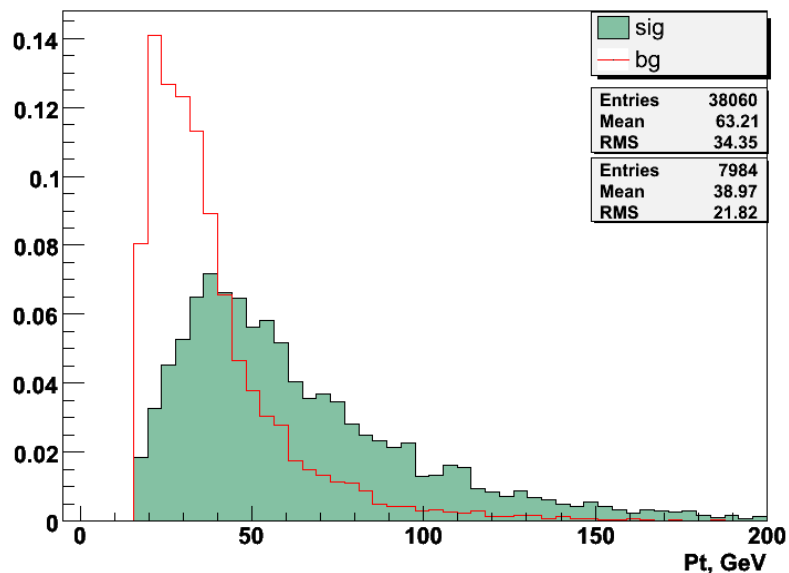


1. PtB cut

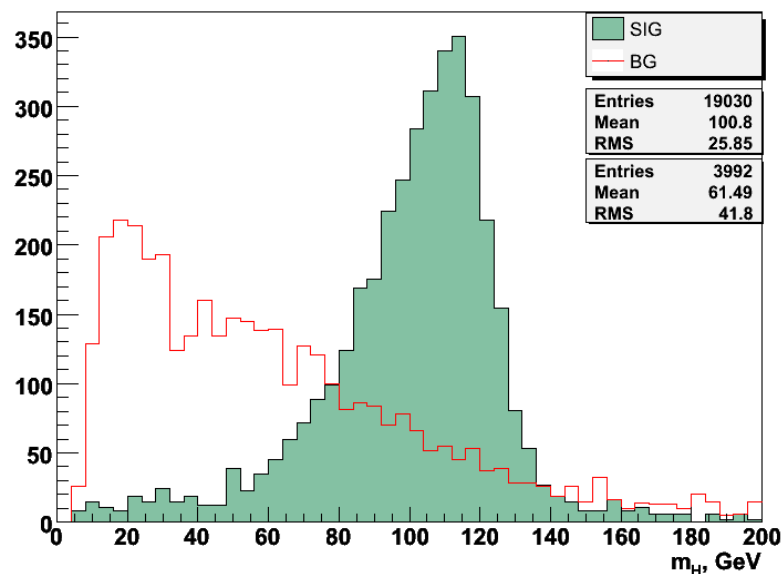
No Cuts: sign=1.35; 360k of signal (19%). BG statistics: 0.03% pass = 3992

After this: sign=1.97; 170k of signal (9%). BG statistics: 0.003% pass = 425

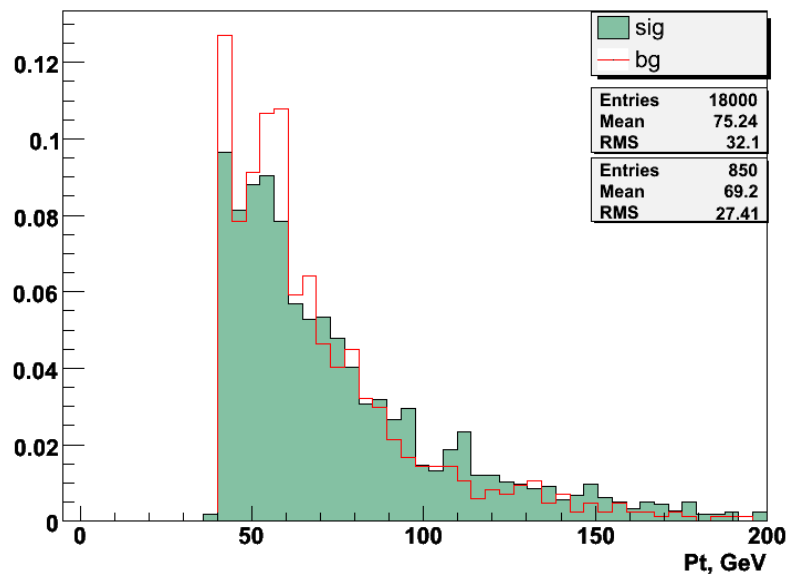
1. Pt of b-jets, sig and bg



1. Higgs mass reconstructed for real and for BG events, norm to unity

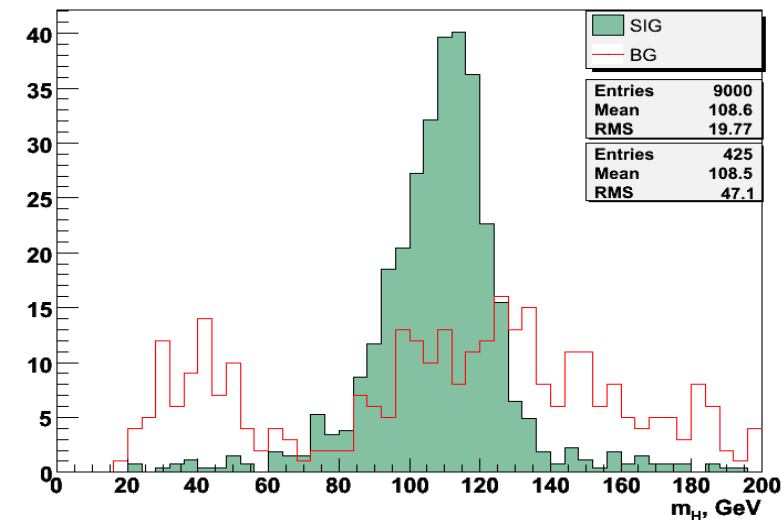


1. Pt of b-jets, sig and bg



Apply cut: $PtB > 50$ GeV and 40 GeV

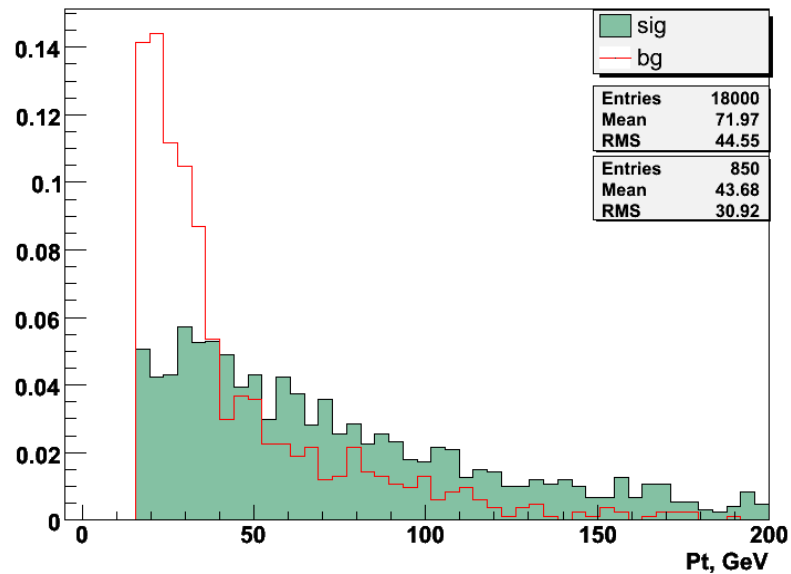
1. Higgs mass reconstructed for real and for BG events, norm to unity



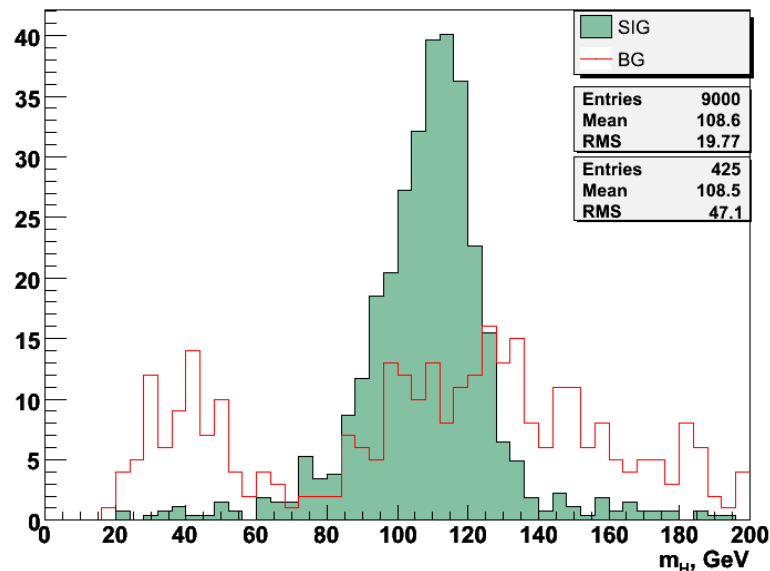
2. PtQ cut

Sign=2.79; 88k of signal (4.6%). BG statistics: 0.0004% pass = 56

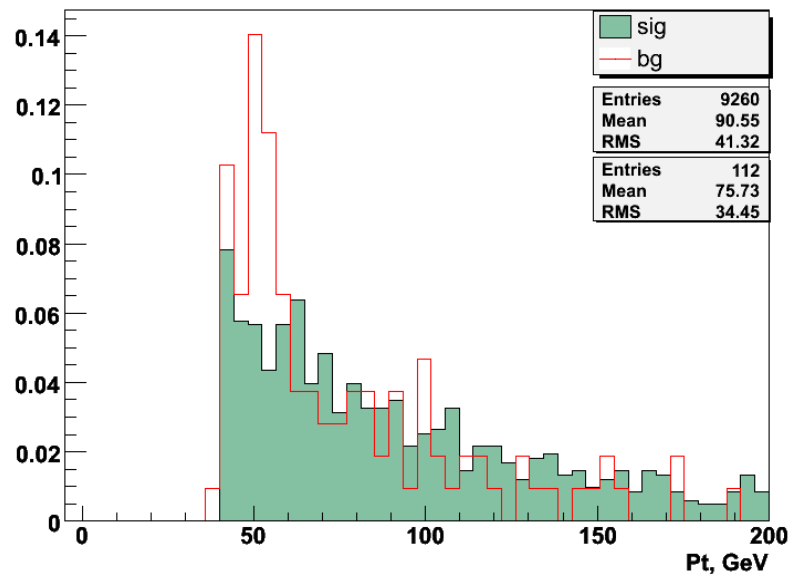
1. Pt of tagging jets, sig and bg



1. Higgs mass reconstructed for real and for BG events, norm to unity

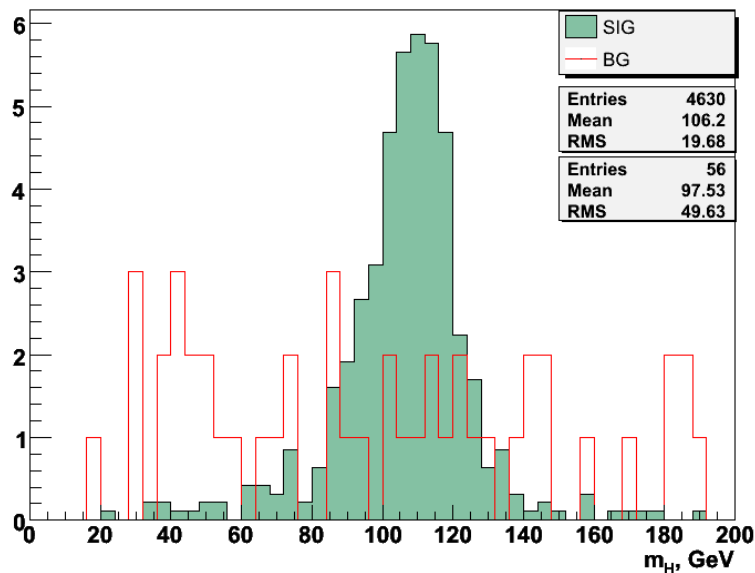


1. Pt of tagging jets, sig and bg



Apply cut: $Pt_B > 40$ GeV and 40 GeV

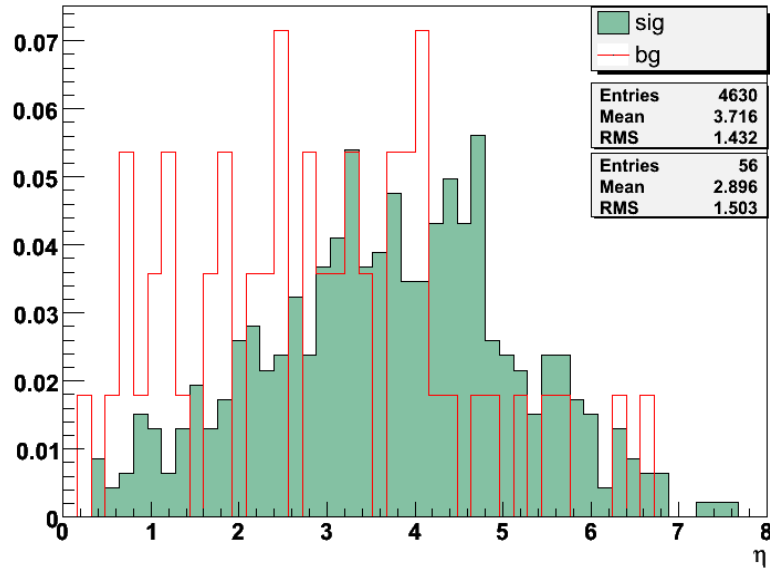
1. Higgs mass reconstructed for real and for BG events, norm to unity



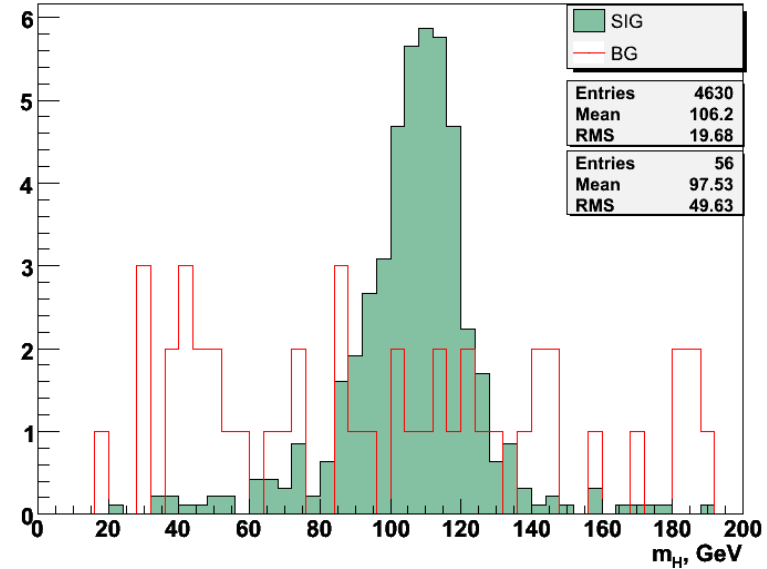
3. DeltaEta_min cut

Sign=2.96; 69k of signal (3.66%). BG statistics: 0.00024% pass = 31

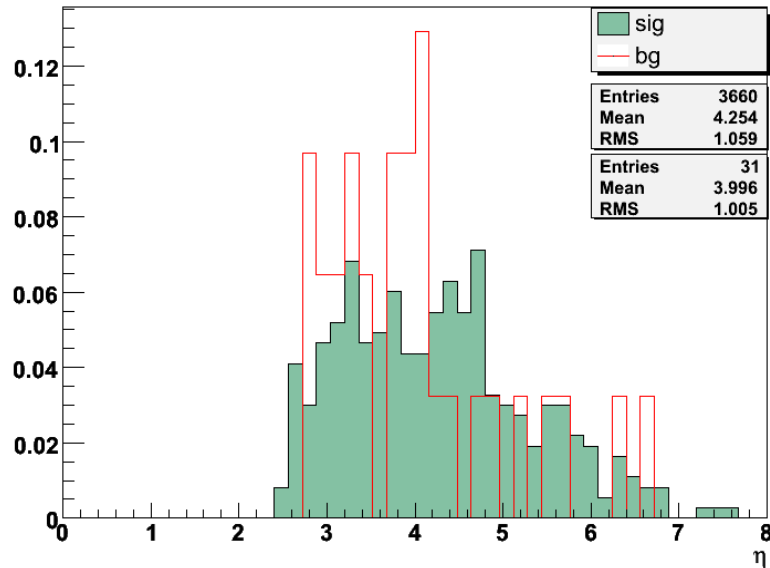
1. Delta-Eta between tagging jets, sig and bg



1. Higgs mass reconstructed for real and for BG events, norm to unity

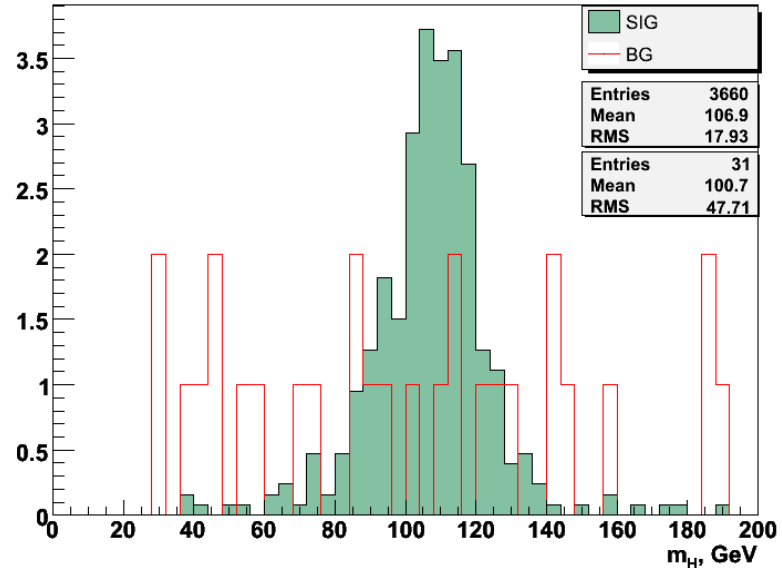


1. Delta-Eta between tagging jets, sig and bg



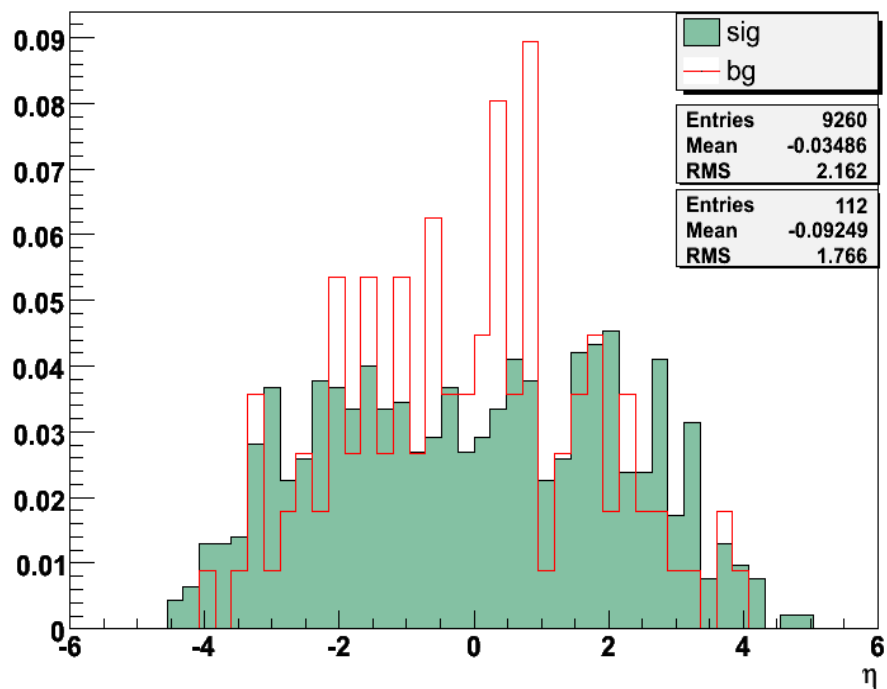
Apply cut: $\Delta\eta > 2.5$

1. Higgs mass reconstructed for real and for BG events, norm to unity

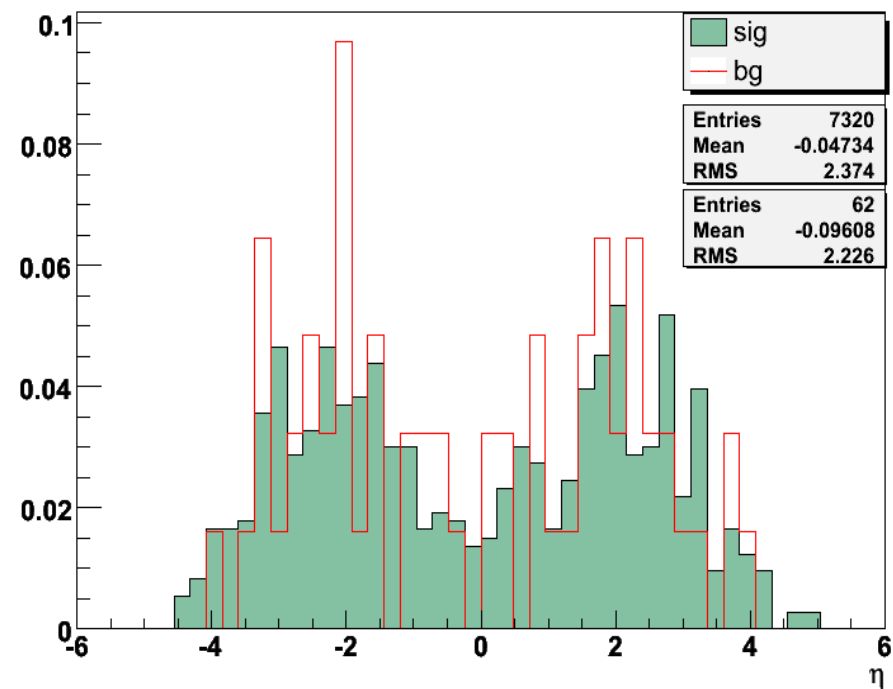


3.1 Effect of DeltaEta>2.5 cut

1. Eta of tagging jets, sig and bg



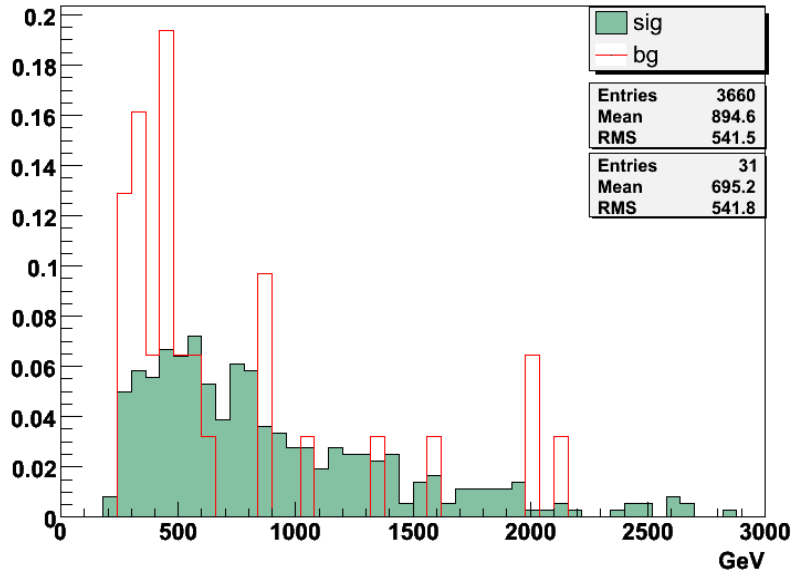
1. Eta of tagging jets, sig and bg



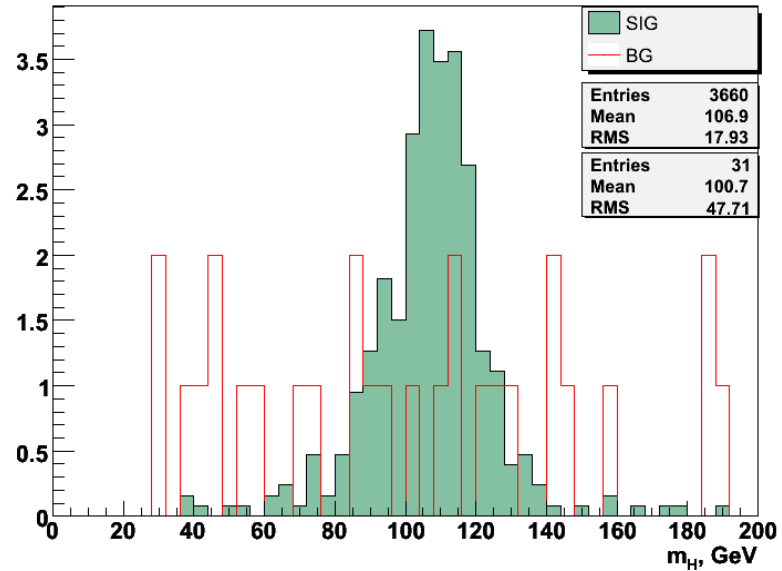
4. Mjj cut

Sign=3.52; 51k of signal (2.71%). BG statistics: 9E-5% pass = 12

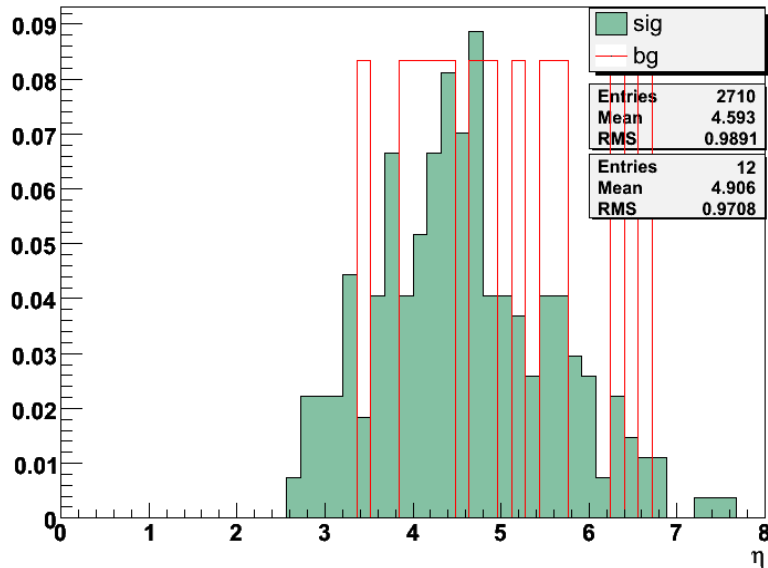
1. Mjj distribution, sig and bg



1. Higgs mass reconstructed for real and for BG events, norm to unity

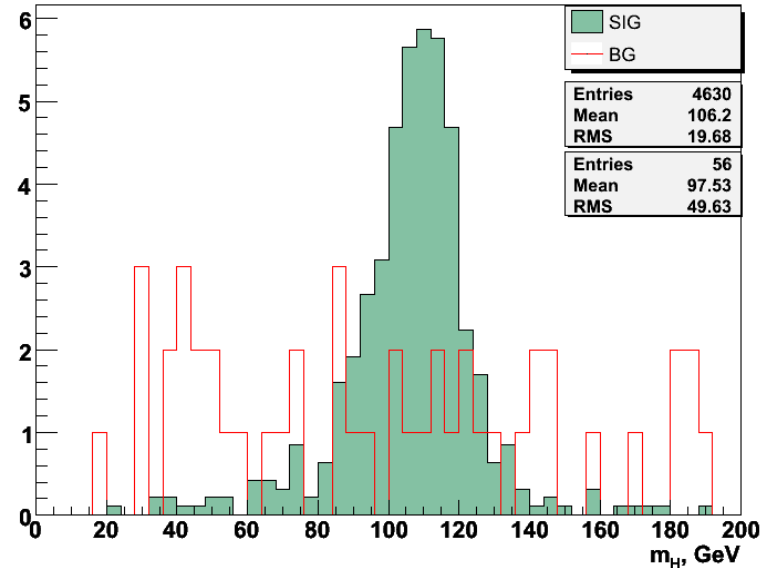


1. Delta-Eta between tagging jets, sig and bg



Apply cut: $M_{jj} > 500$ GeV

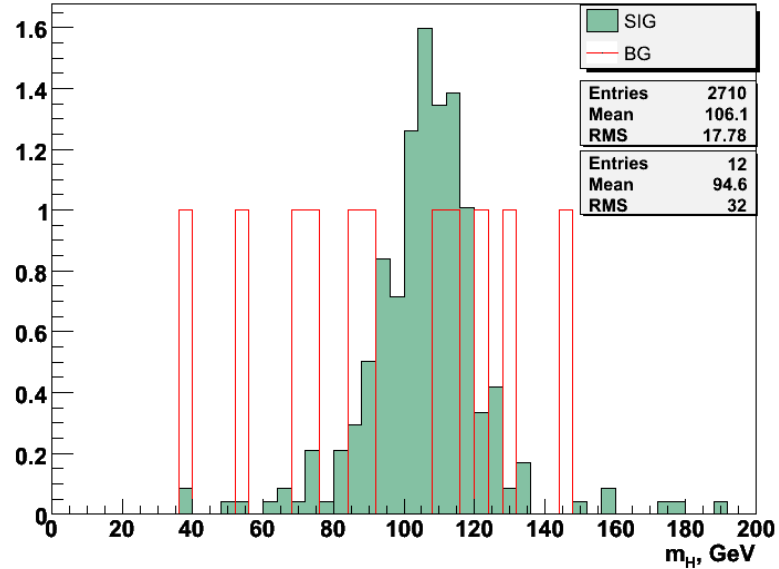
1. Higgs mass reconstructed for real and for BG events, norm to unity



5. Mbb cut

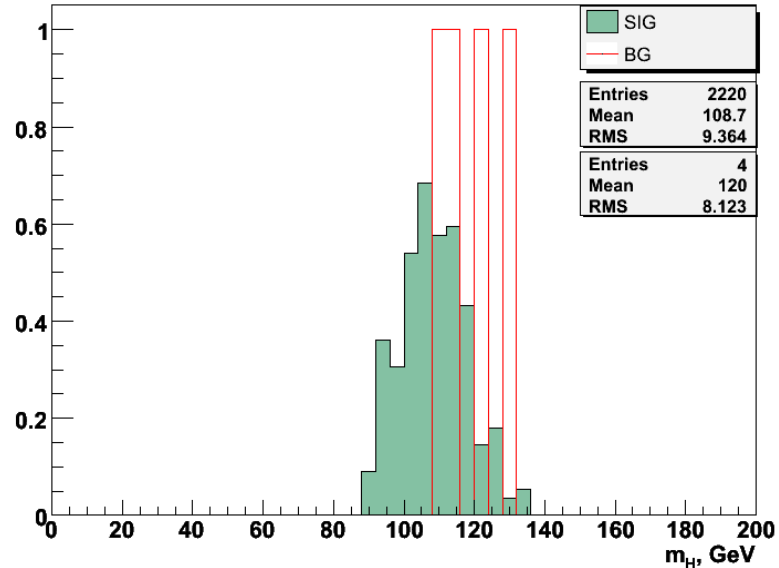
Sign=5.0; 42k of signal (2.22%). BG statistics: 3.2E-5% pass = 4

1. Higgs mass reconstructed for real and for BG events, norm to unity



Apply cut: $M_{bb}=115-25+20$

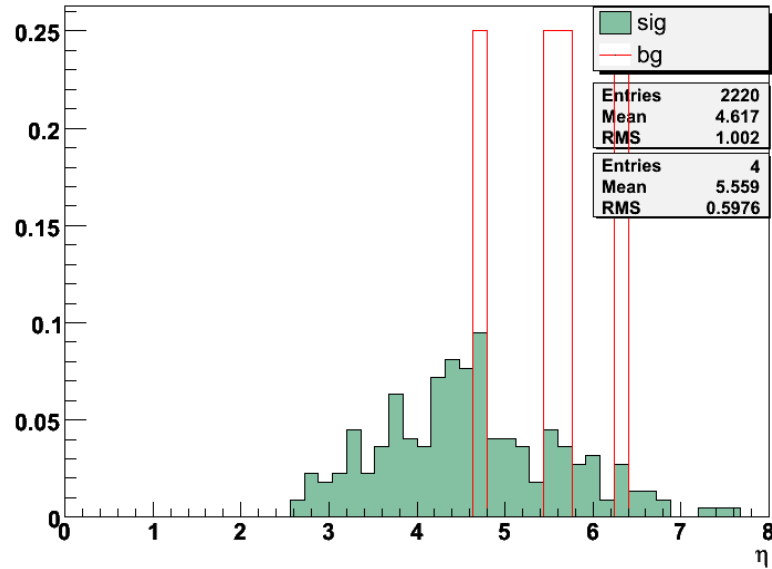
1. Higgs mass reconstructed for real and for BG events, norm to unity



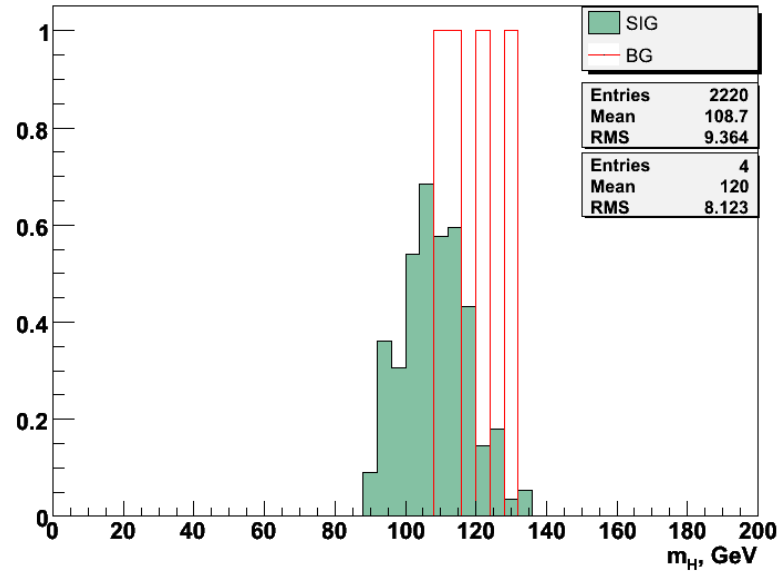
6. Removing DeltaEta cut; 20M BG

Sign=4.65; 43k of signal (2.27%). BG statistics: 3.8E-5% pass = 8

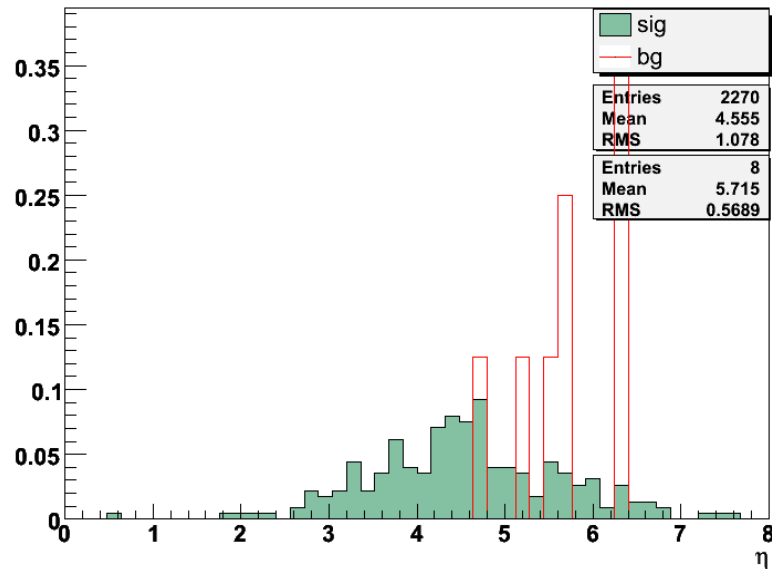
1. Delta-Eta between tagging jets, sig and bg



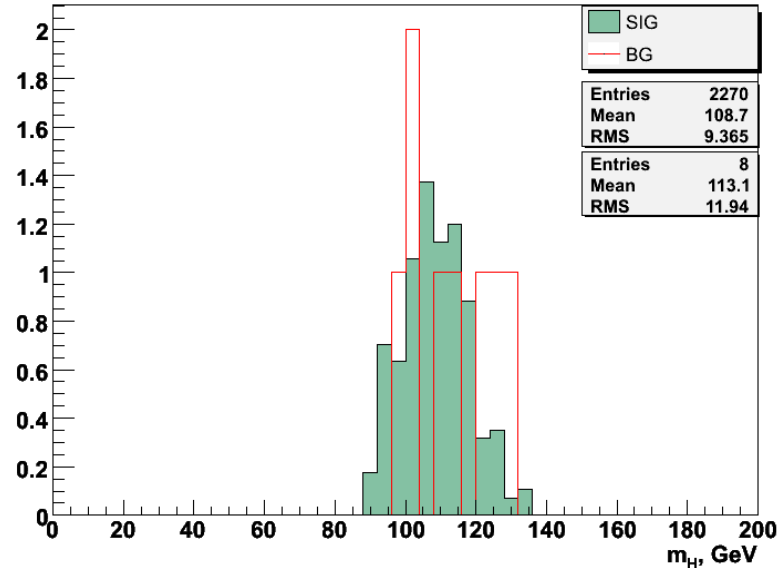
1. Higgs mass reconstructed for real and for BG events, norm to unity



1. Delta-Eta between tagging jets, sig and bg



1. Higgs mass reconstructed for real and for BG events, norm to unity



7. Apply 4j60 threshold

Signal: 0.37% pass (7k over 3 years).

BG: not enough statistics in 22M events
(6.08392e-06 out of 8 events!!!)

=> Sign=880 - garbage!

Notes:

01 - no cuts at all

02 - PtB cut of 50/40. Sig=1.965 AAA

03 - PtB cut of 45/50. Sig=1.954

04 - +PtQ cut 40/40 2.78 AAA

05 - +PtQ cut 45/35 2.73

06 - +DelatEtaMin 2.5 2.95 (31 passed) AAA

07 - +DeltaEtaMin 2.0 2.92 (39 passed)

08 - +high-pt-inbetween 30 1.79 (25 passed)

09 - +high-pt-inbetween 45 2.29 (29 passed) - something is wrong!

remove this cut!

10 - +Mjj 500 3.52 (12 passed)

11 - +Mjj 600 3.29 (10 passed)

13 - Mbb 115-20+13 Mjj 500: 5.17 AAA (3 passed)

15 - Mbb 115-20+13 Mjj 500 PTQ 60/60 - no BG left (i.e. single q-jets pass, but never two q-jets in a given event)

17 - Same with more BG: 4.87 (2 passed)

12 - Mbb 115-25+20 Mjj 500: 4.99 (4 passed)

14 - Mbb 115-25+20 Mjj 600: 4.78 (3 passed) - kills too much signal:-)

16 - Mbb 115-25+20 Mjj 500 -DeltaEta (same as reported best) : 5.11 (4 passed)

- OK, consistent. Difference due to background!

18 - Same with more BG: 4.65 (8 passed)

20 - Same with Trig cut of 60