July 29, 2002
YKK

Studies of $Z \to b\bar{b}$

- Pythia $Z \to b\bar{b}$ generated with $\sigma(Z_{vertex}) = 0$ centered at 0.
  - 0 Min Bias : 1,000 events
  - 5 Min Bias : 1,000 events
  - 10 Min Bias : 757 events
- Jet Reconstruction and Selection
  - Cone size = 0.4
  - $|\eta_{jet}| < 2$
  - No lepton energies are corrected.
- Mass Reconstruction
  - E_T of extra multiple interactions is substracted from Jet E_T so that the mass peaks at the same value as no extra interactions.

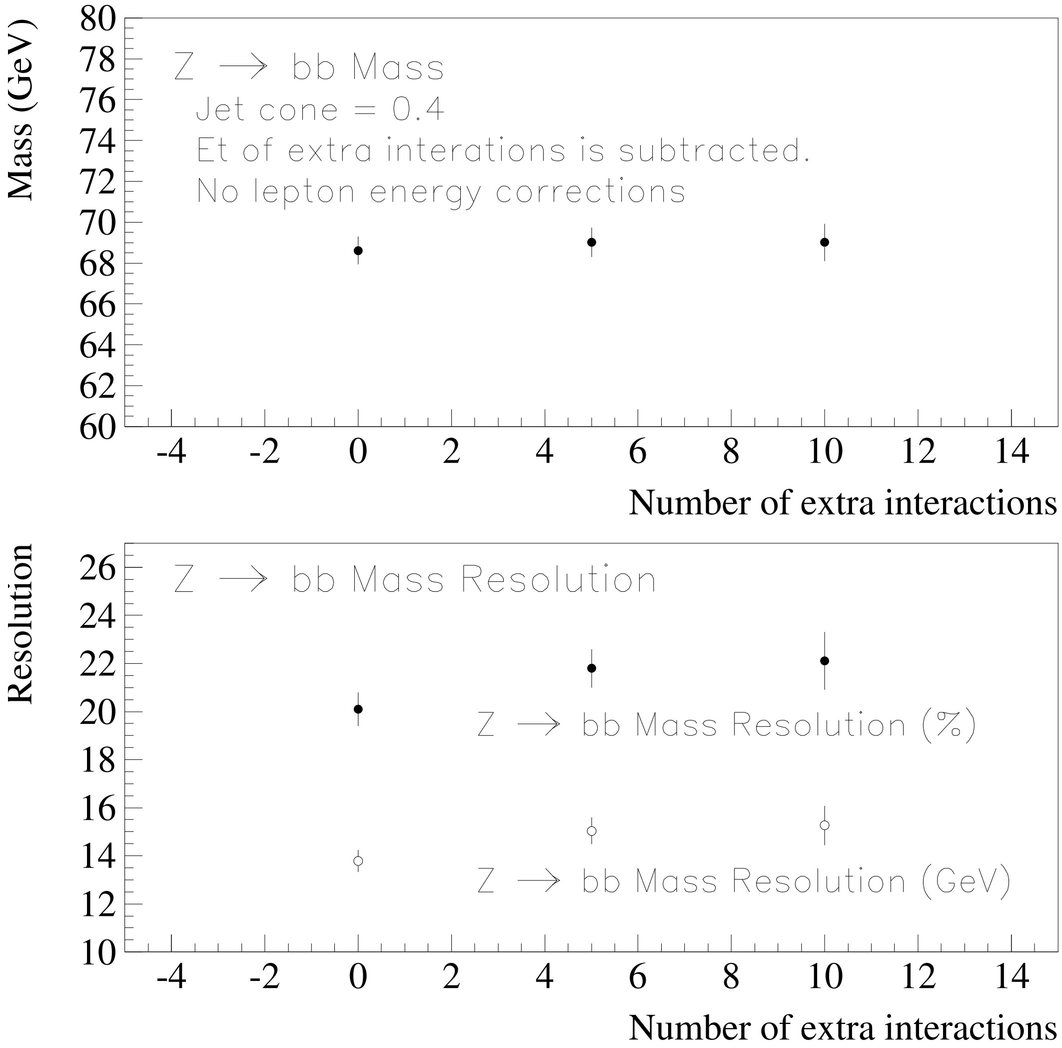
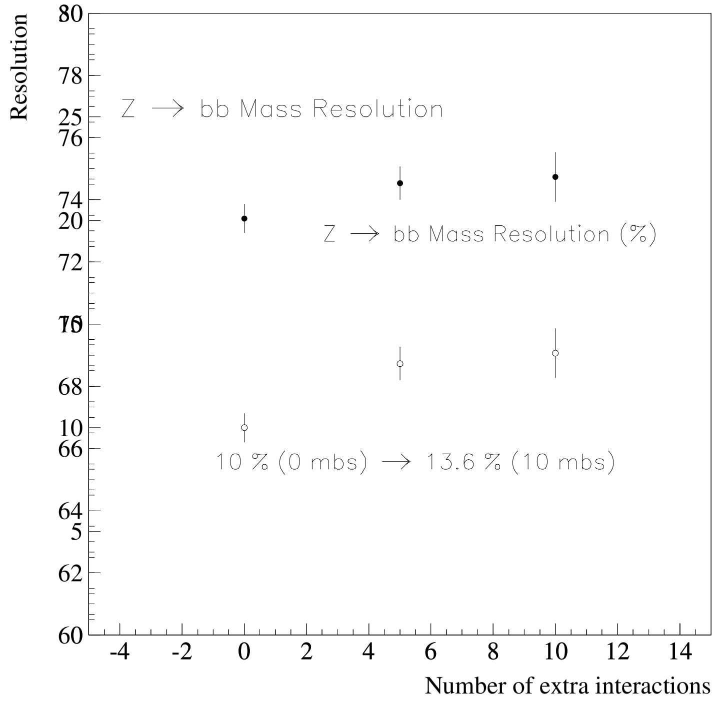


Figure 1: Mass resolution as a function of # of extra interactions



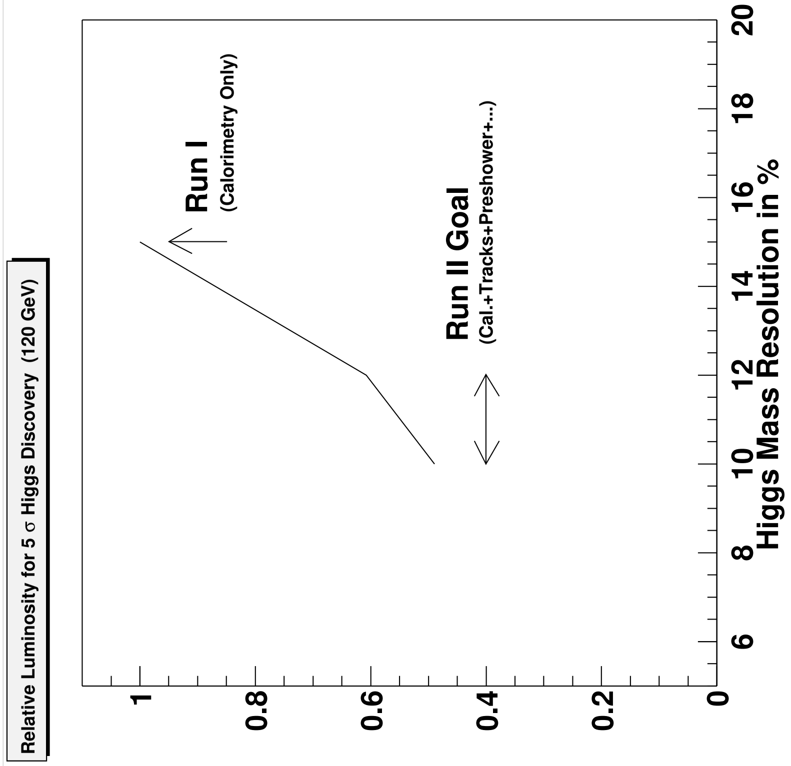


Figure 2: Mass resolution (top) and relative luminosity required to discover the Higgs boson (bottom) as a function of # of extra interactions

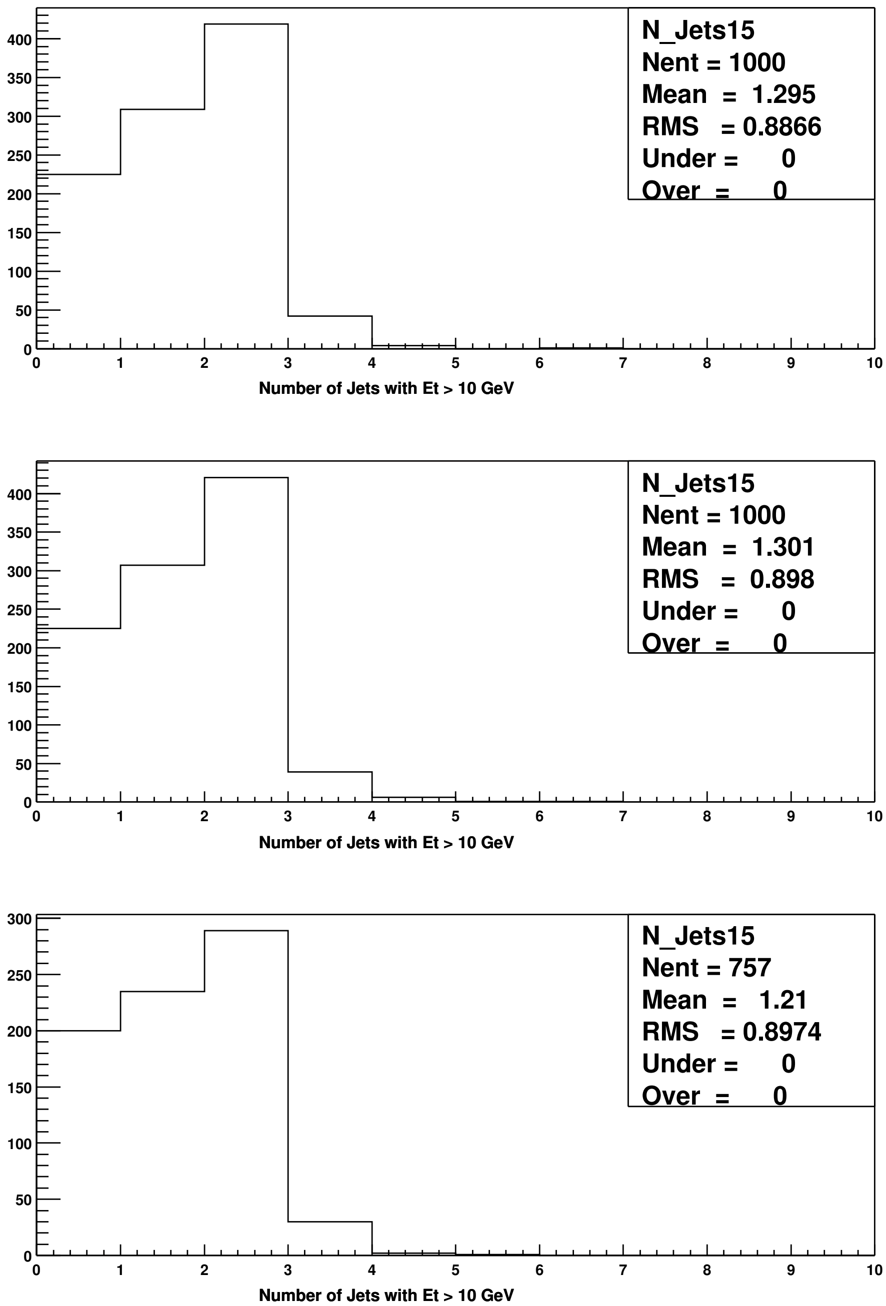


Figure 3: # of jets above 15 GeV with 0 MBS (top), 5 MBS (middle), and 10 MBS (bottom). E_T of extra interactions is subtracted.

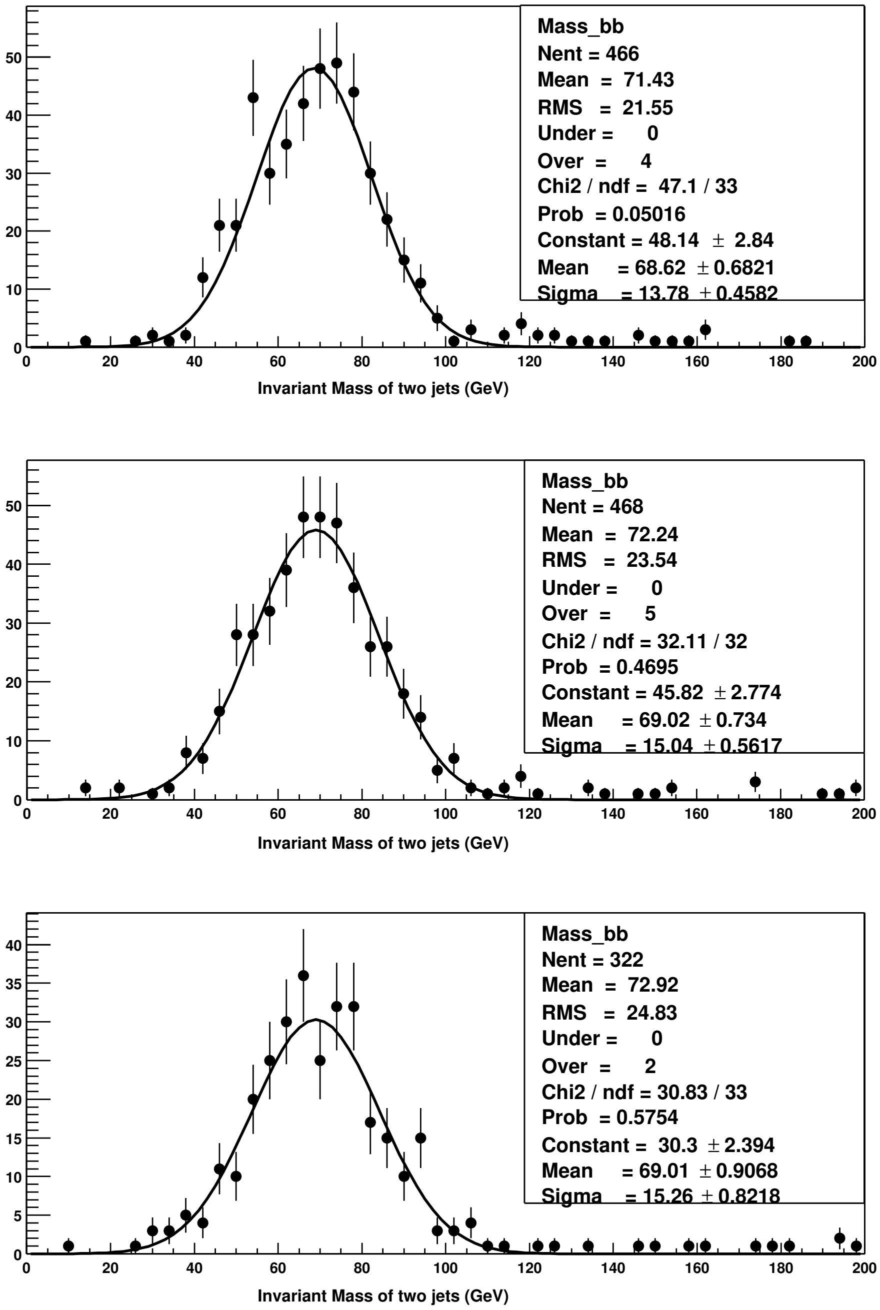


Figure 4: Invariant mass of two highest E_T jets (GeV) above 15 GeV with 0 MBS (top), 5 MBS (middle), and 10 MBS (bottom). E_T of extra interactions is subtracted.