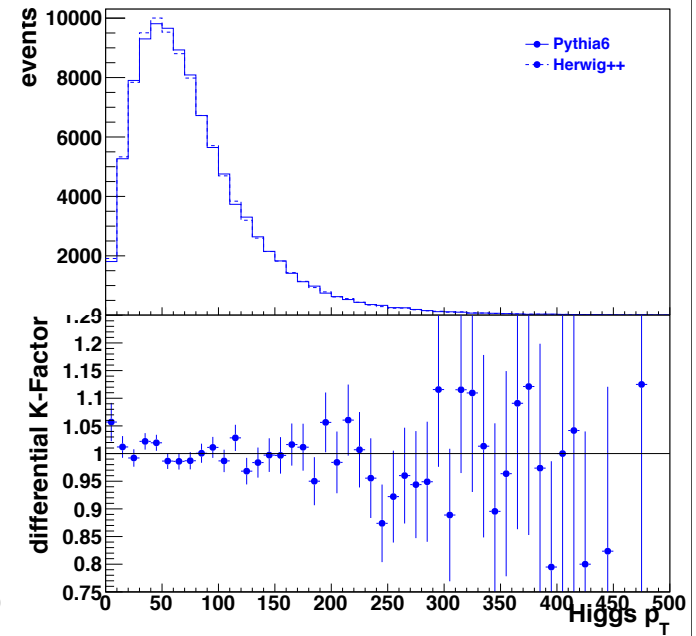
$W \rightarrow l\nu$



$Z \rightarrow l^+l^-$



$Z \rightarrow \nu\nu$





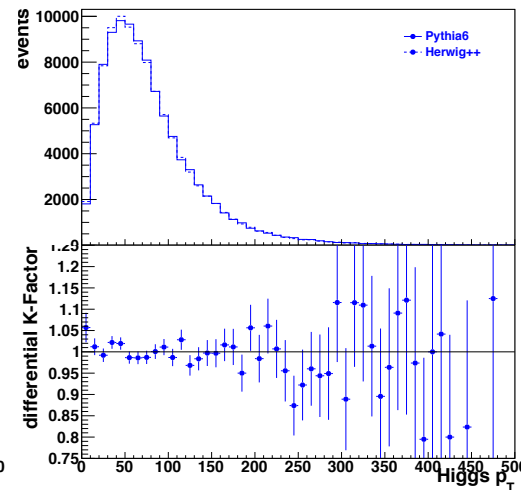
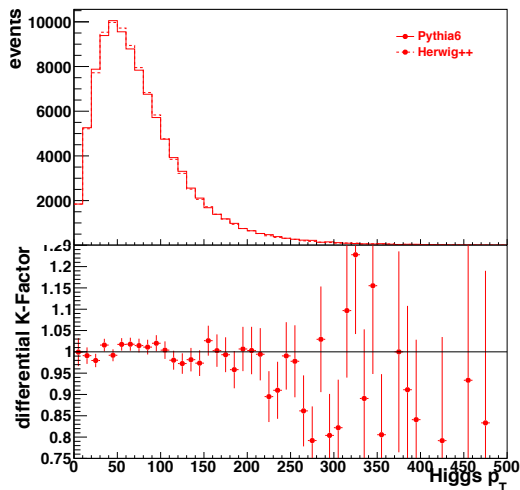
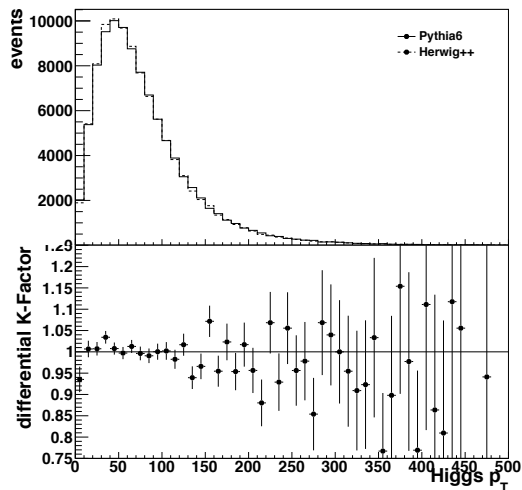
Higgs p_T

$W \rightarrow l\nu$

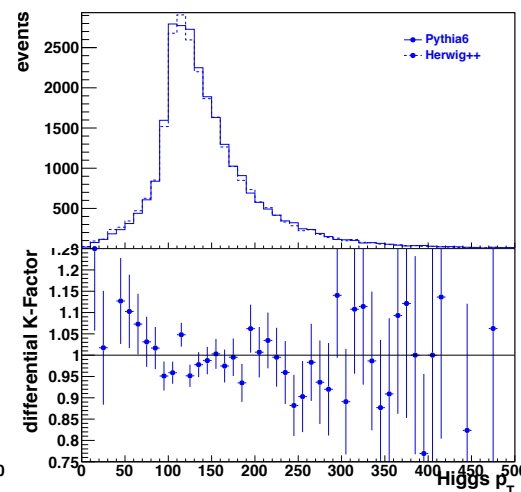
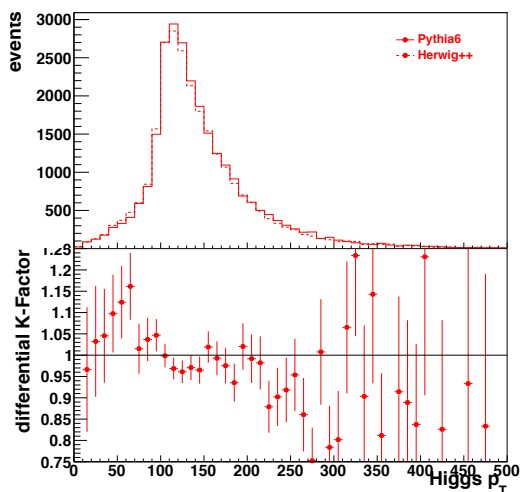
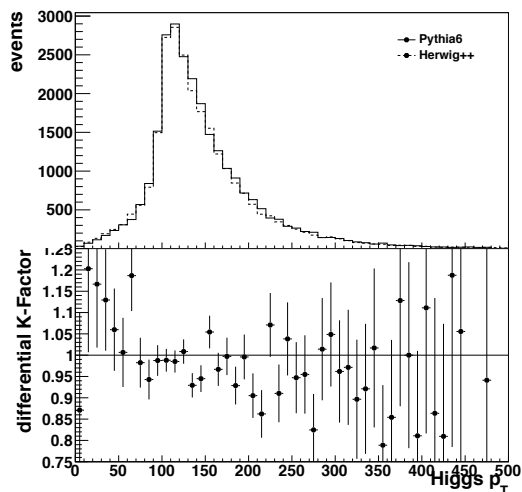
$Z \rightarrow l^+l^-$

$Z \rightarrow \nu\nu$

$V_{p_T} > 0$



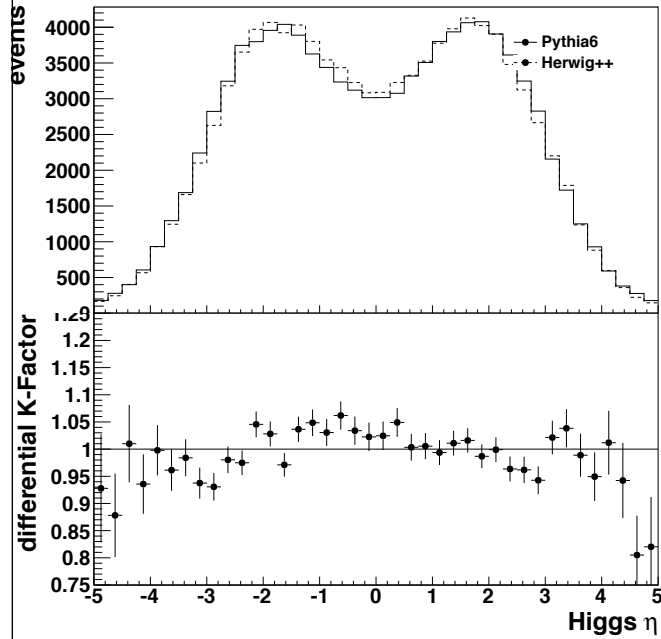
$V_{p_T} > 100 \text{ GeV}$



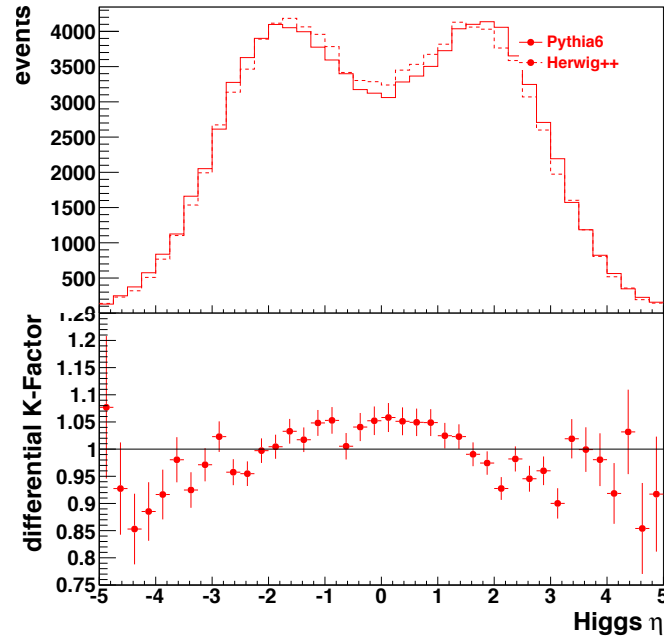


Higgs η

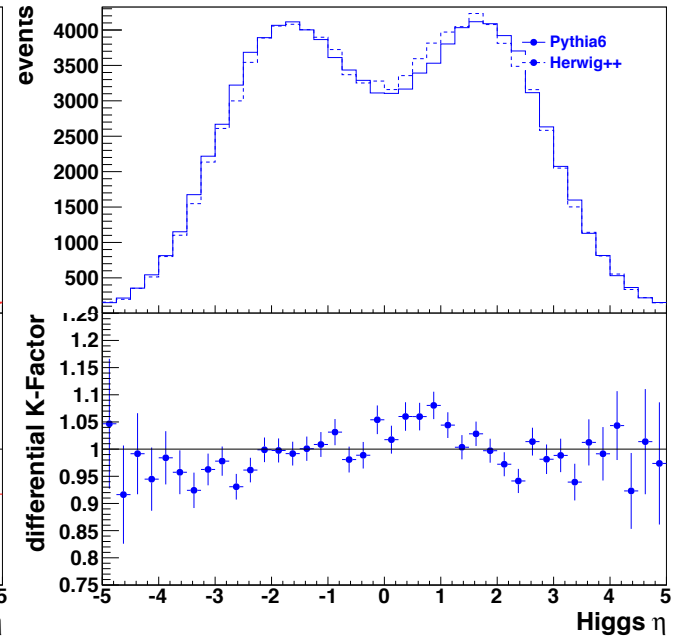
$W \rightarrow l\nu$



$Z \rightarrow l^+l^-$



$Z \rightarrow \nu\nu$



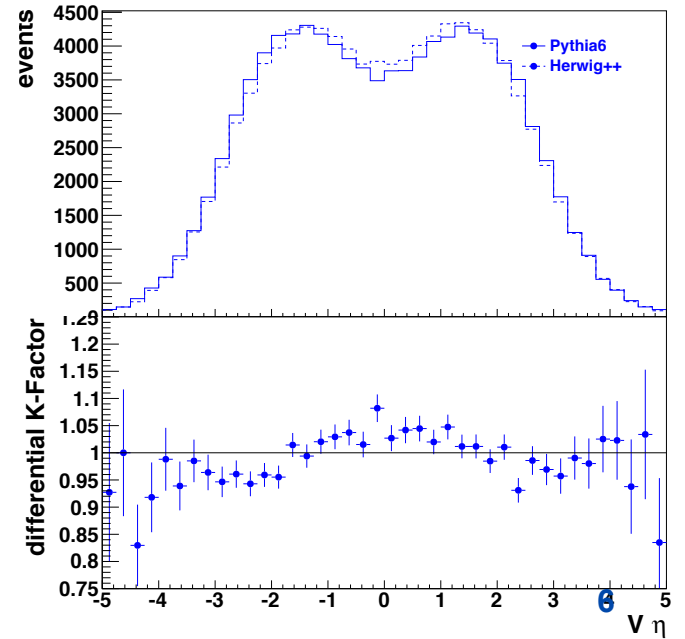
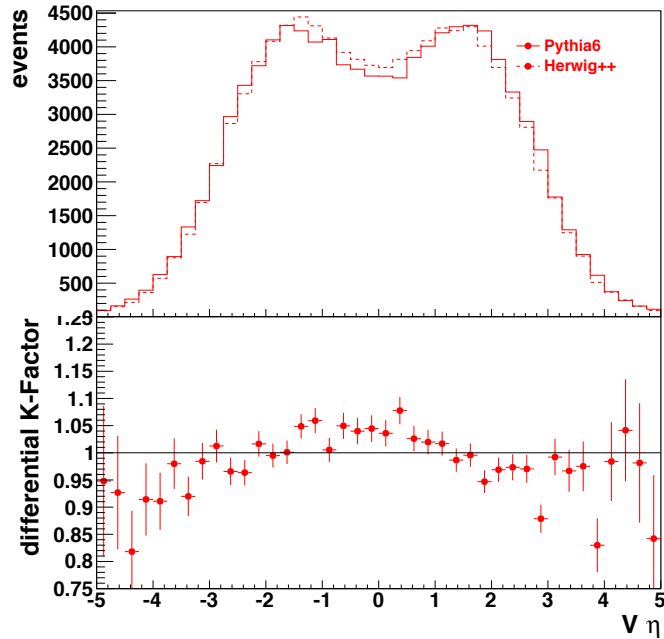
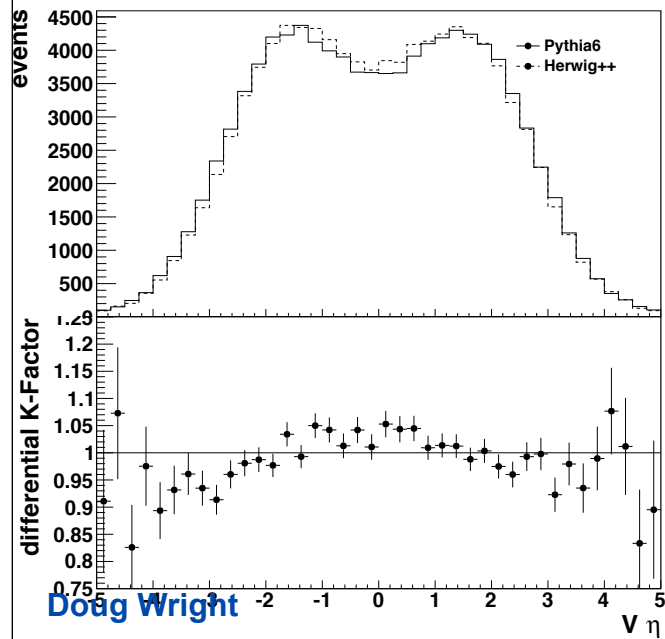
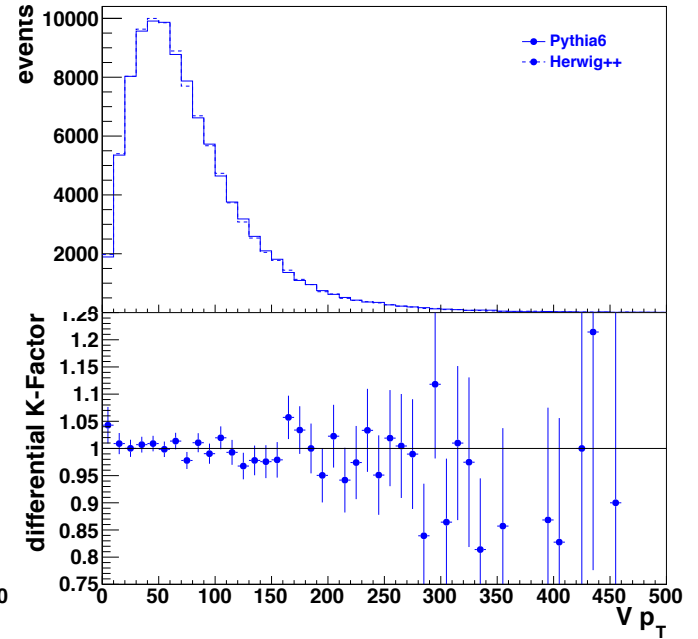
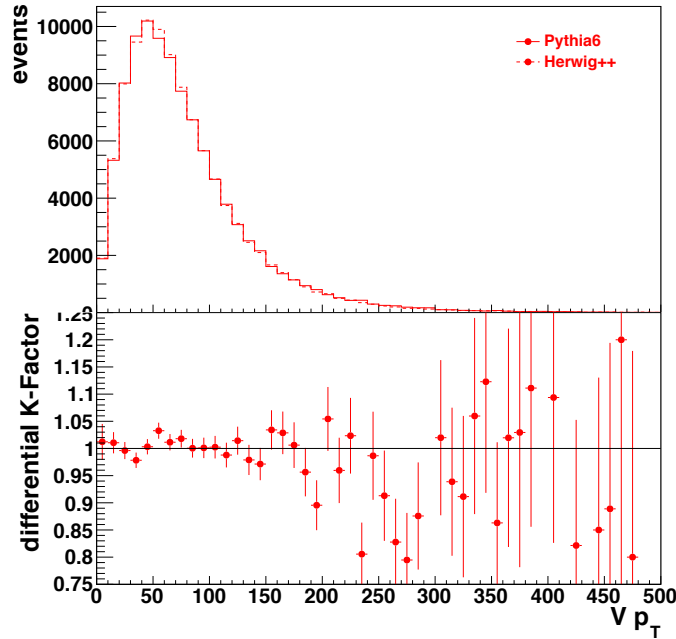
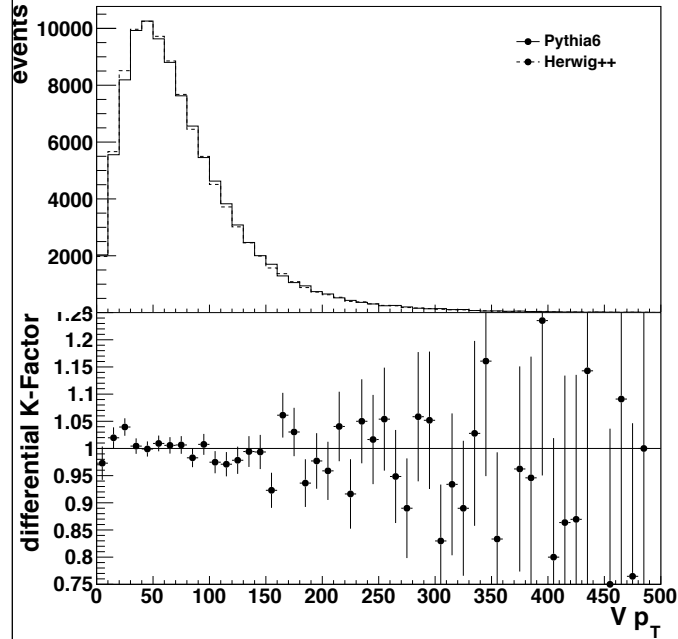


V p_T and η

W \rightarrow lv

Z \rightarrow l+l-

Z \rightarrow vv



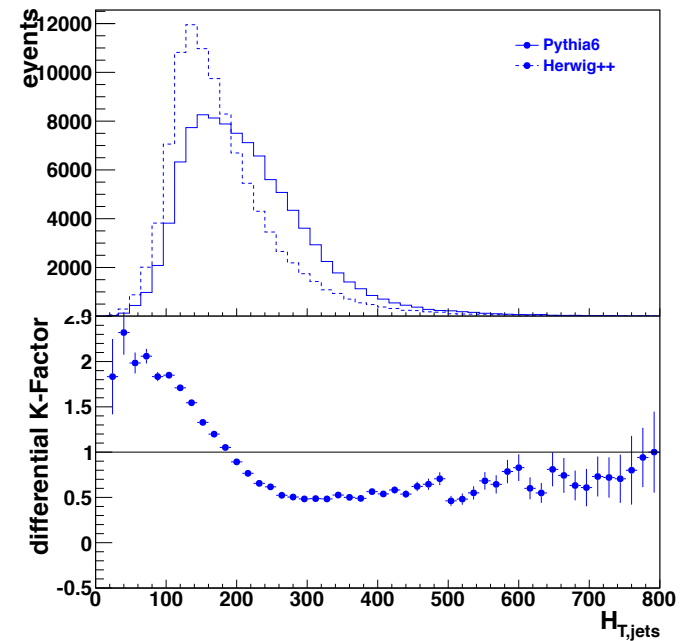
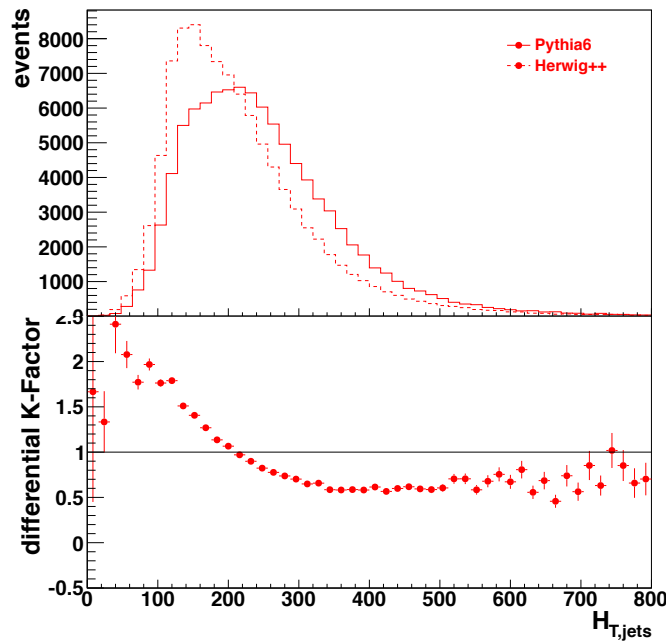
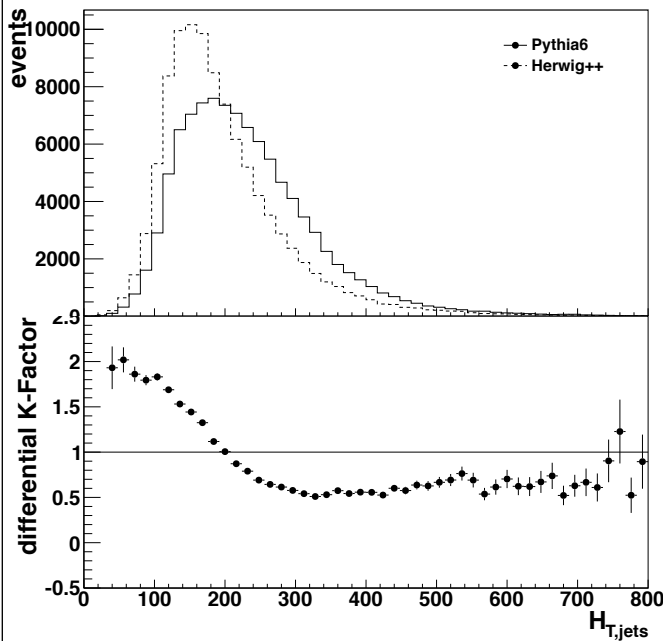


$$H_{T,jets} = \sum \text{jet } p_T$$

$W \rightarrow l\nu$

$Z \rightarrow l^+l^-$

$Z \rightarrow \nu\nu$



- Using Fastjet Anti-kT R=0.5 using generator particles
- If lepton from V was found inside a jet, it was removed, but not (yet) for e/μ from τ .