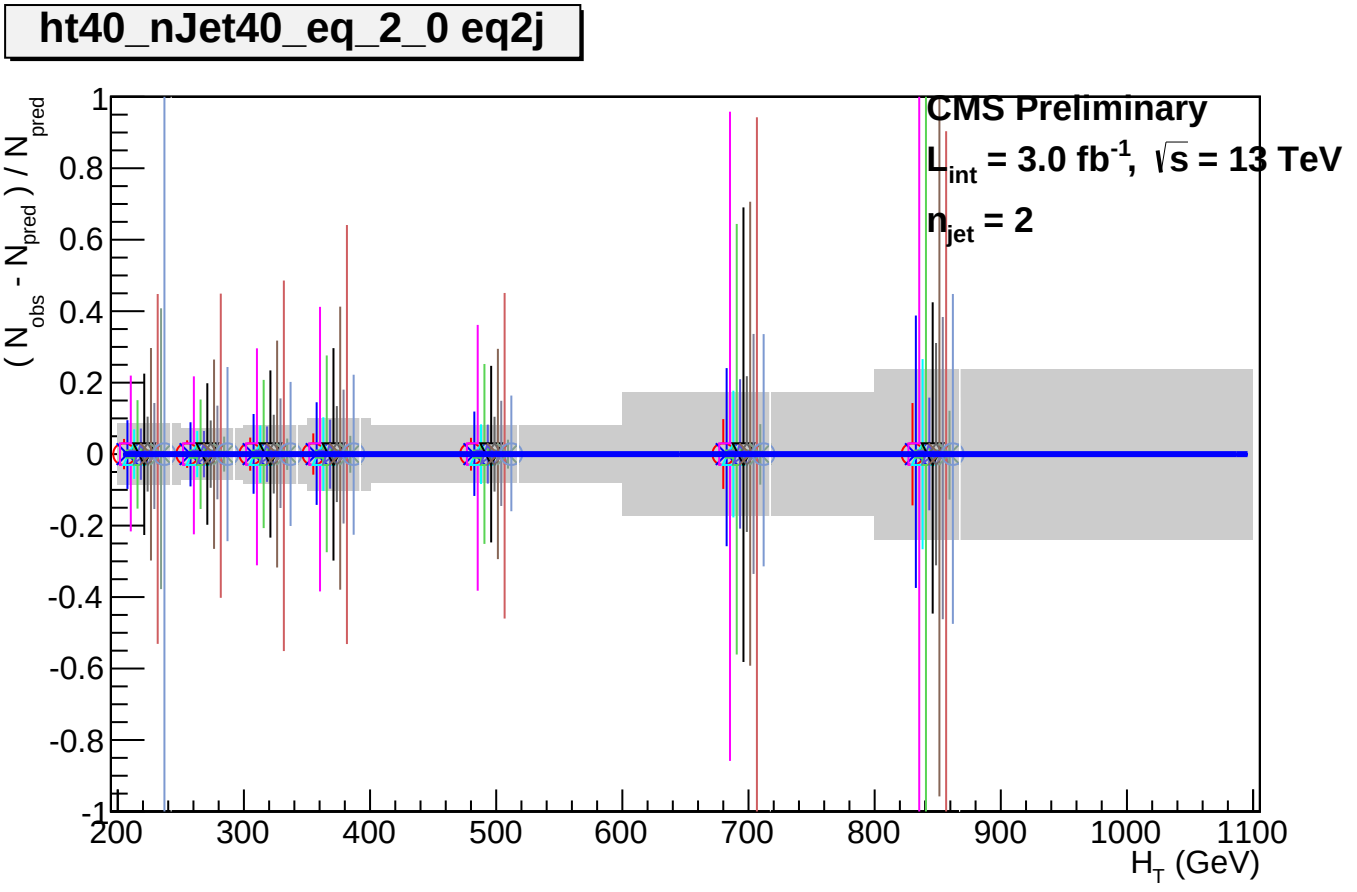
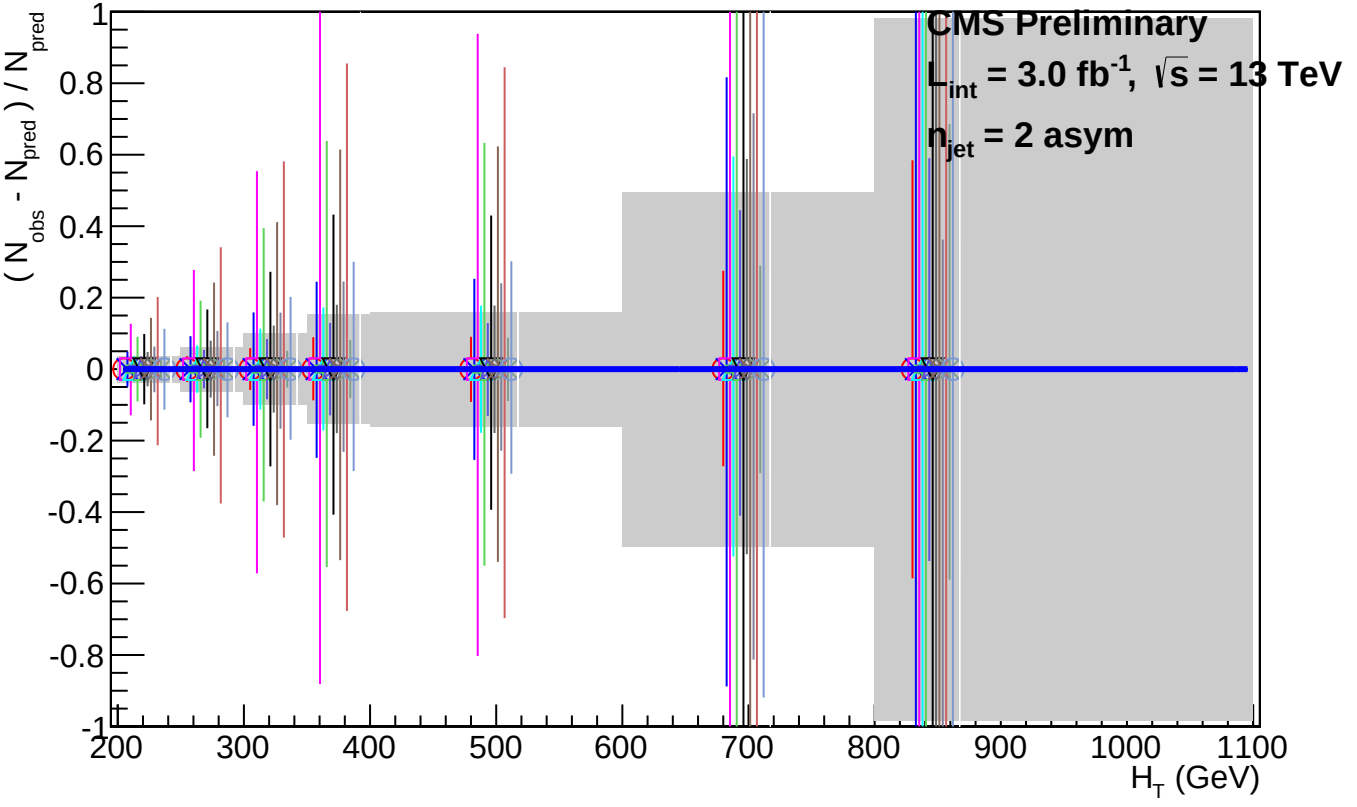
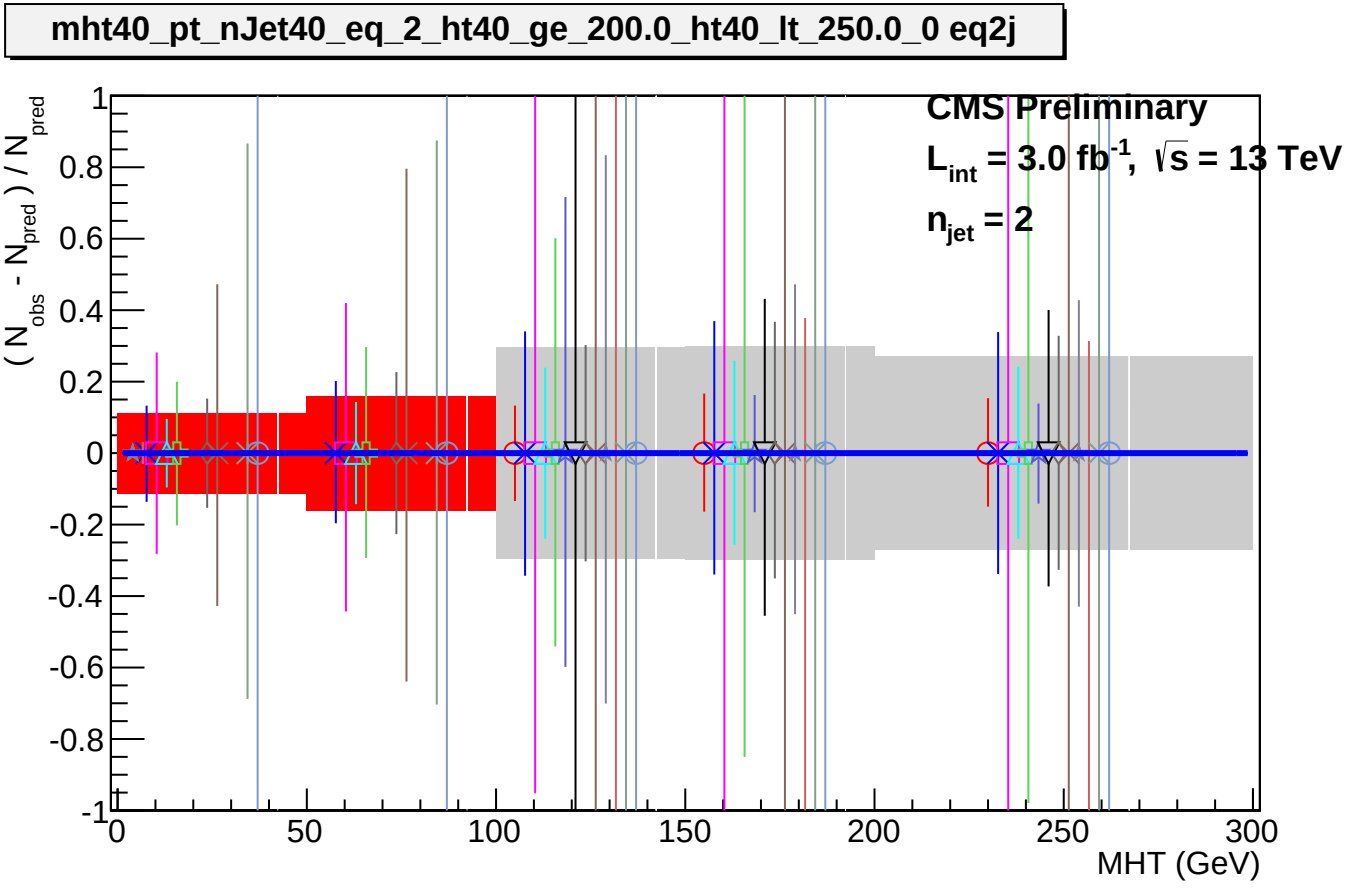

Systematic uncertainty
Missing closure point
μ + jets → e + jets (0 b-tags)
μ + jets → e + jets (1 b-tags)
μ + jets → e + jets (≥ 2 b-tags)
0 b-tags → 1 b-tag (μ + jets)
1 b-tags → ≥ 2 b-tag (μ + jets)
e + jets → γ + jets (0 b-tags)
e + jets → γ + jets (1 b-tags)
μ + jets → μμ + jets (0 b-tags)
μ + jets → μμ + jets (1 b-tags)
ee + jets → γ + jets (0 b-tags)
ee + jets → γ + jets (1 b-tags)
N_jet = 2 → N_jet = 3 (e + jets)
N_jet = 2 → N_jet = 3 (ee + jets)


ht40_nJet40_eq_2_0 eq2j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 2
(N_obs - N_pred) / N_pred
H_T (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
200
300
400
500
600
700
800
900
1000
1100

ht40_nJet40_eq_2_Asym_0 eq2a

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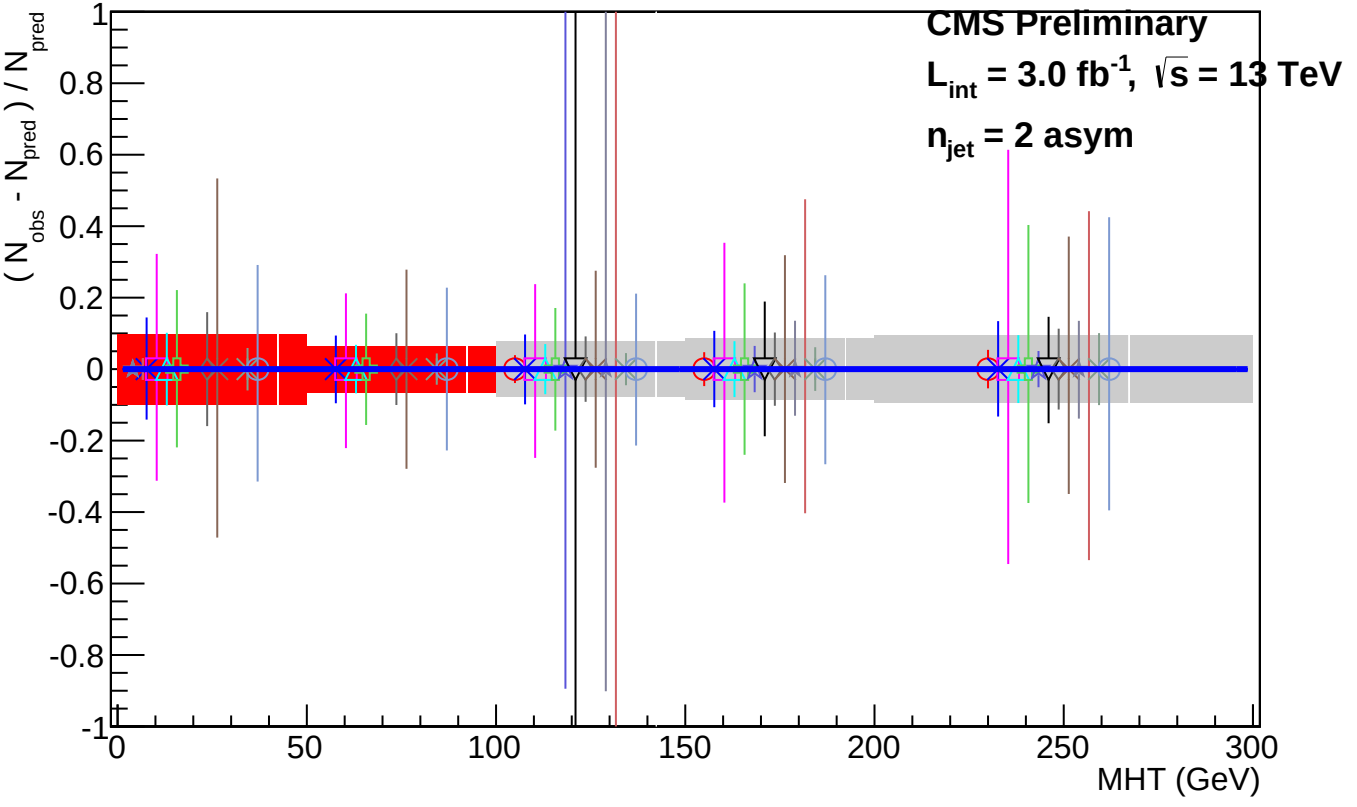
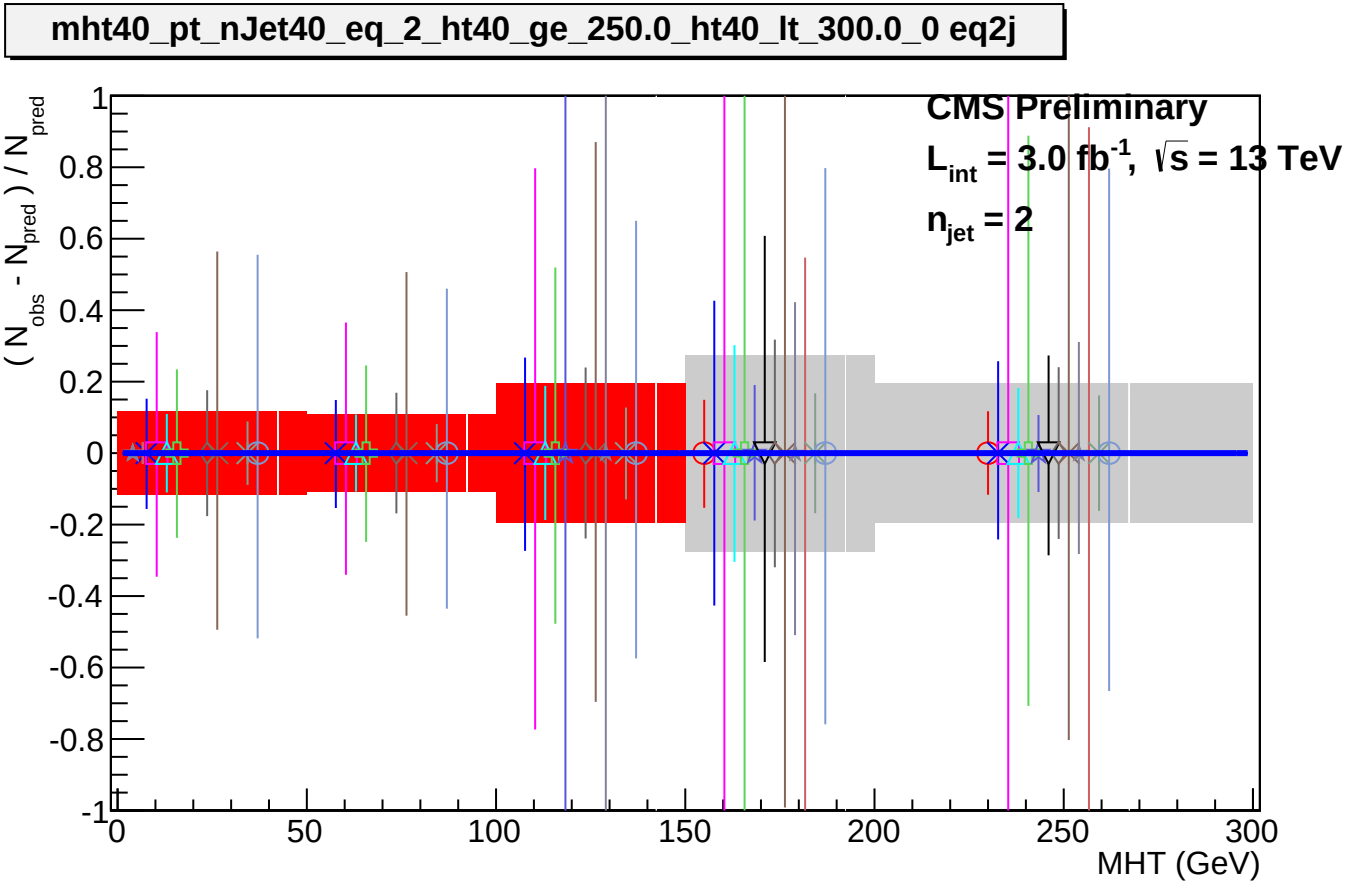
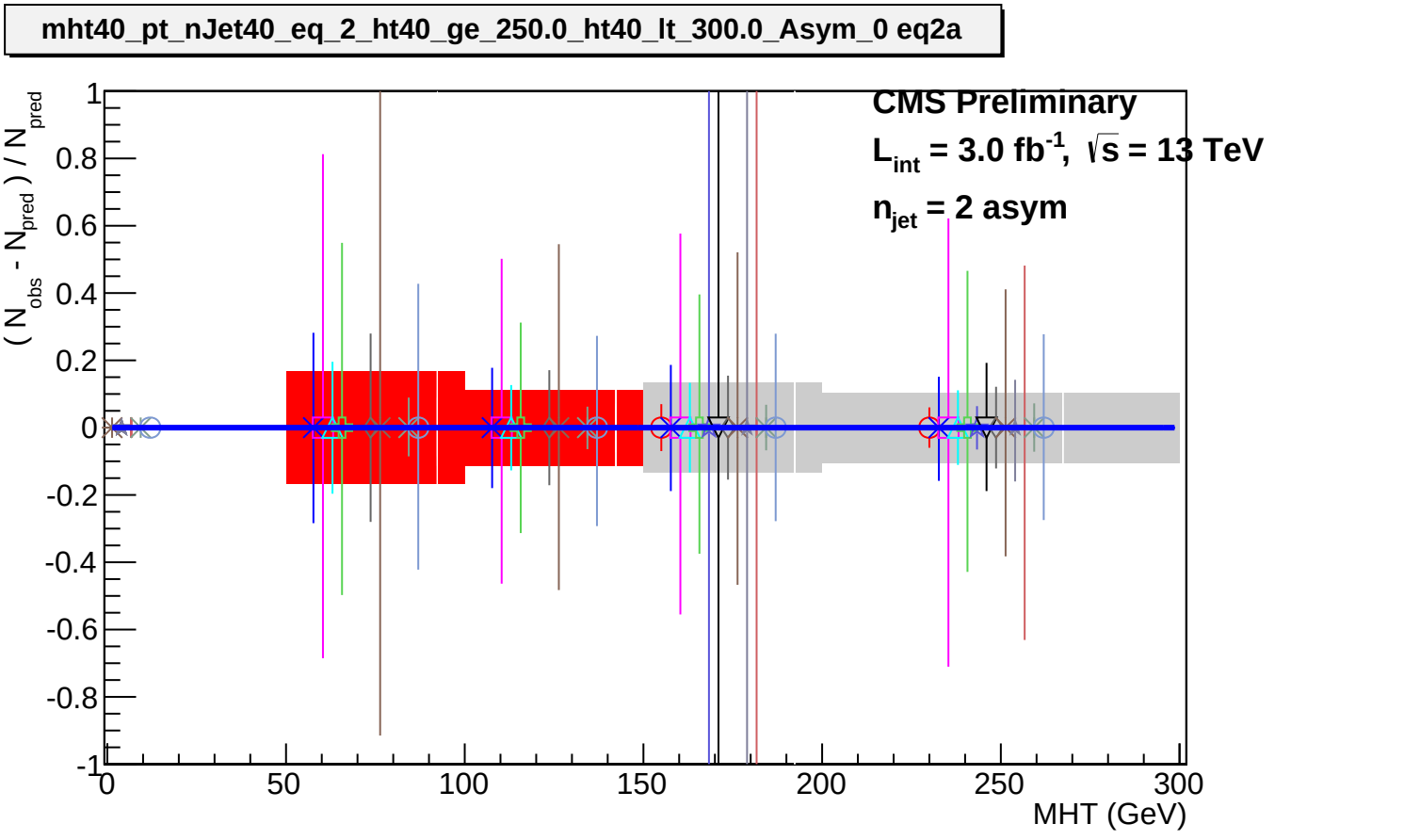
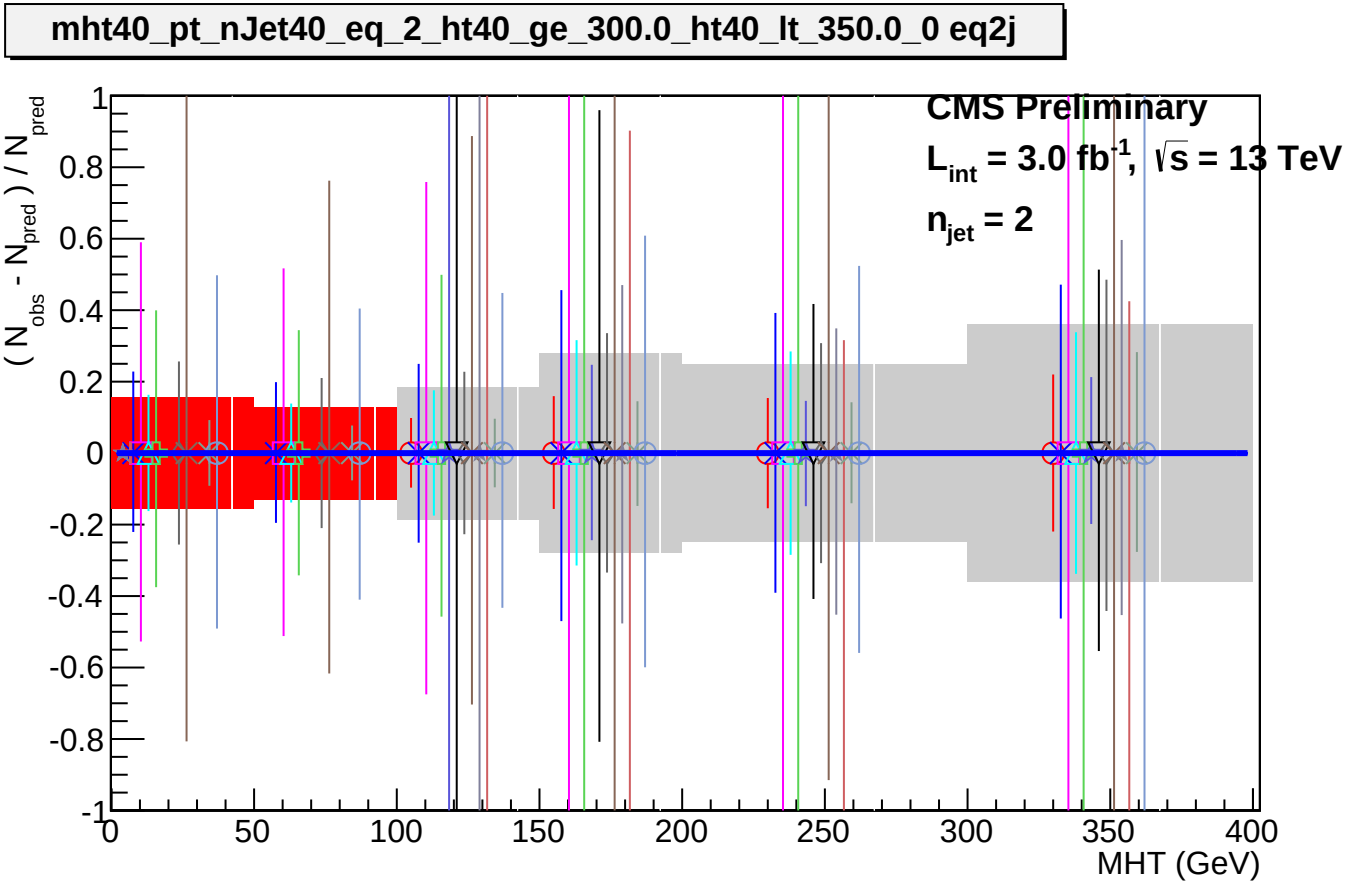
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 2
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300

mht40_pt_nJet40_eq_2_ht40_ge_200.0_ht40_lt_250.0_Asym_0 eq2a




mht40_pt_nJet40_eq_2_ht40_ge_250.0_ht40_lt_300.0_0 eq2j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 2
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300


mht40_pt_nJet40_eq_2_ht40_ge_250.0_ht40_lt_300.0_Asym_0 eq2a
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 2 asym
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300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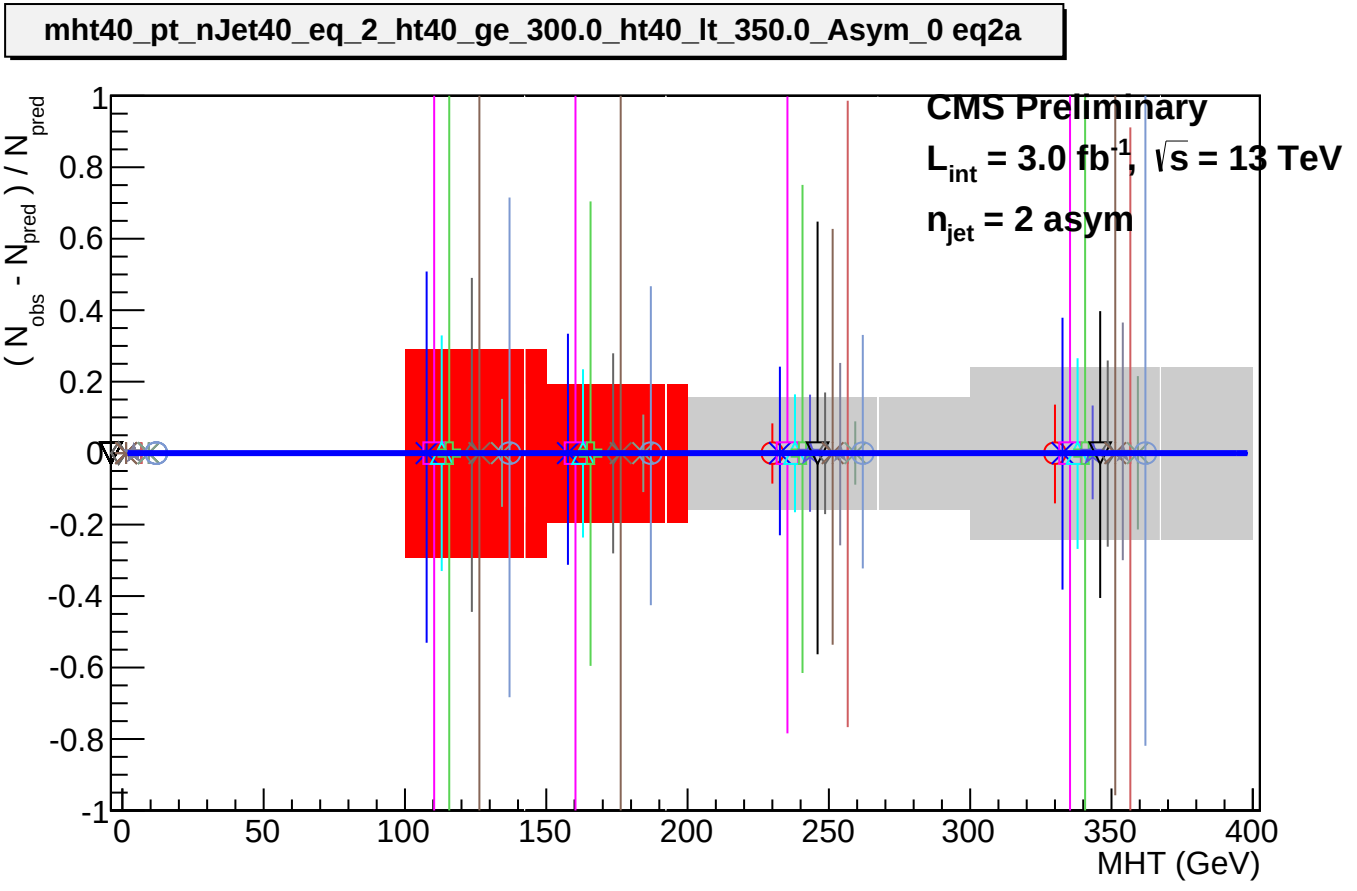
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 2
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400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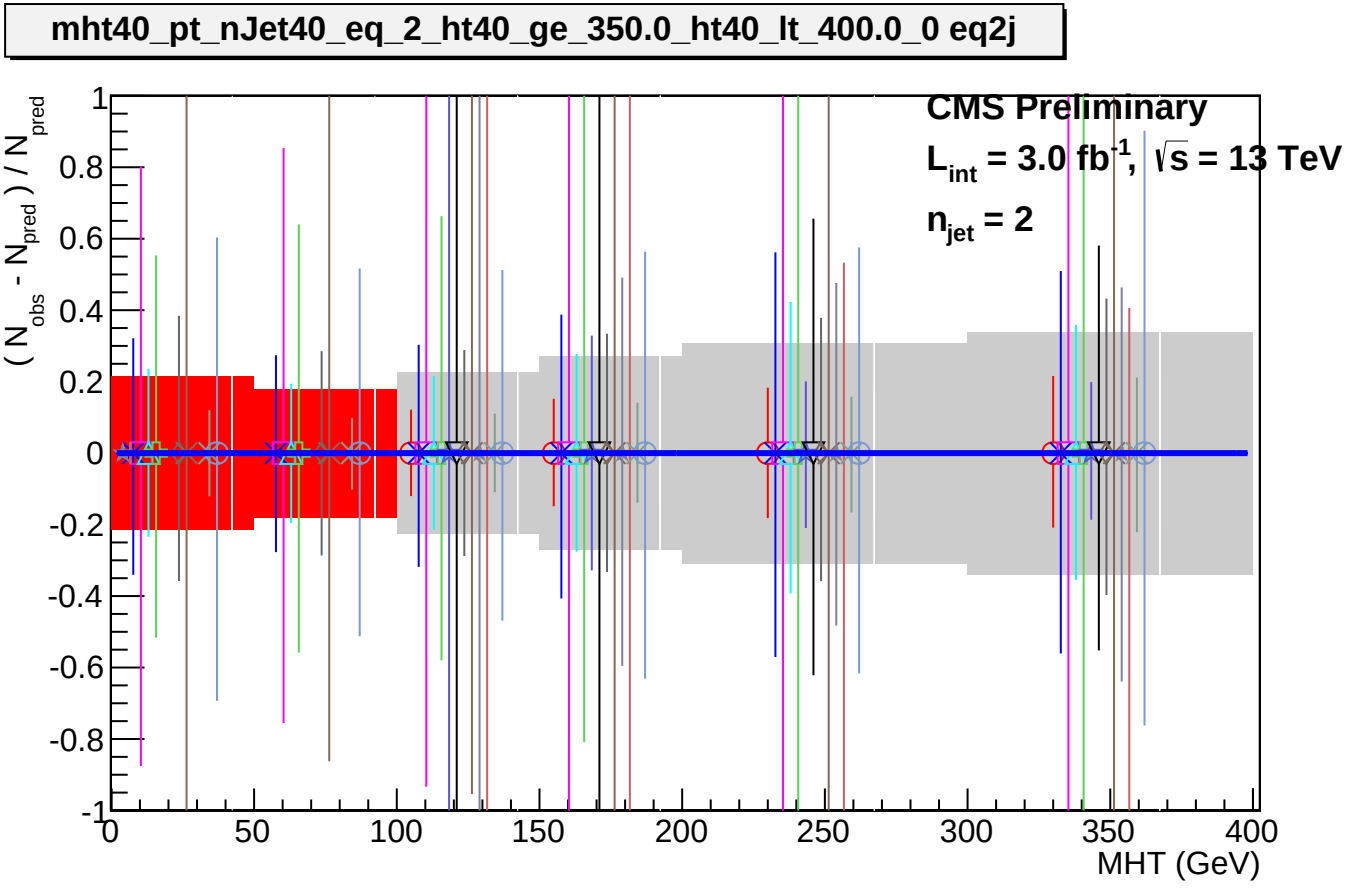
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 2 asym
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400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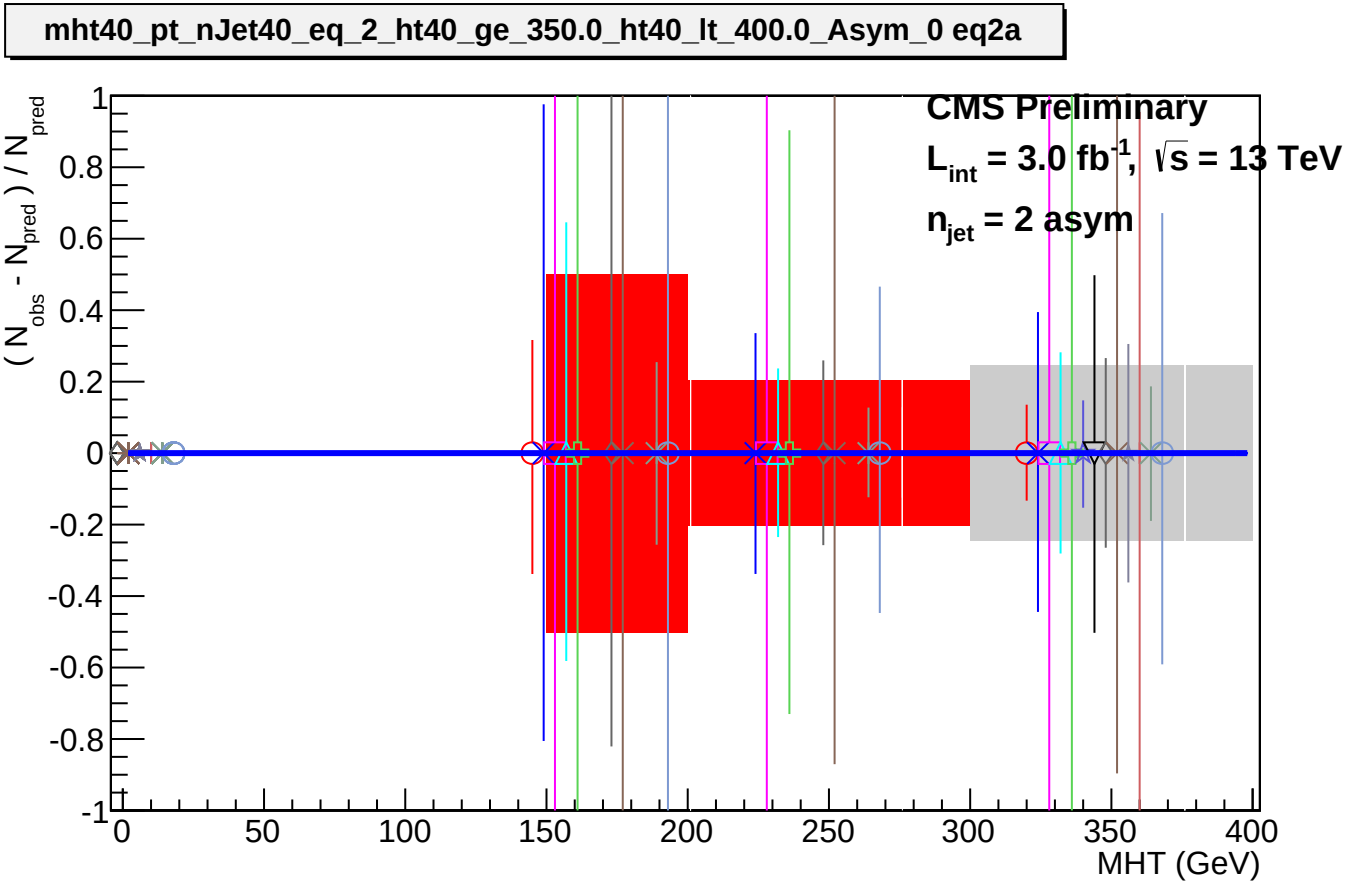
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 2
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400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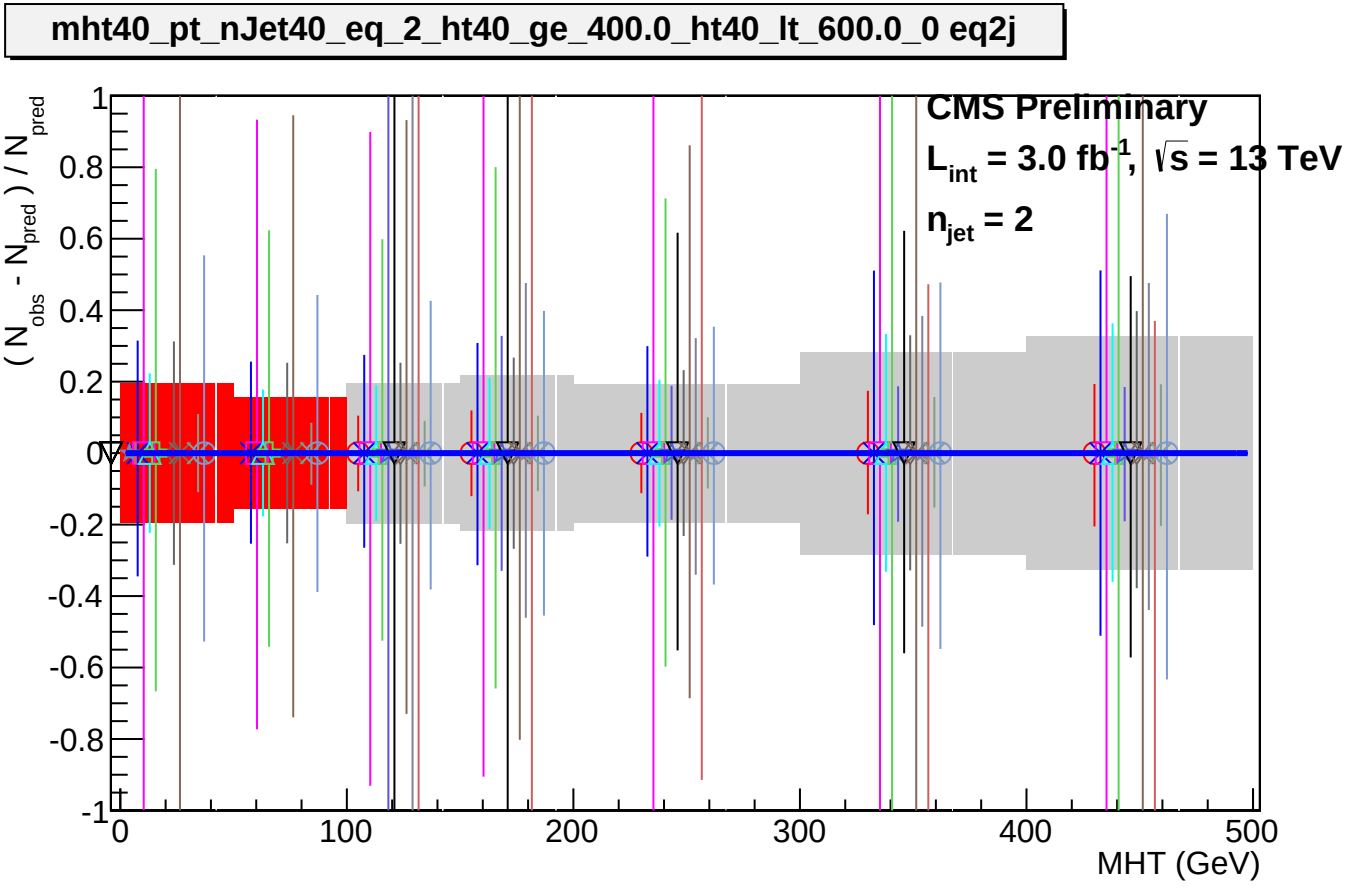
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 2 asym
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400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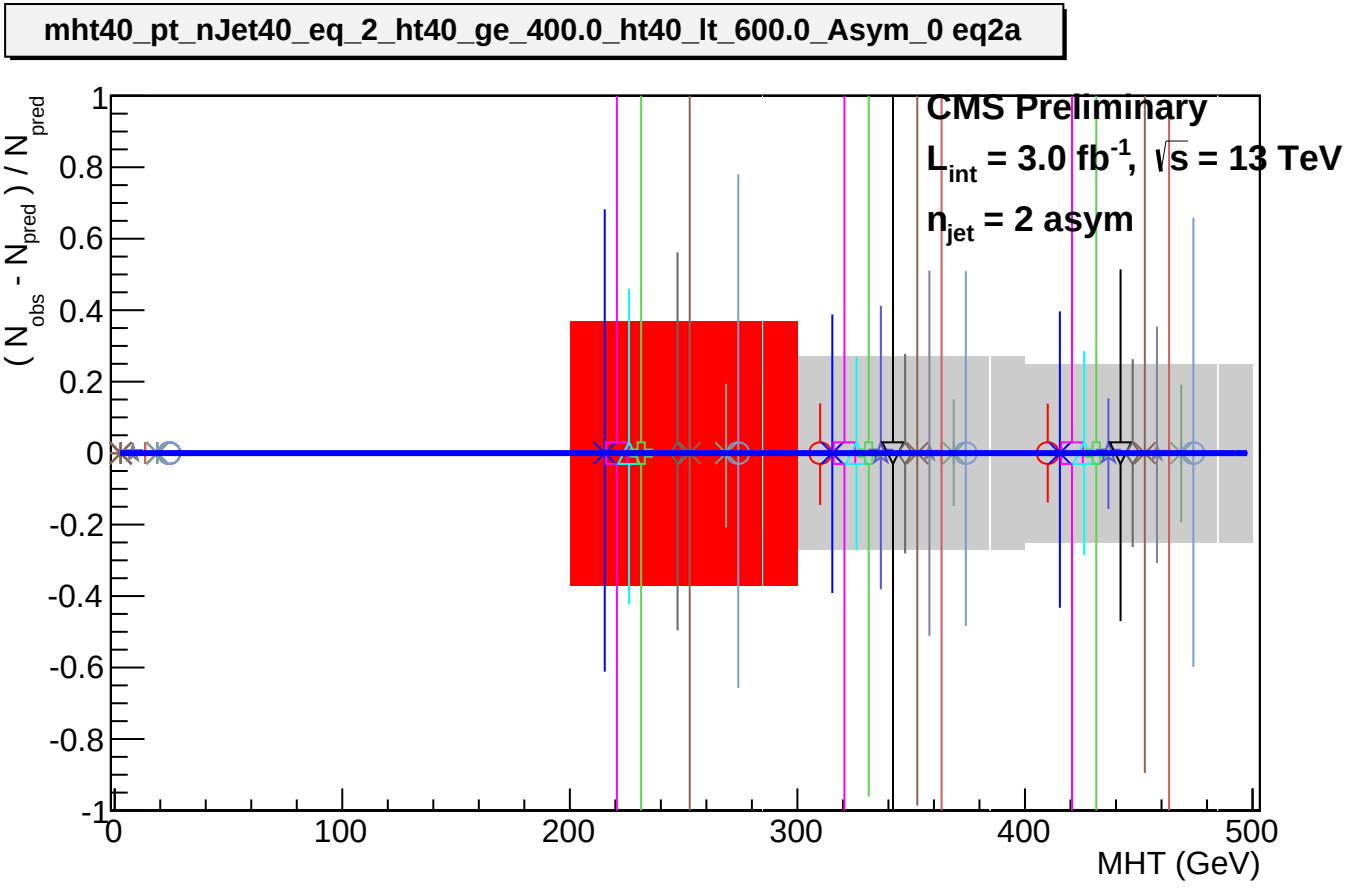
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 2
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500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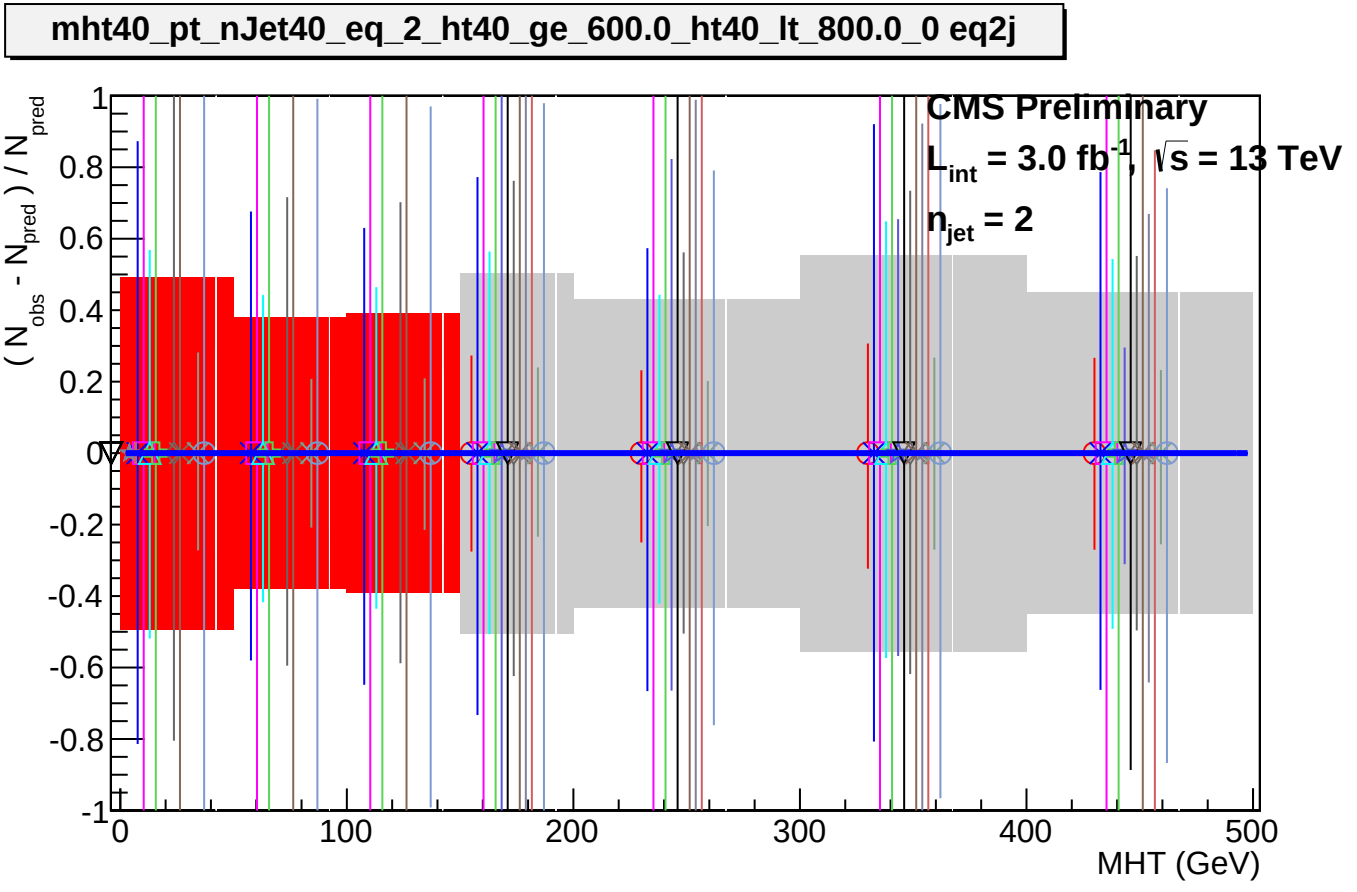
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 2 asym
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500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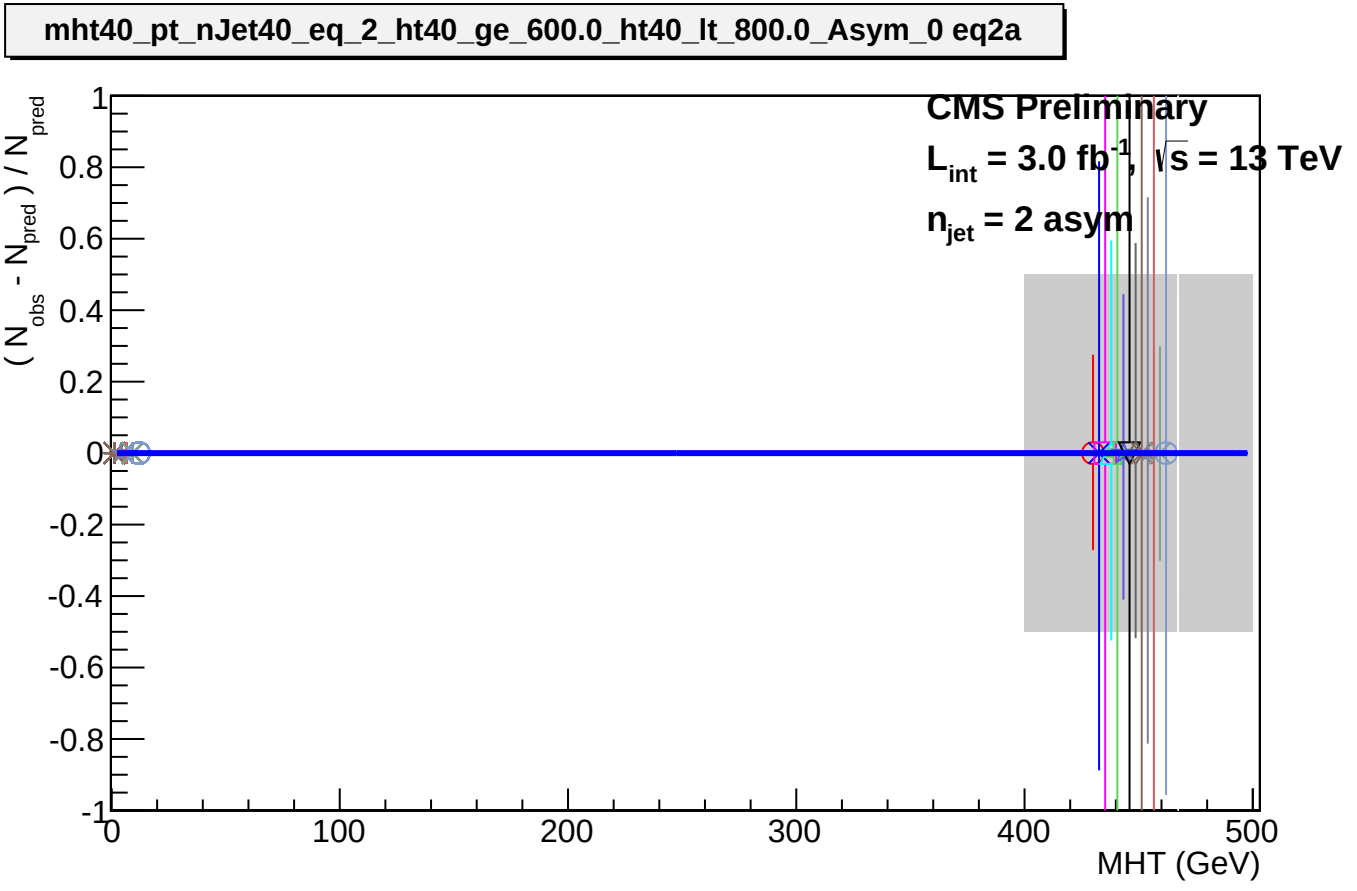
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 2
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500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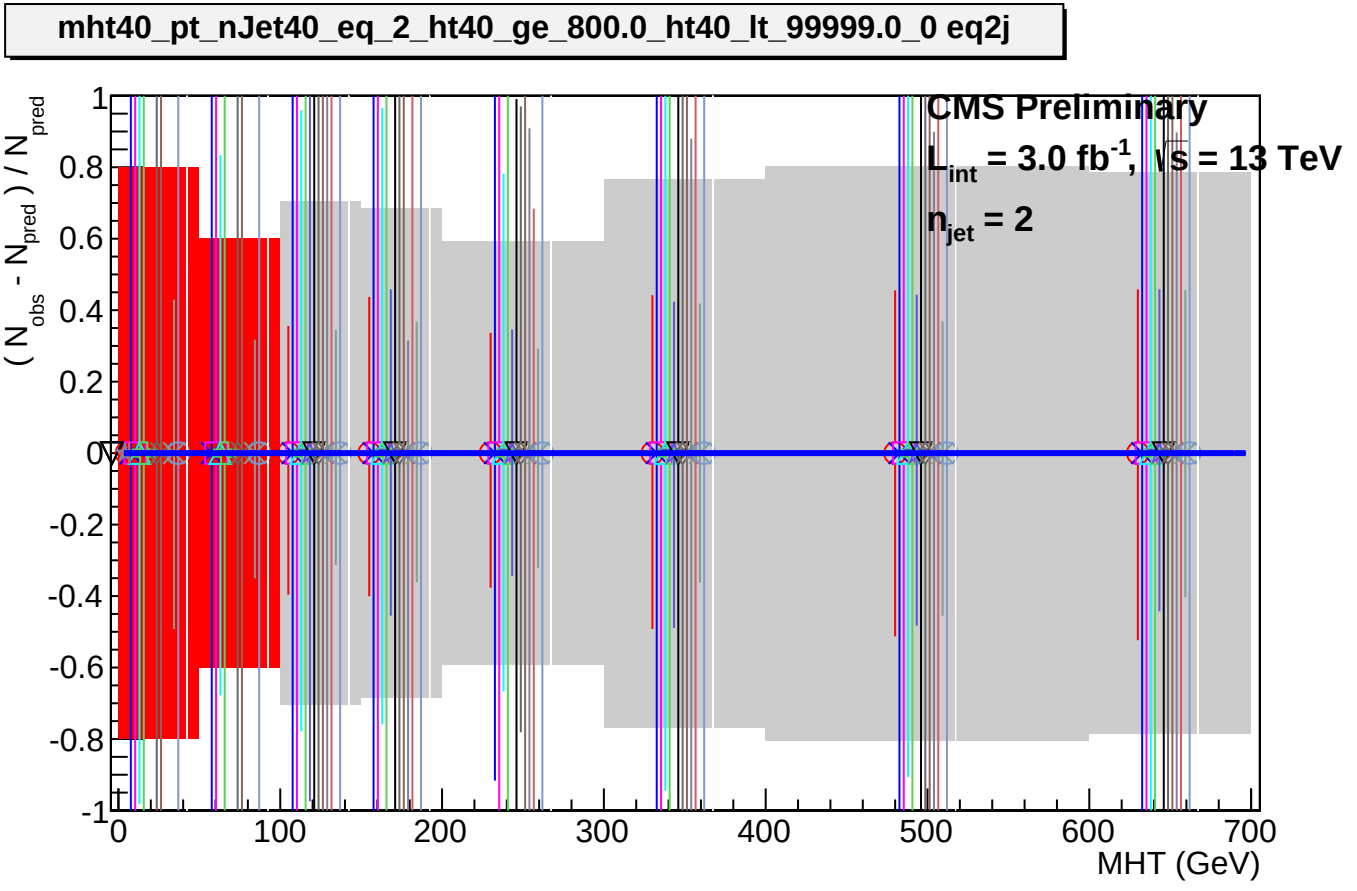
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 2 asym
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500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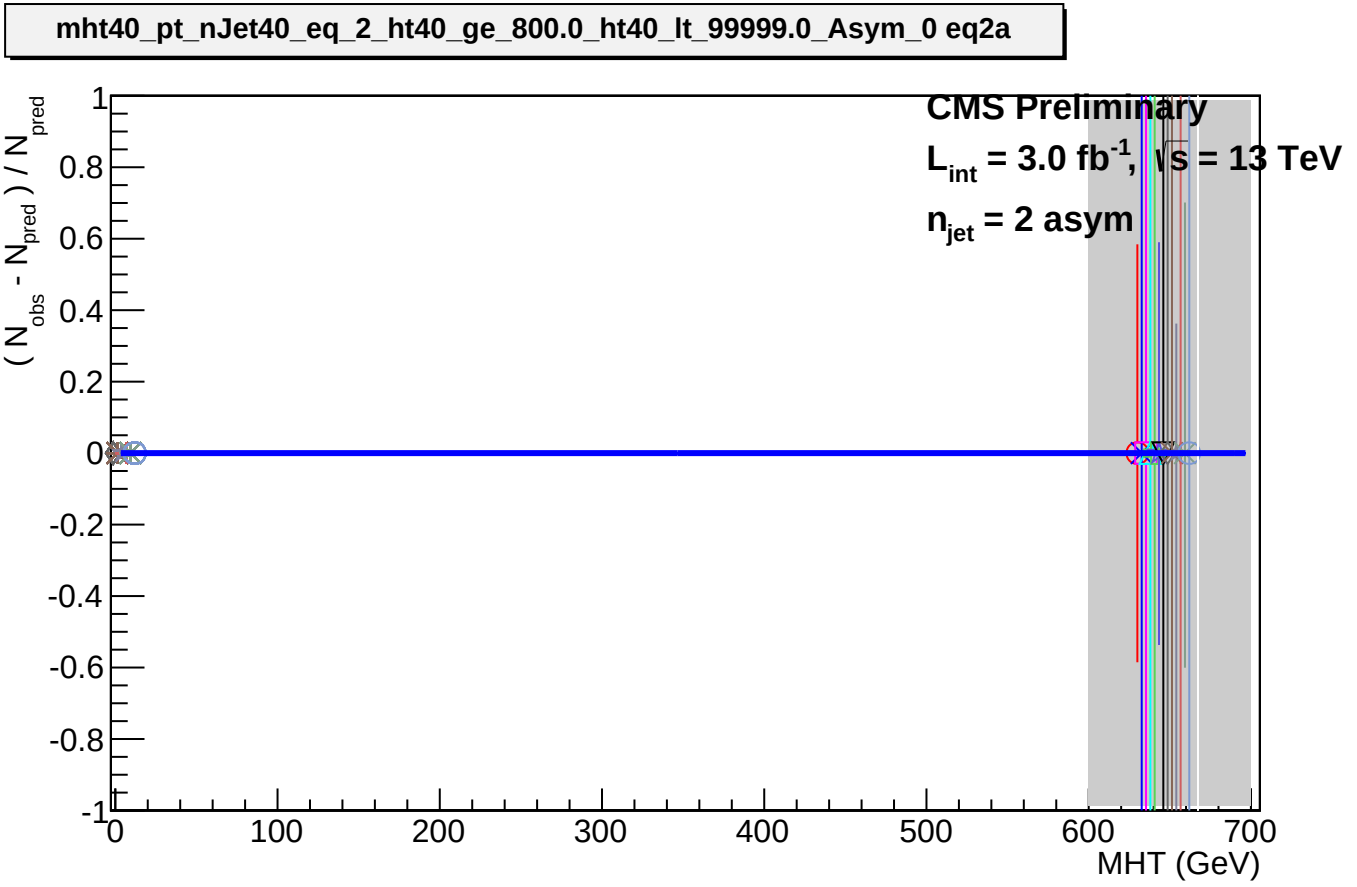
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 2
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
600
700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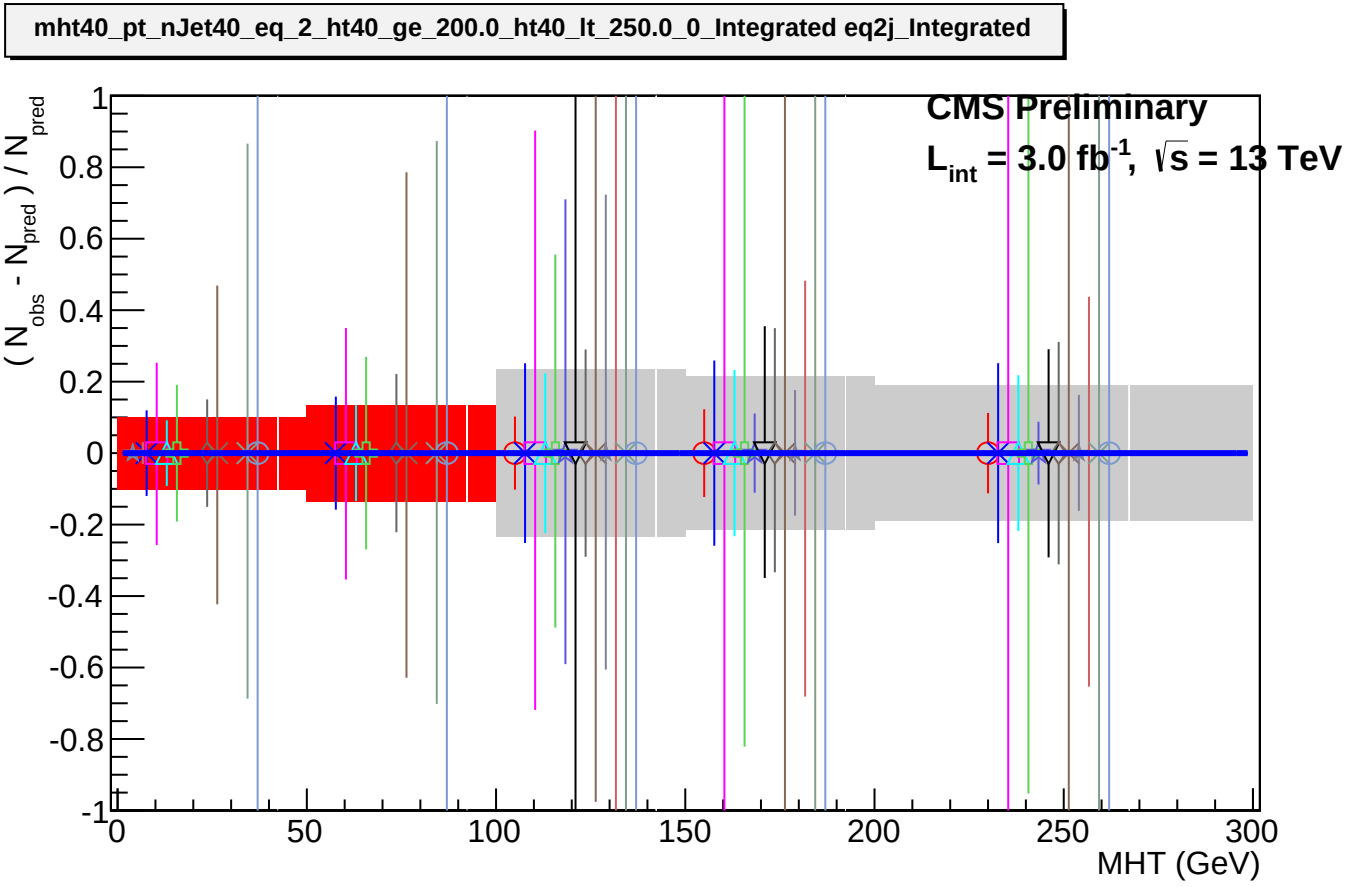
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 2 asym
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
600
700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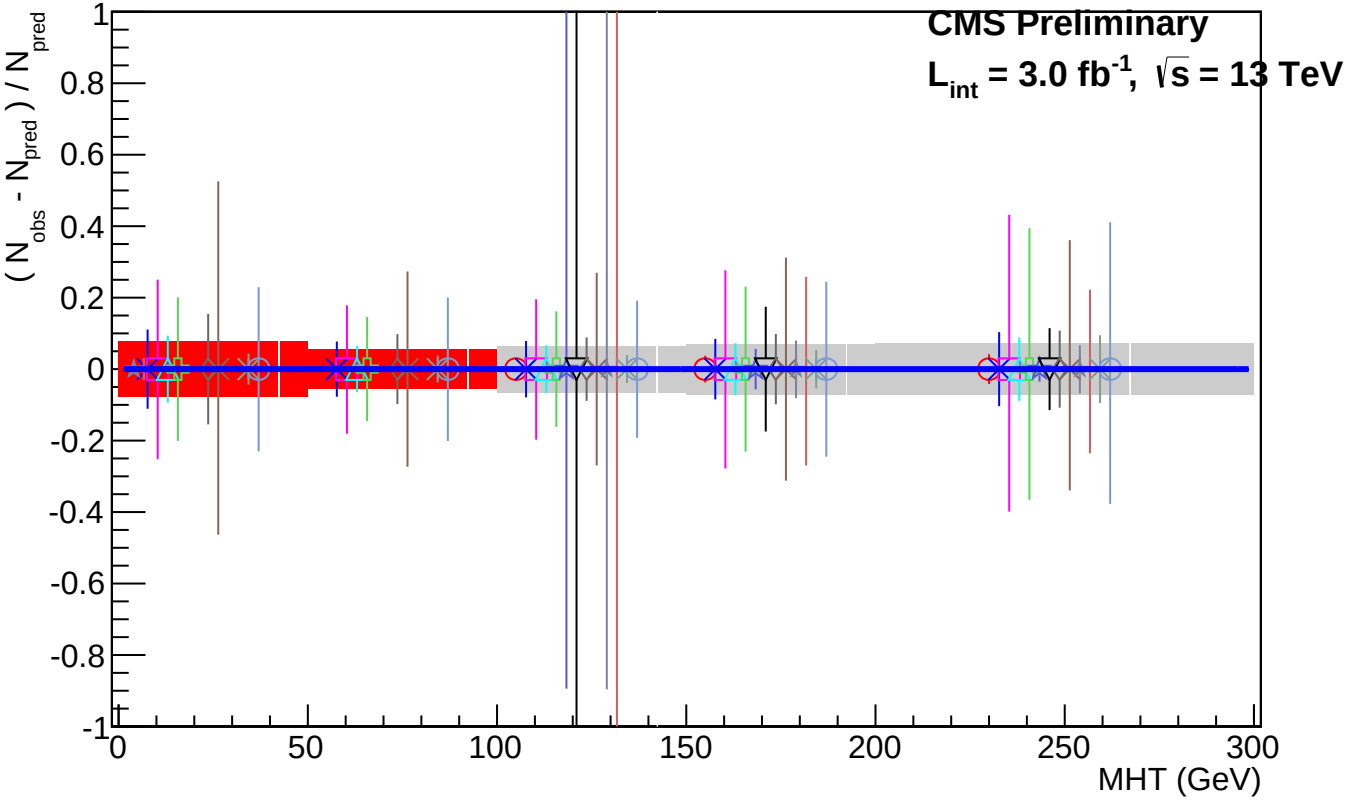
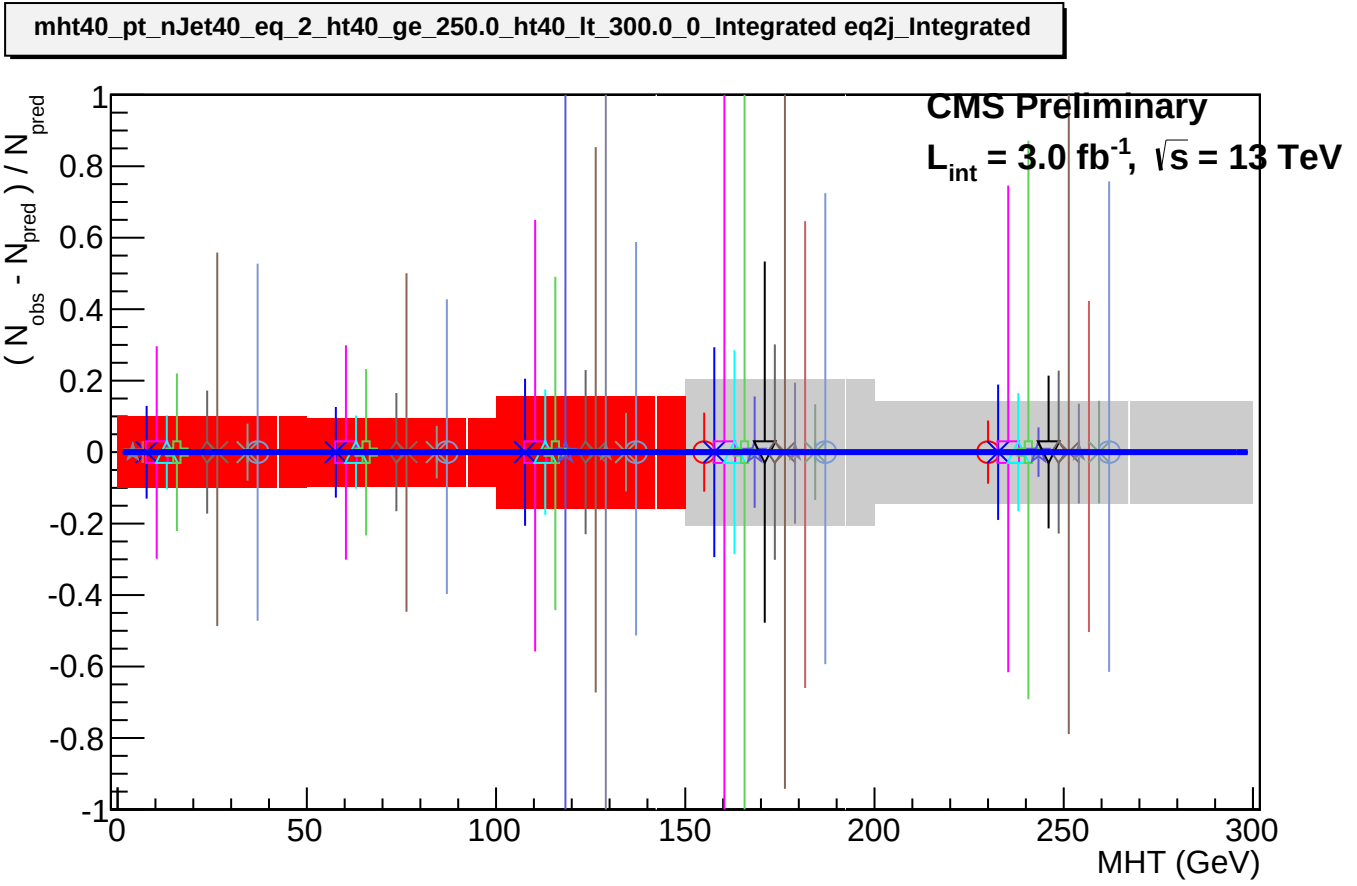
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300

mht40_pt_nJet40_eq_2_ht40_ge_200.0_ht40_lt_250.0_Asym_0_Integrated eq2a_Integrated

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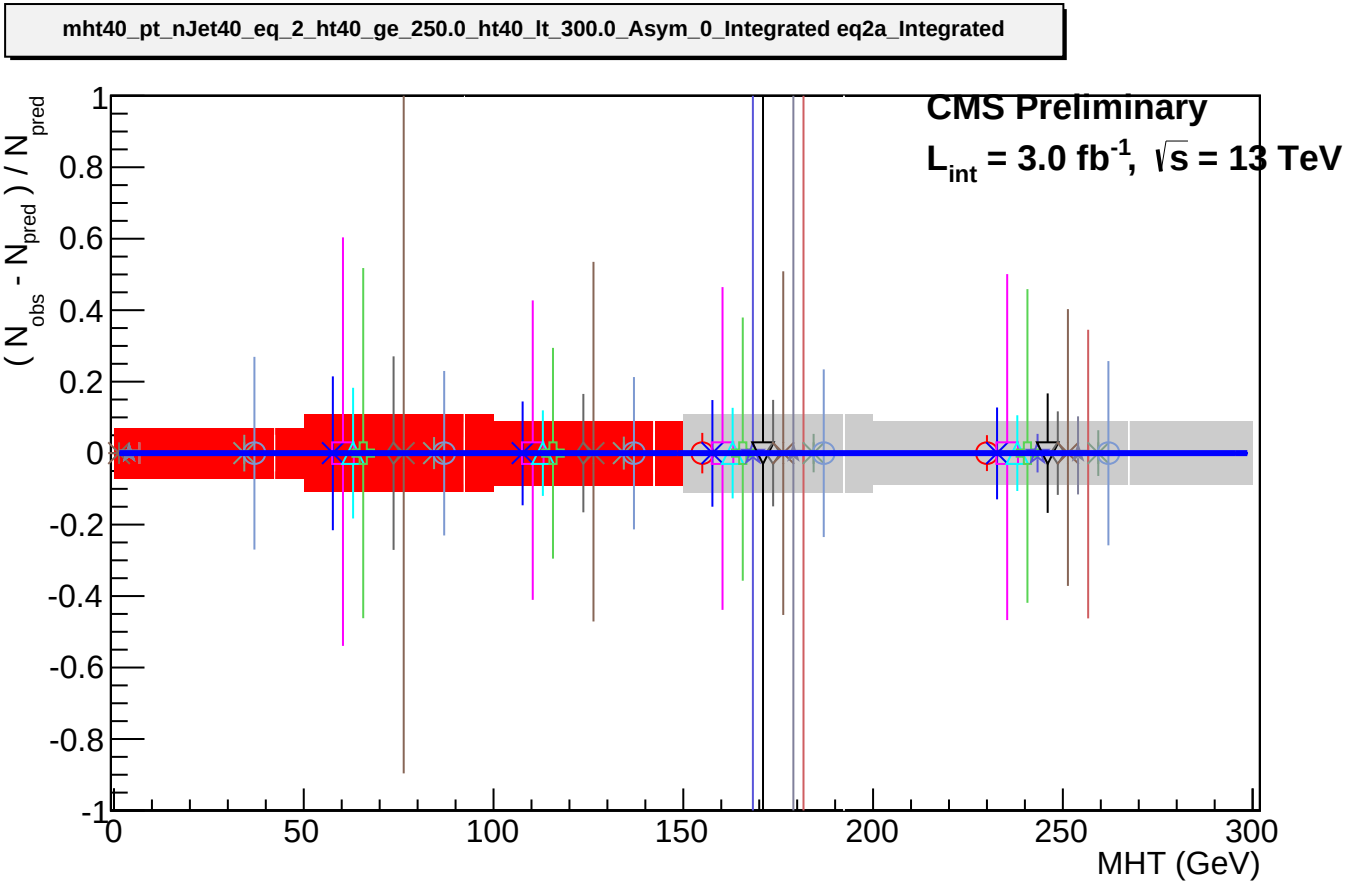
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300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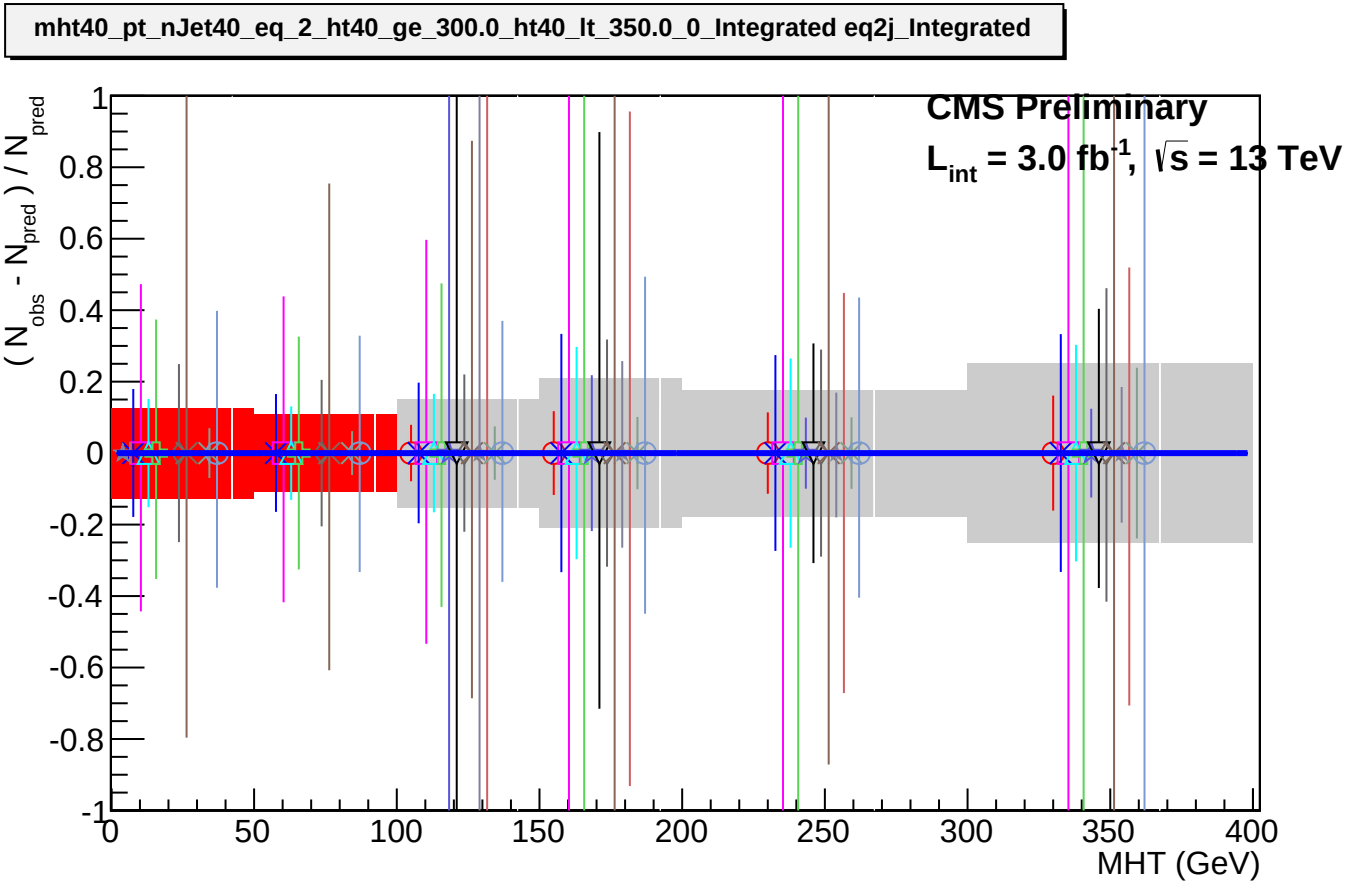
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
MHT (GeV)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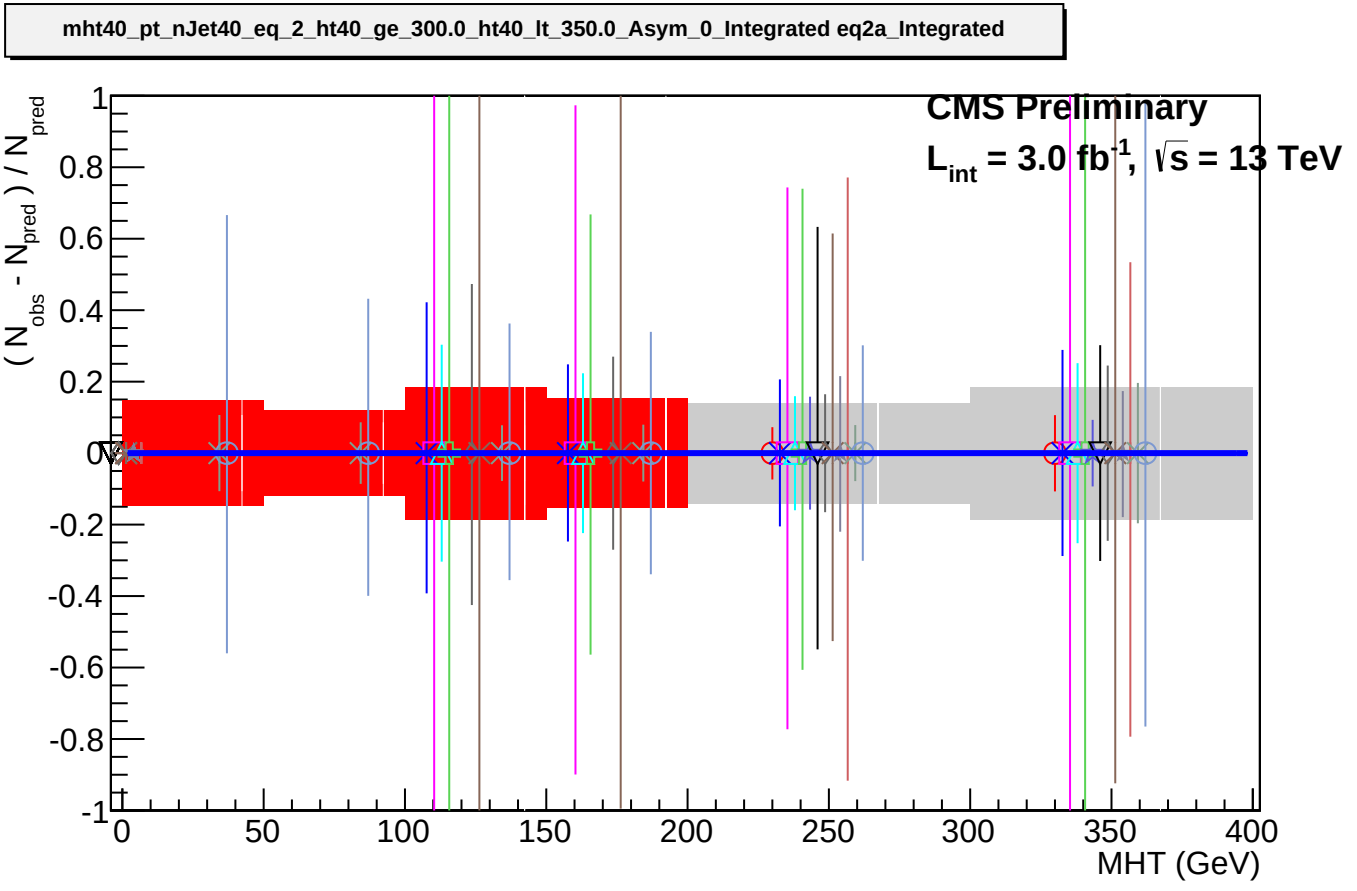
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400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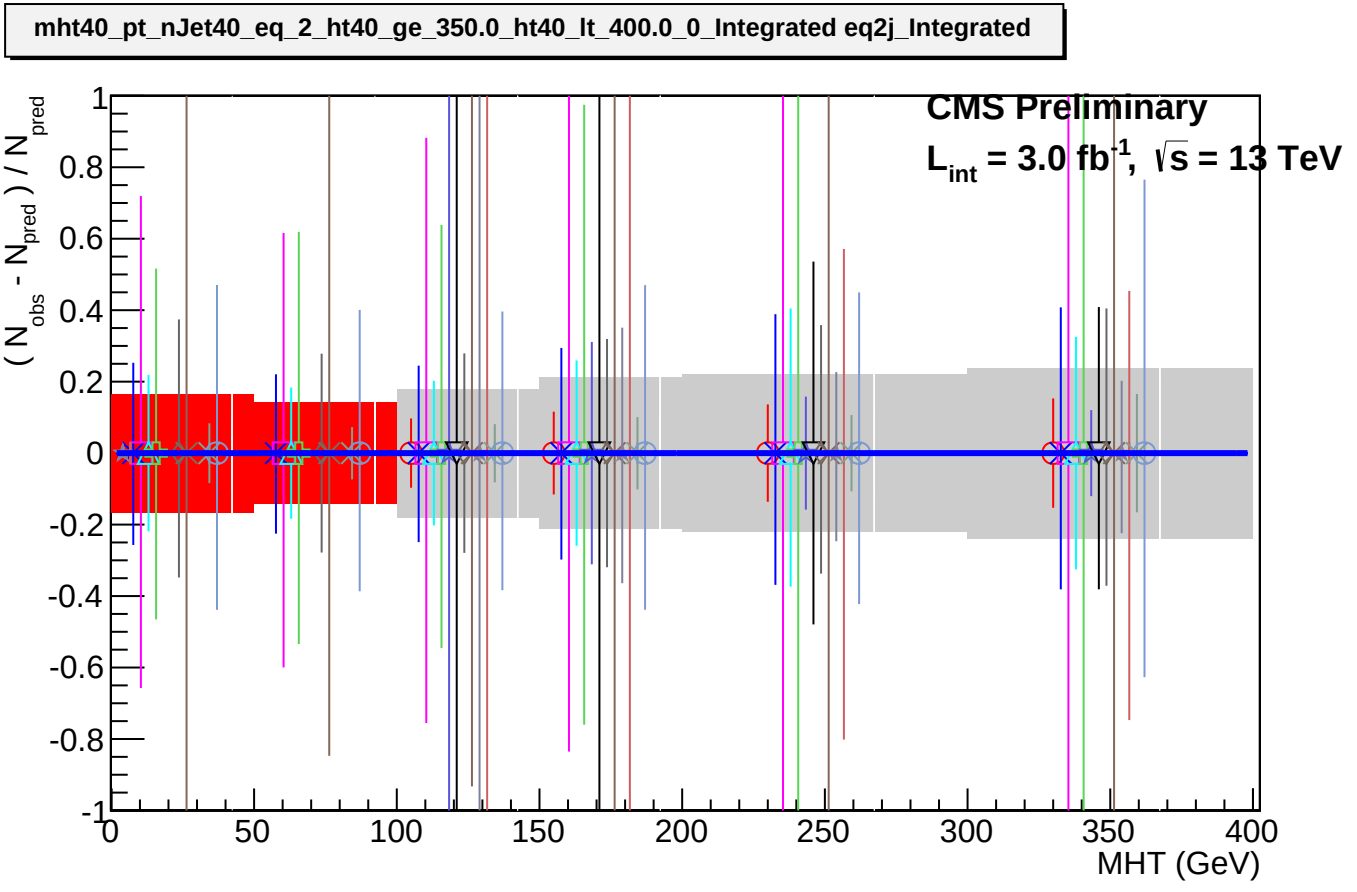
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400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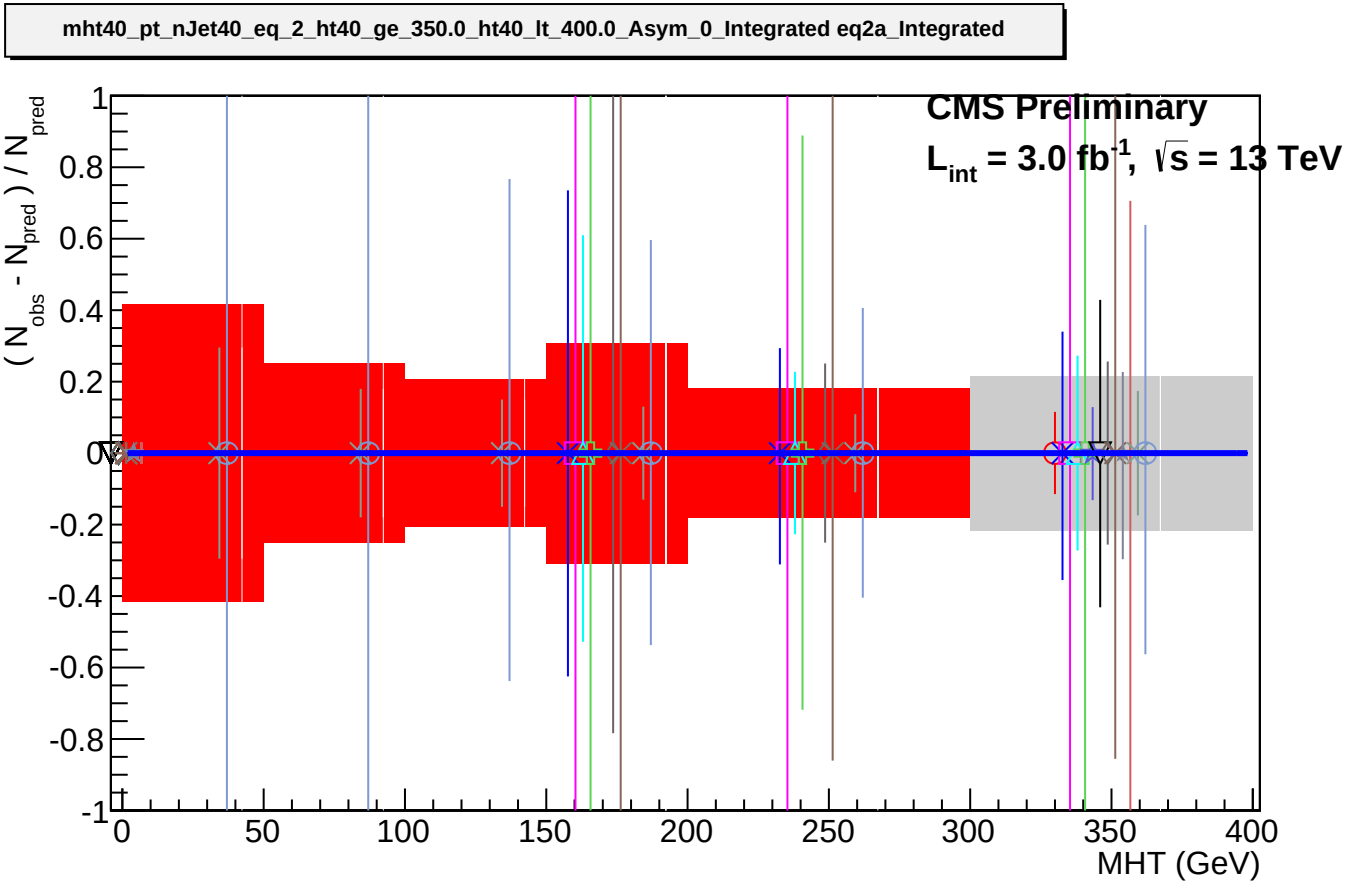
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400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CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400

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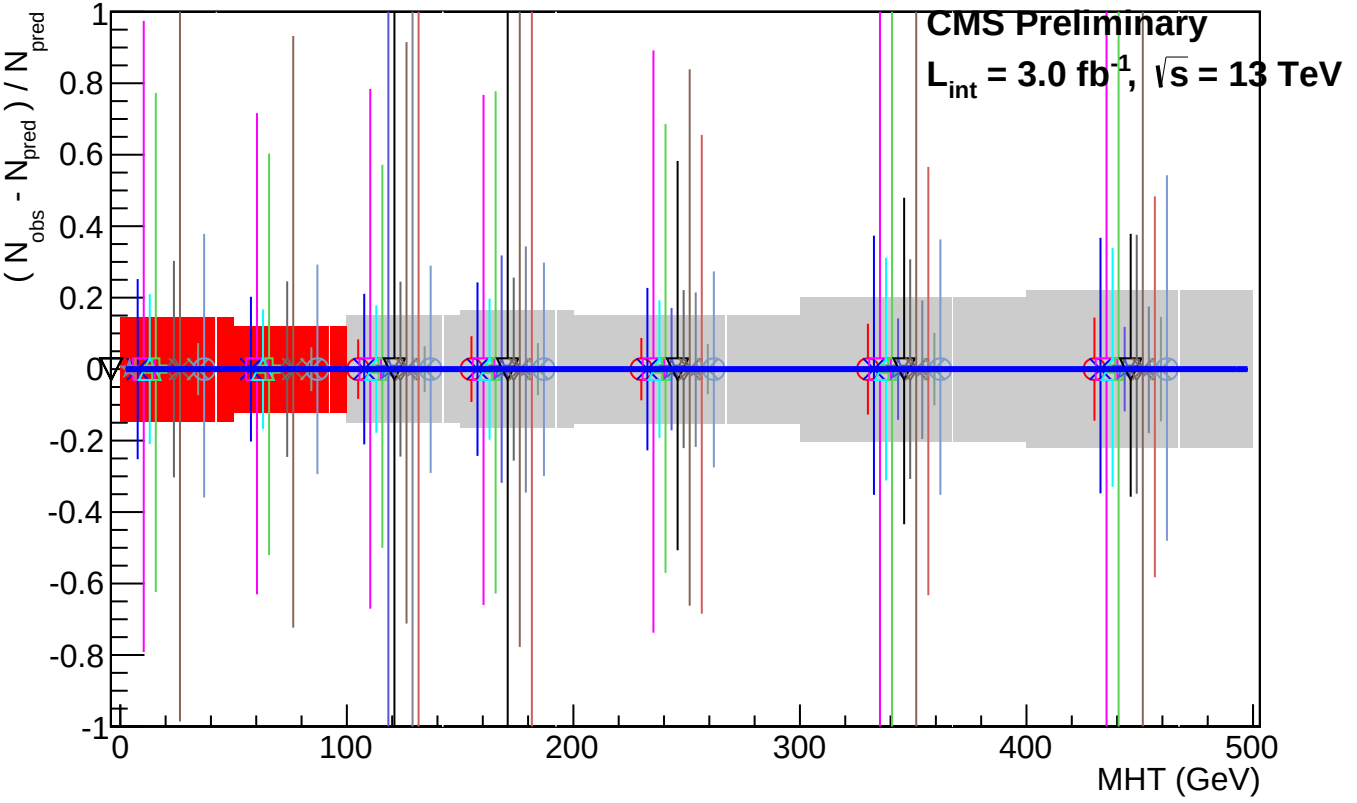

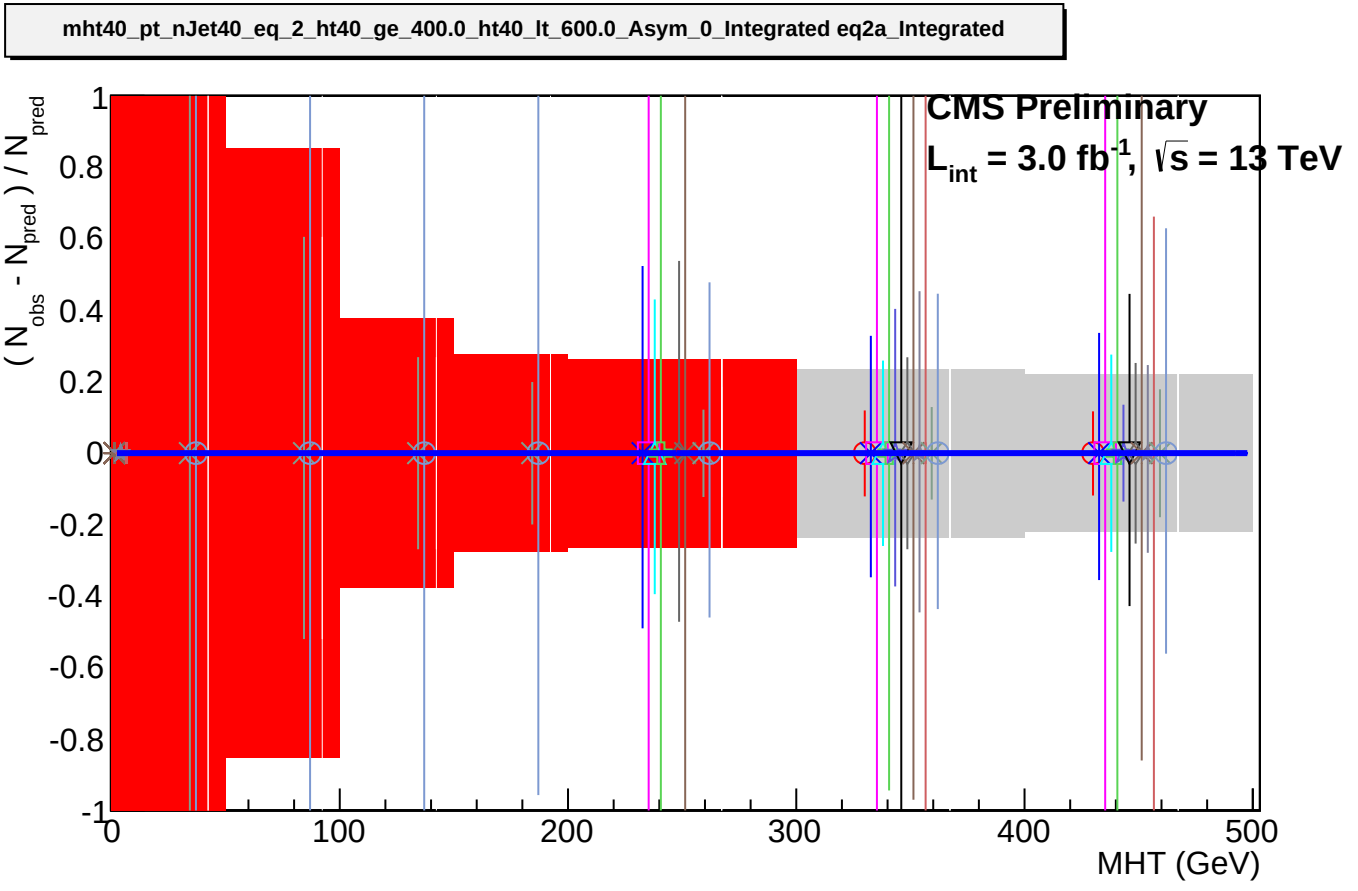
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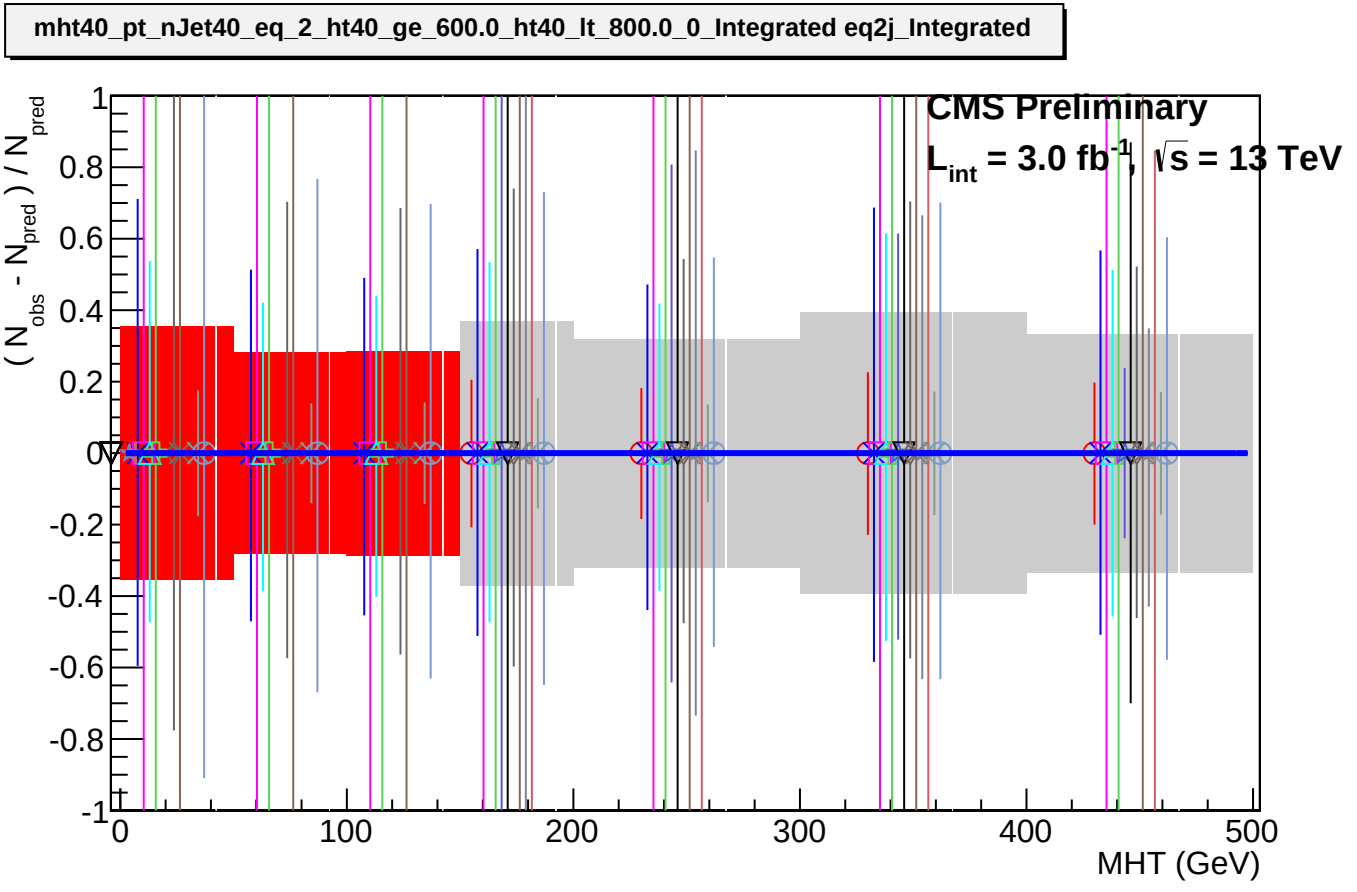
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
MHT (GeV)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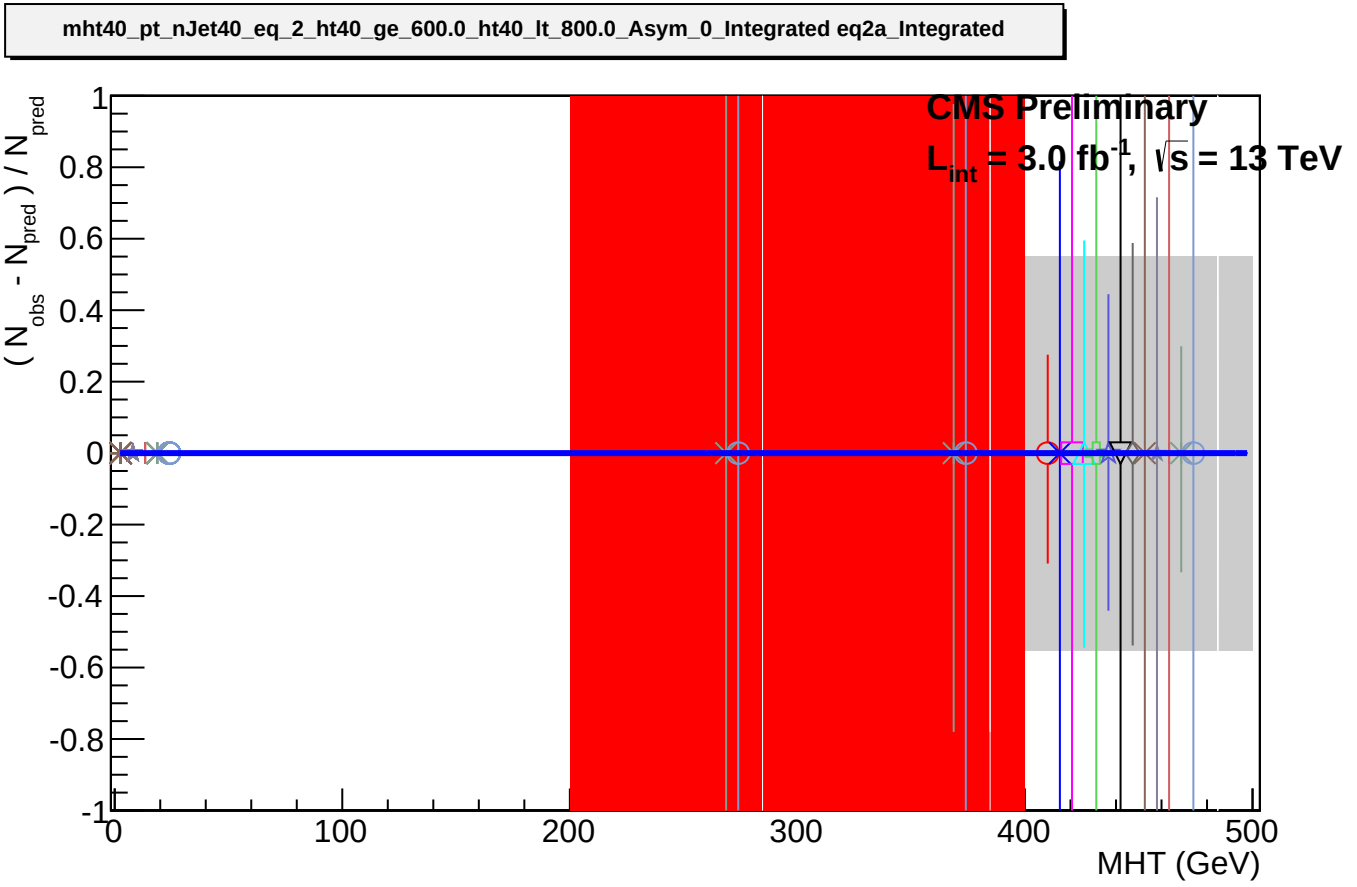
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500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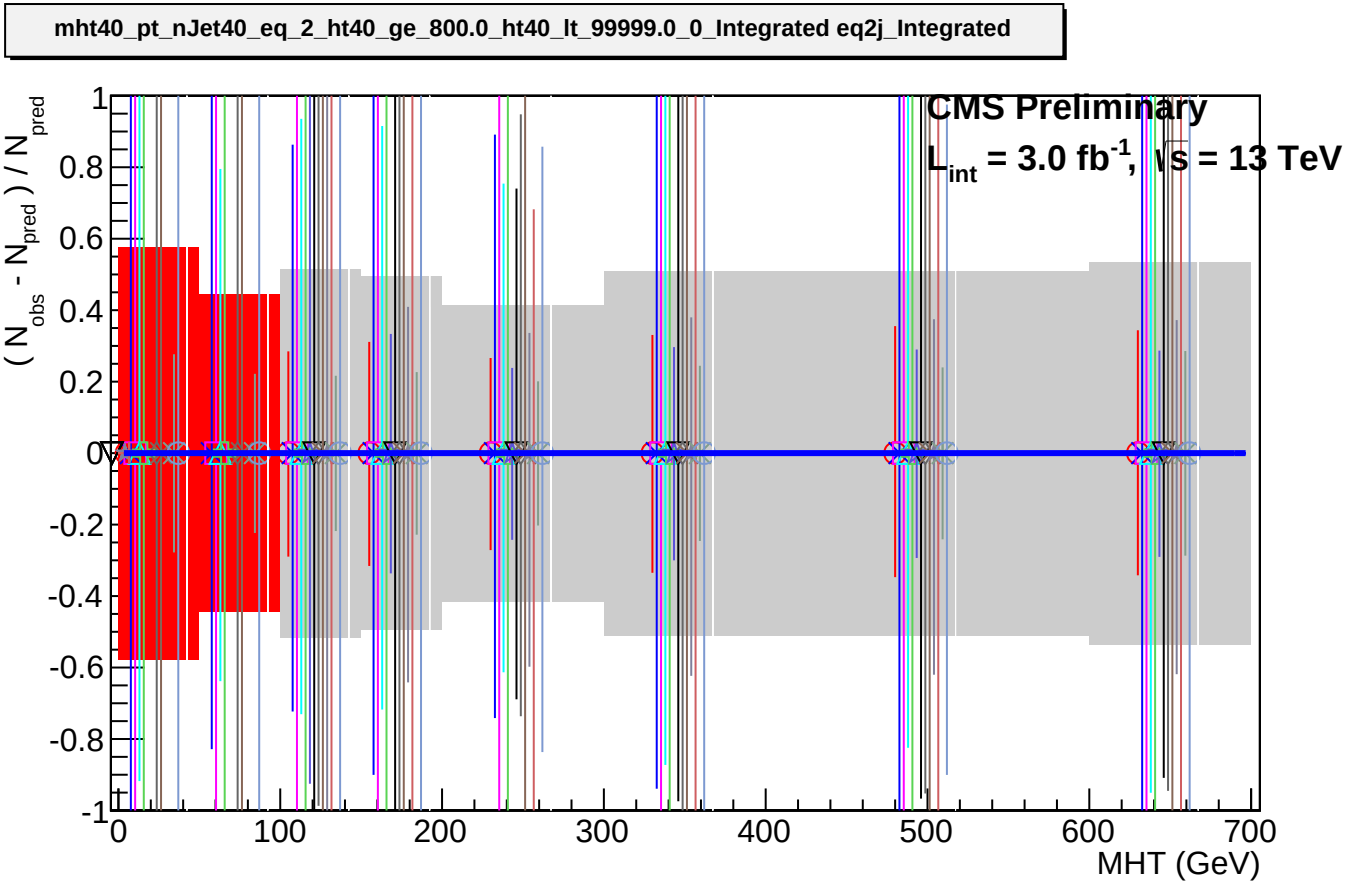
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
MHT (GeV)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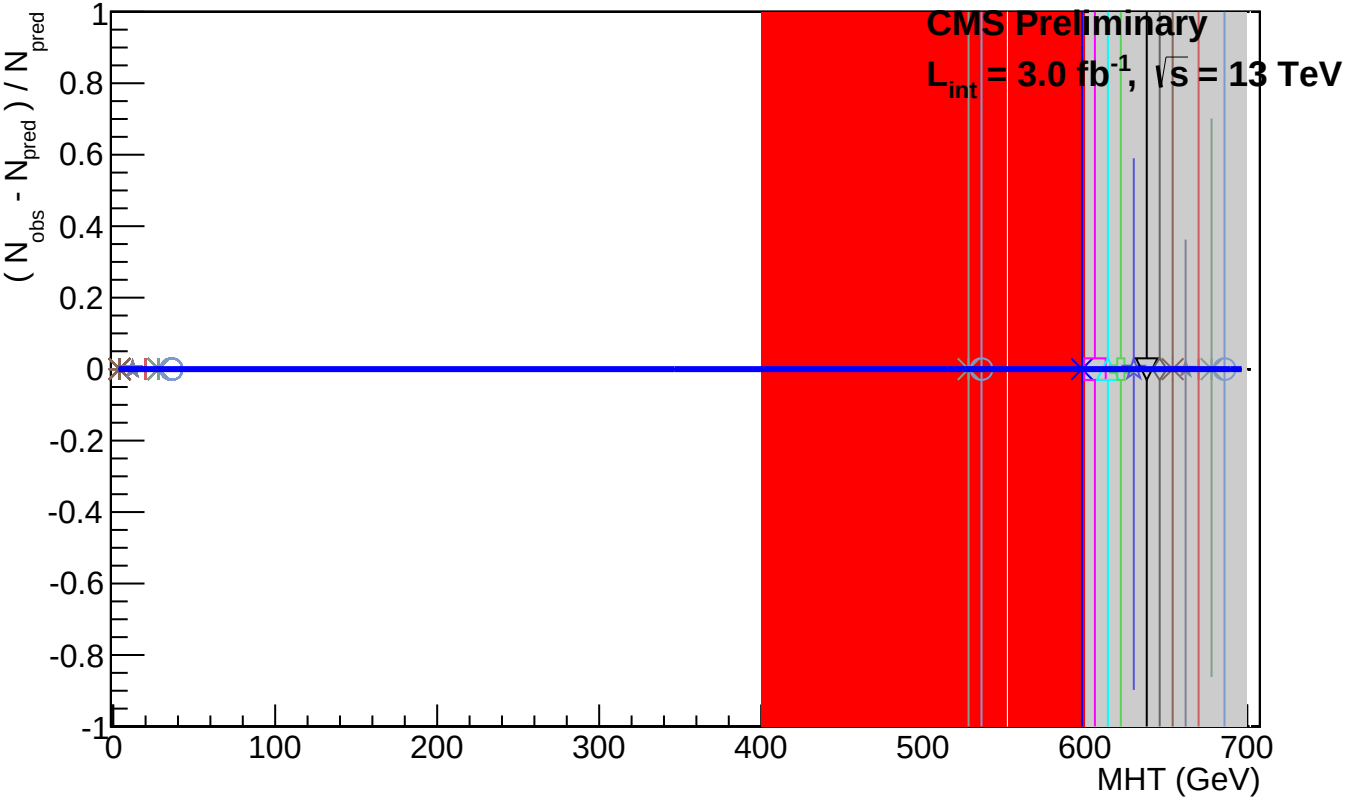
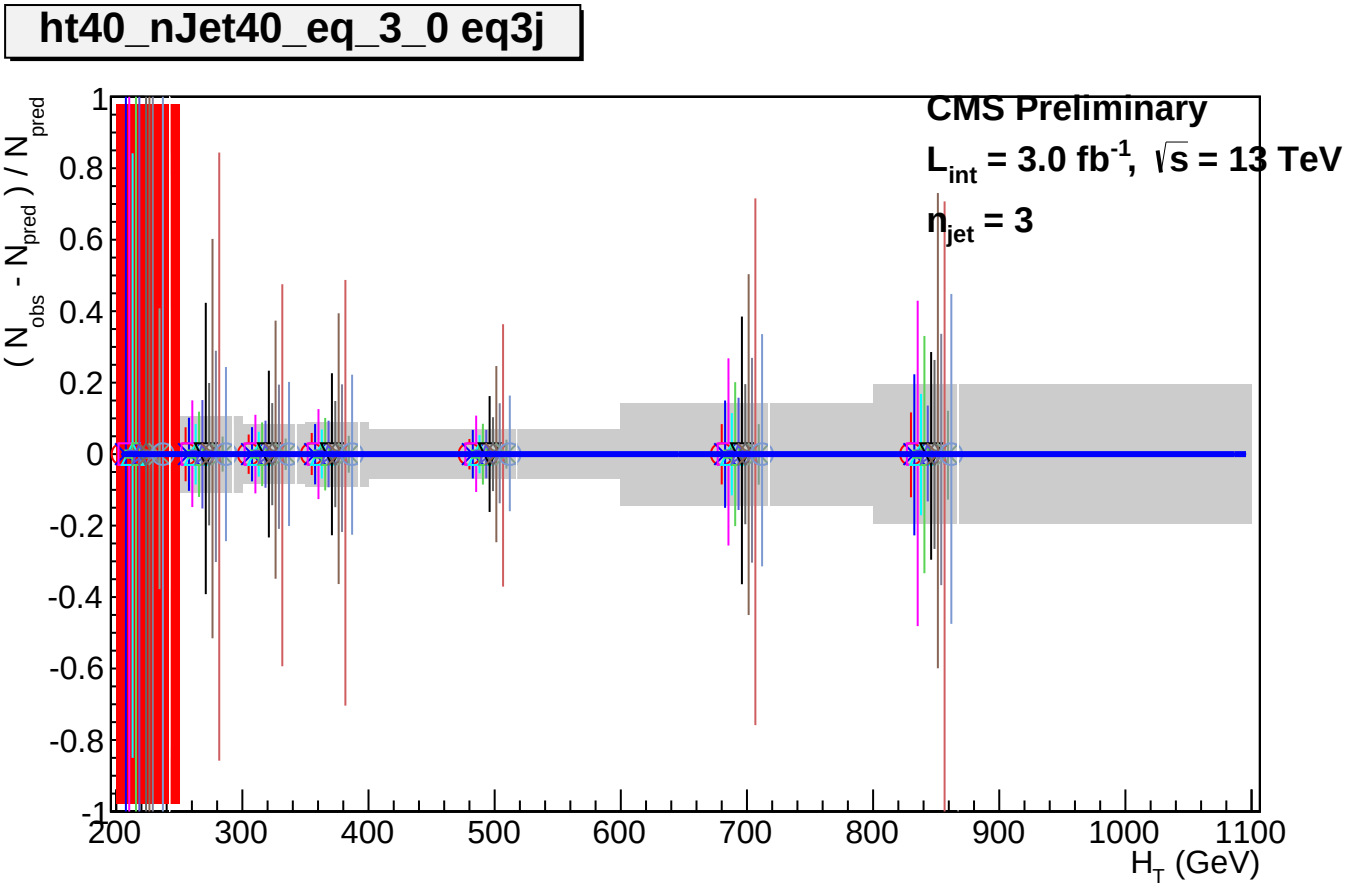
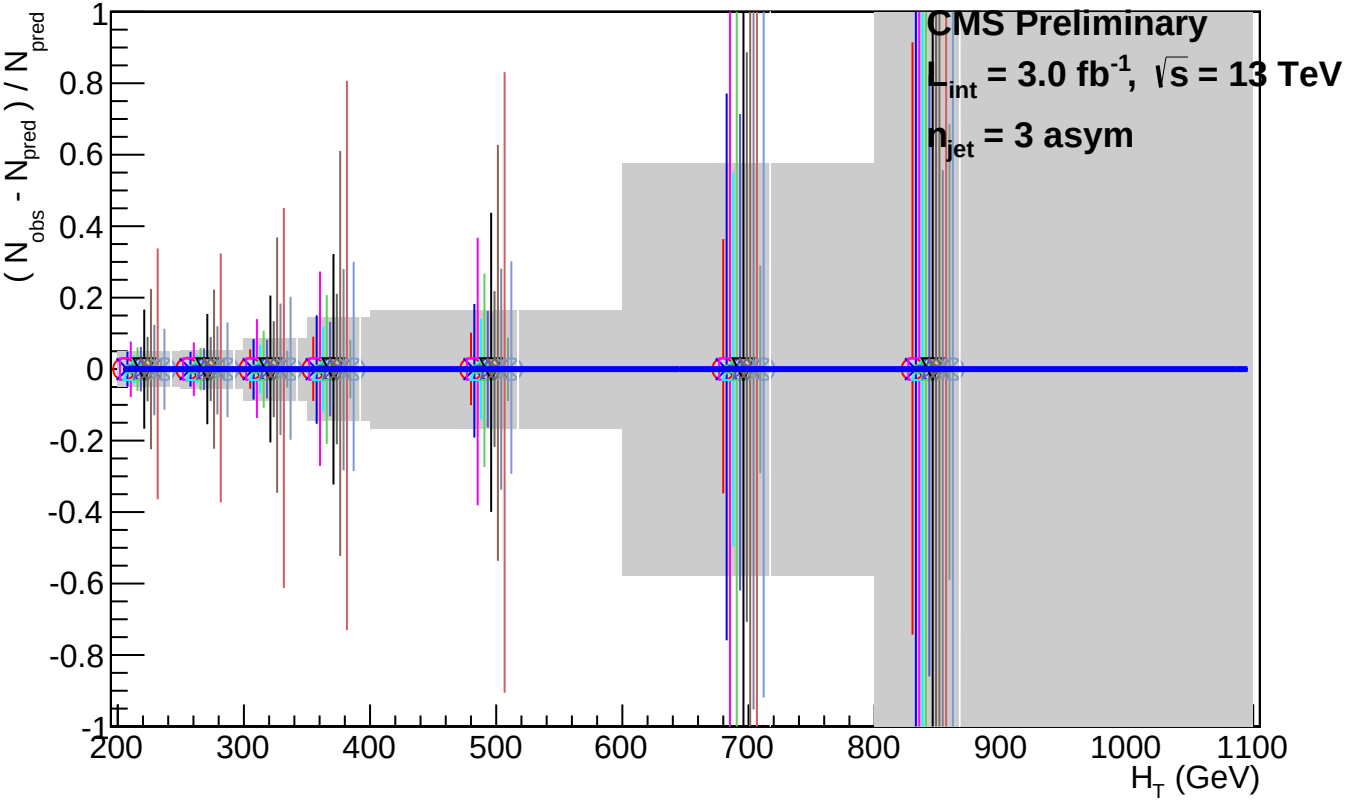
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
600
700

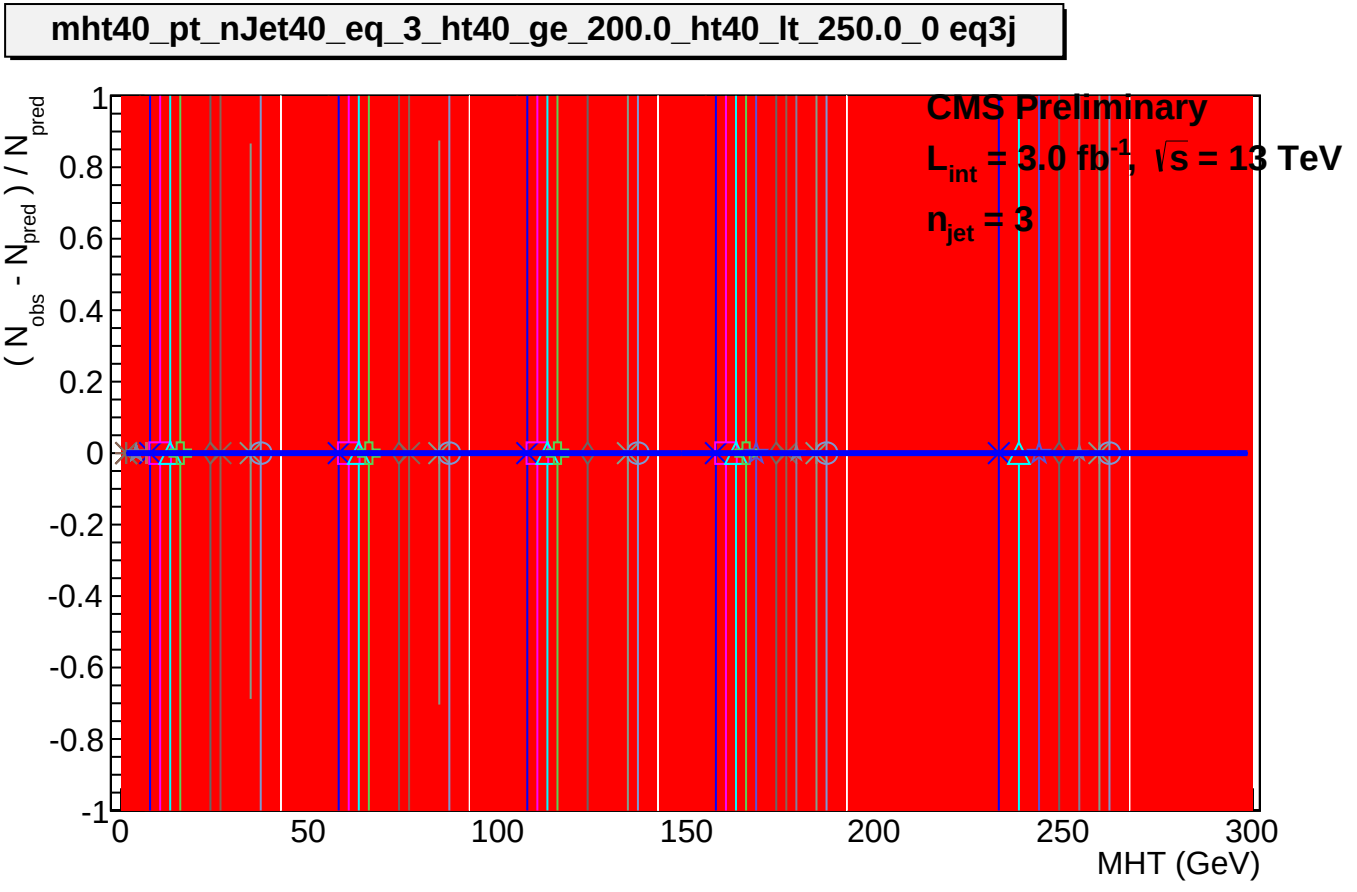
mht40_pt_nJet40_eq_2_ht40_ge_800.0_ht40_lt_99999.0_Asym_0_Integrated eq2a_Integrated

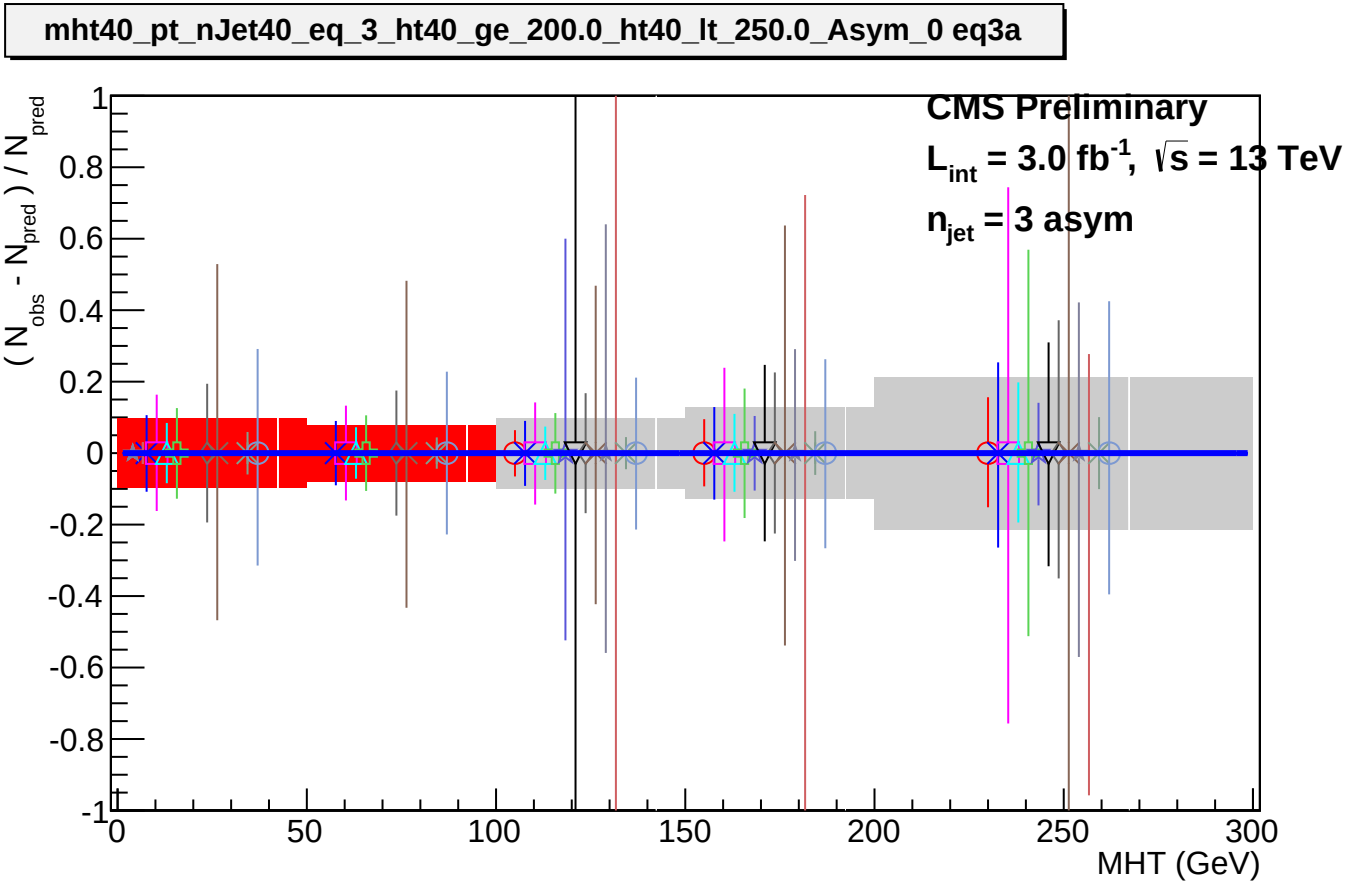


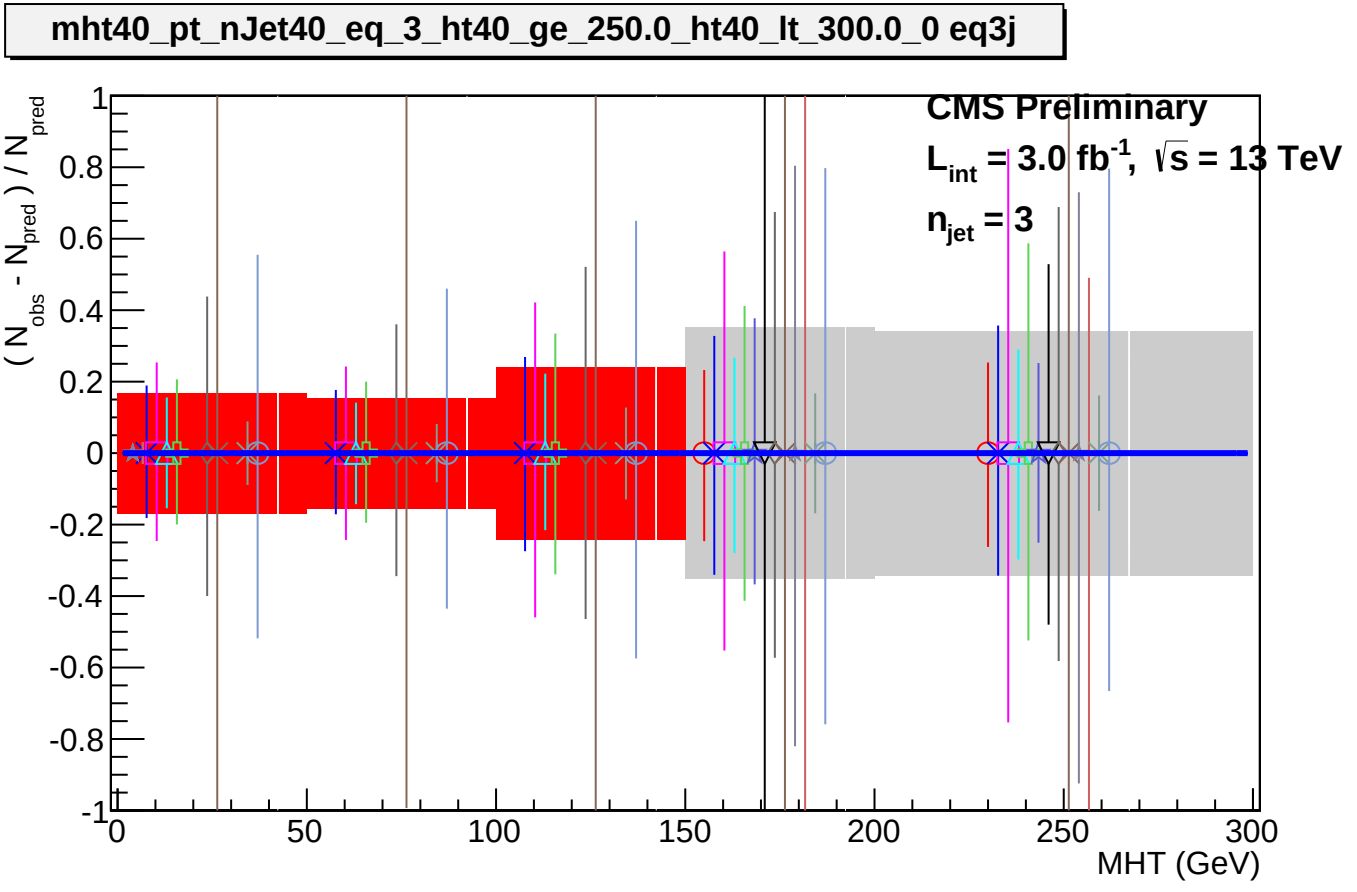

ht40_nJet40_eq_3_0 eq3j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 3
(N_obs - N_pred) / N_pred
H_T (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
200
300
400
500
600
700
800
900
1000
1100

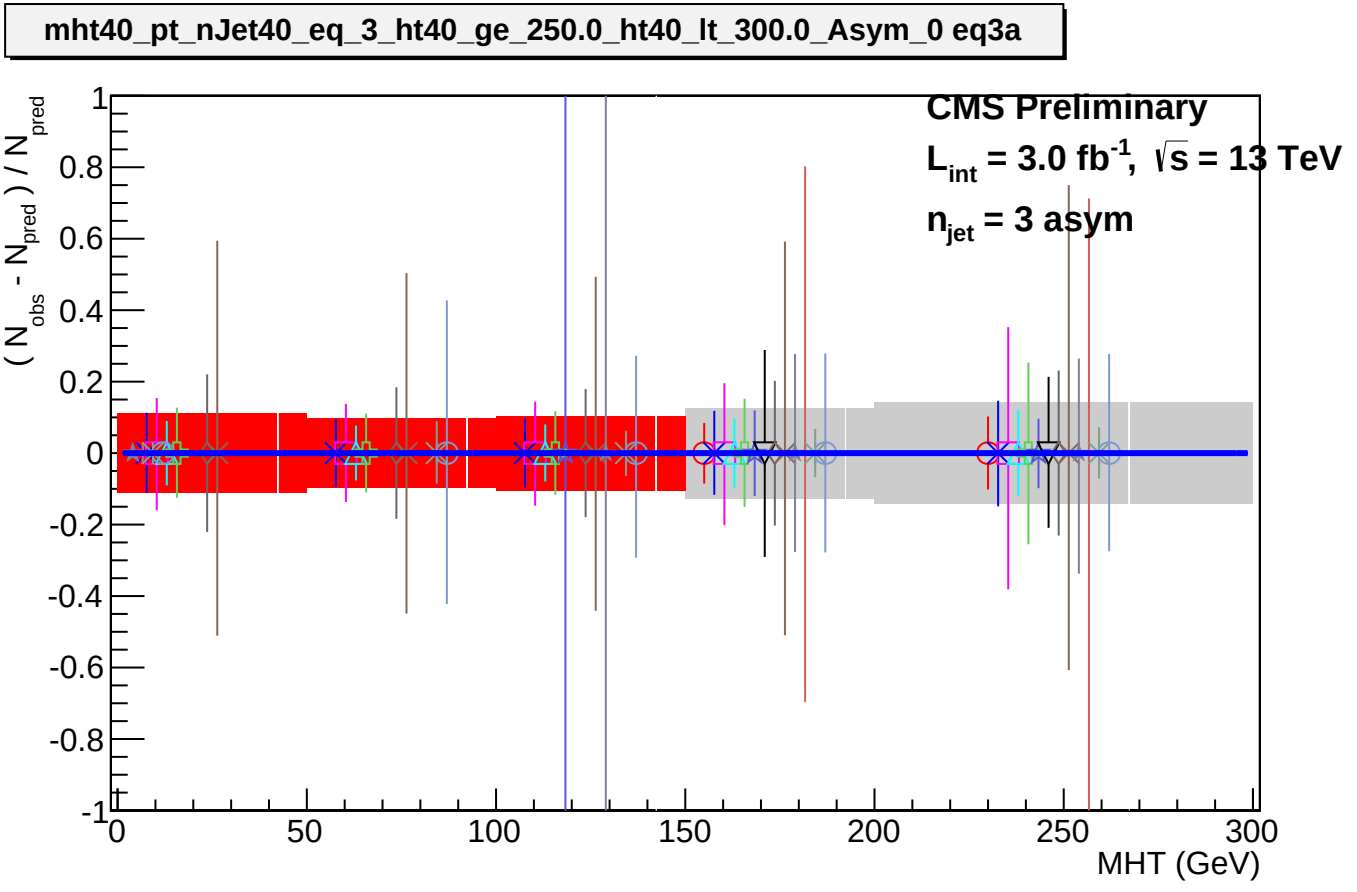
ht40_nJet40_eq_3_Asym_0 eq3a

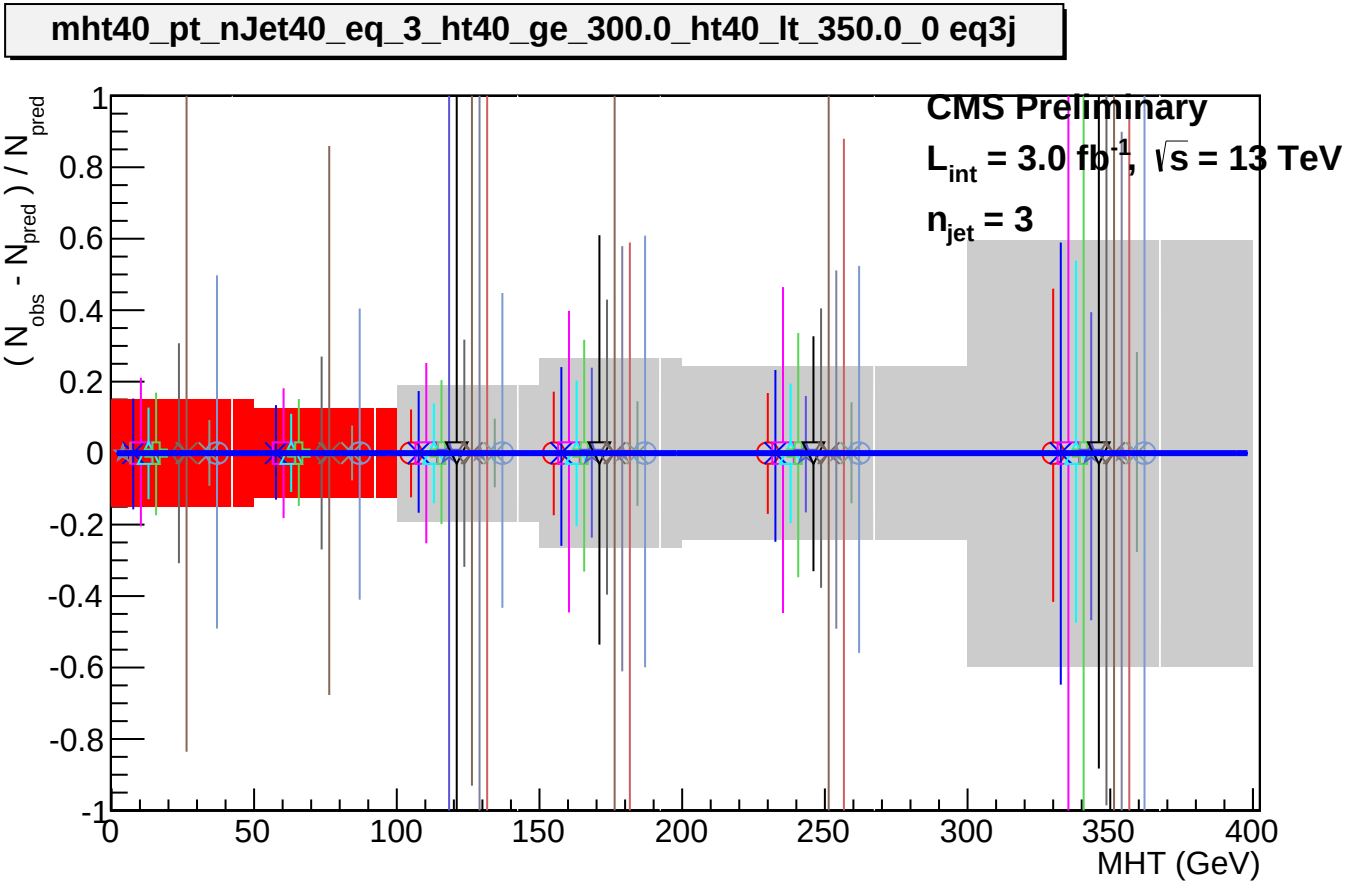


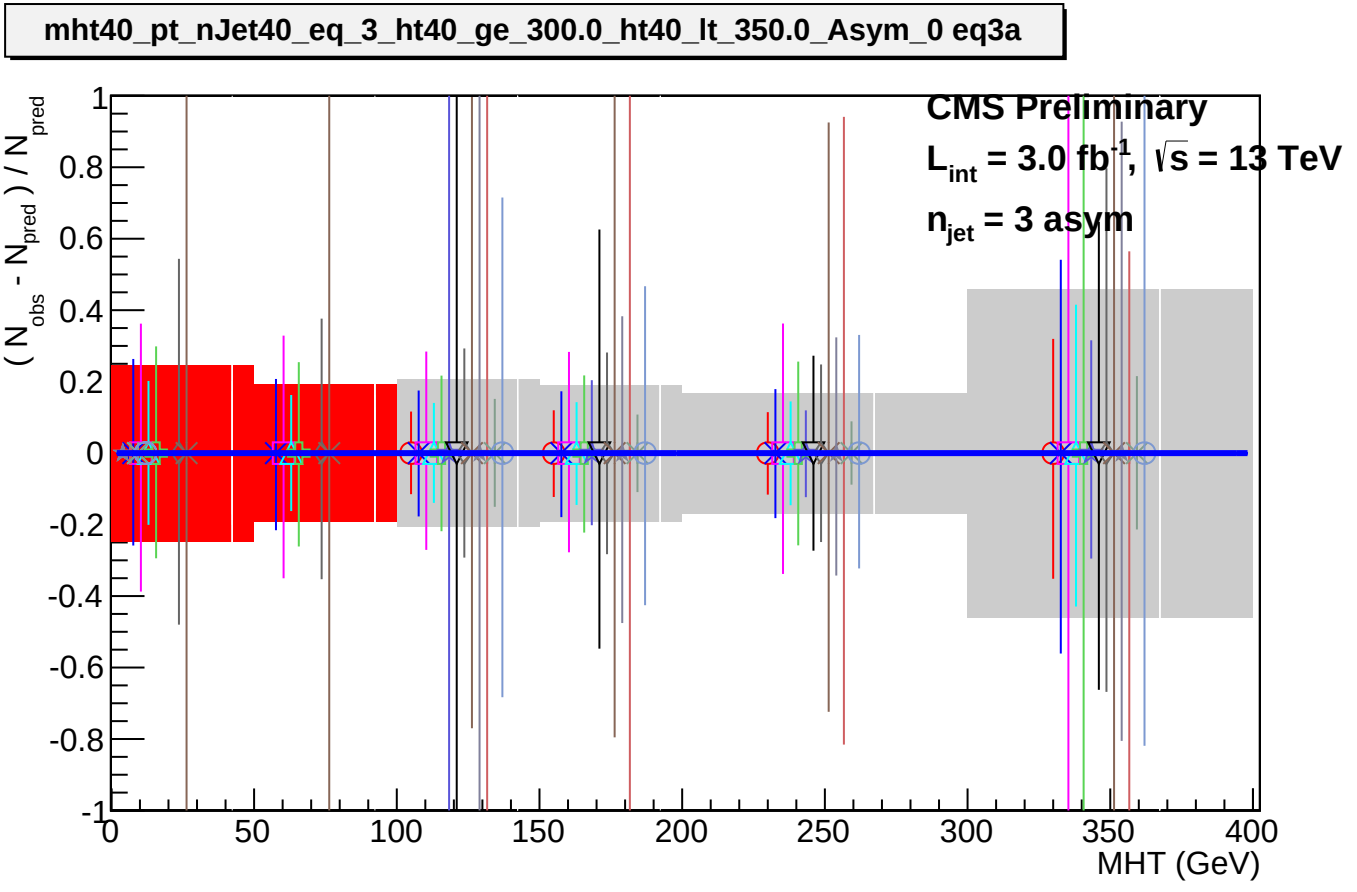

mht40_pt_nJet40_eq_3_ht40_ge_200.0_ht40_lt_250.0_0 eq3j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 3
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
MHT (GeV)

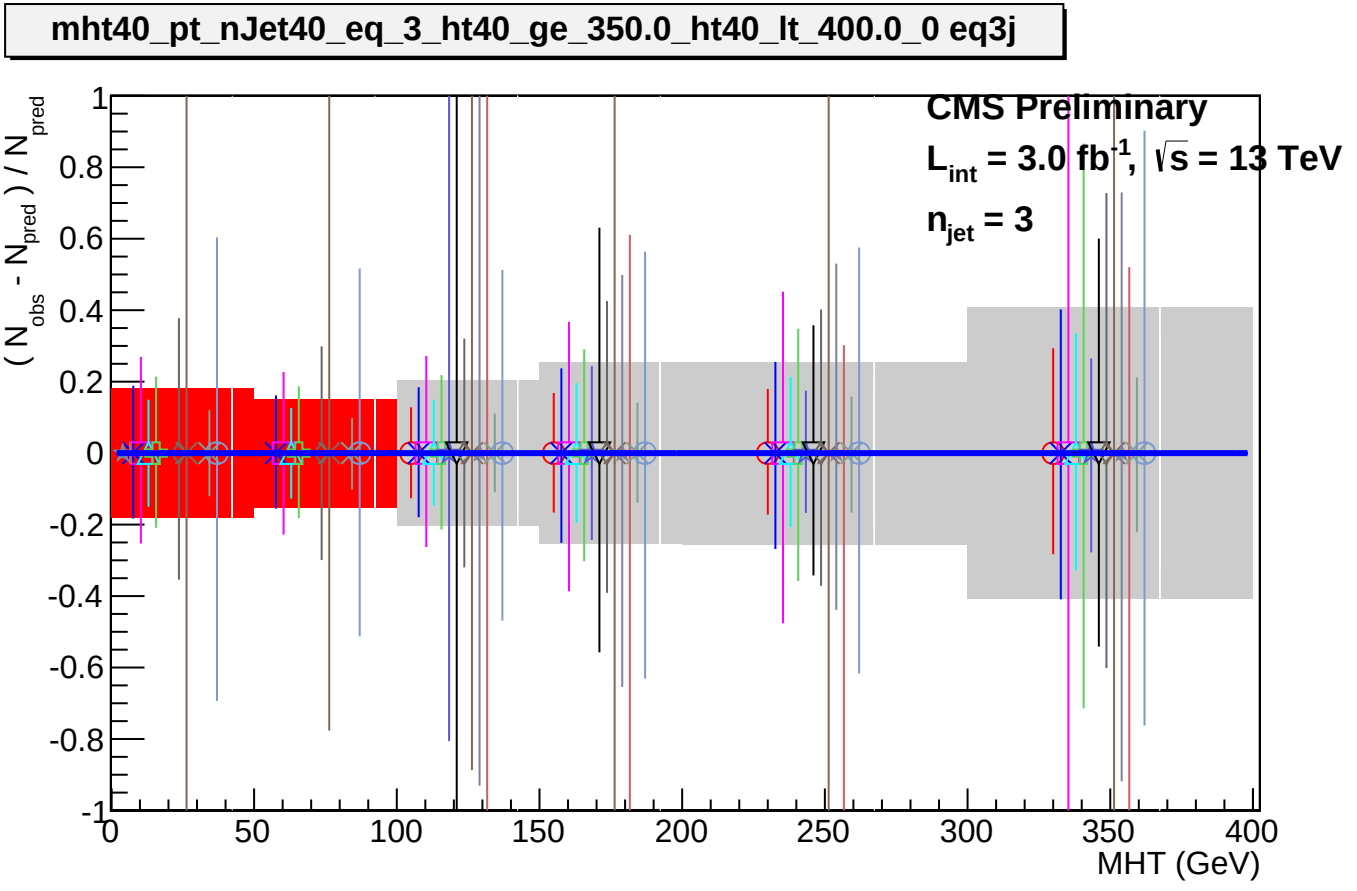

mht40_pt_nJet40_eq_3_ht40_ge_200.0_ht40_lt_250.0_Asym_0 eq3a
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 3 asym
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300

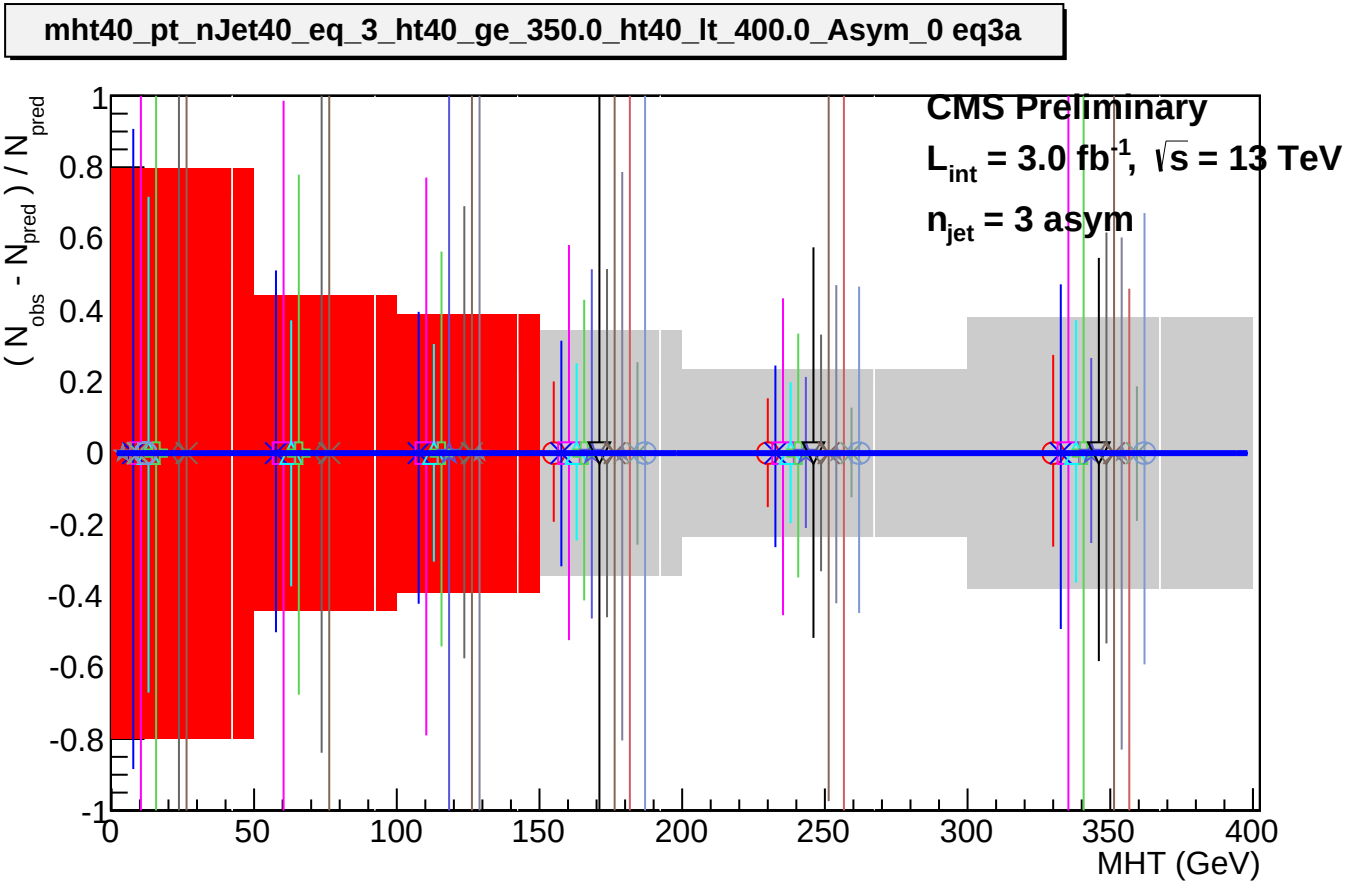

mht40_pt_nJet40_eq_3_ht40_ge_250.0_ht40_lt_300.0_0 eq3j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 3
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300

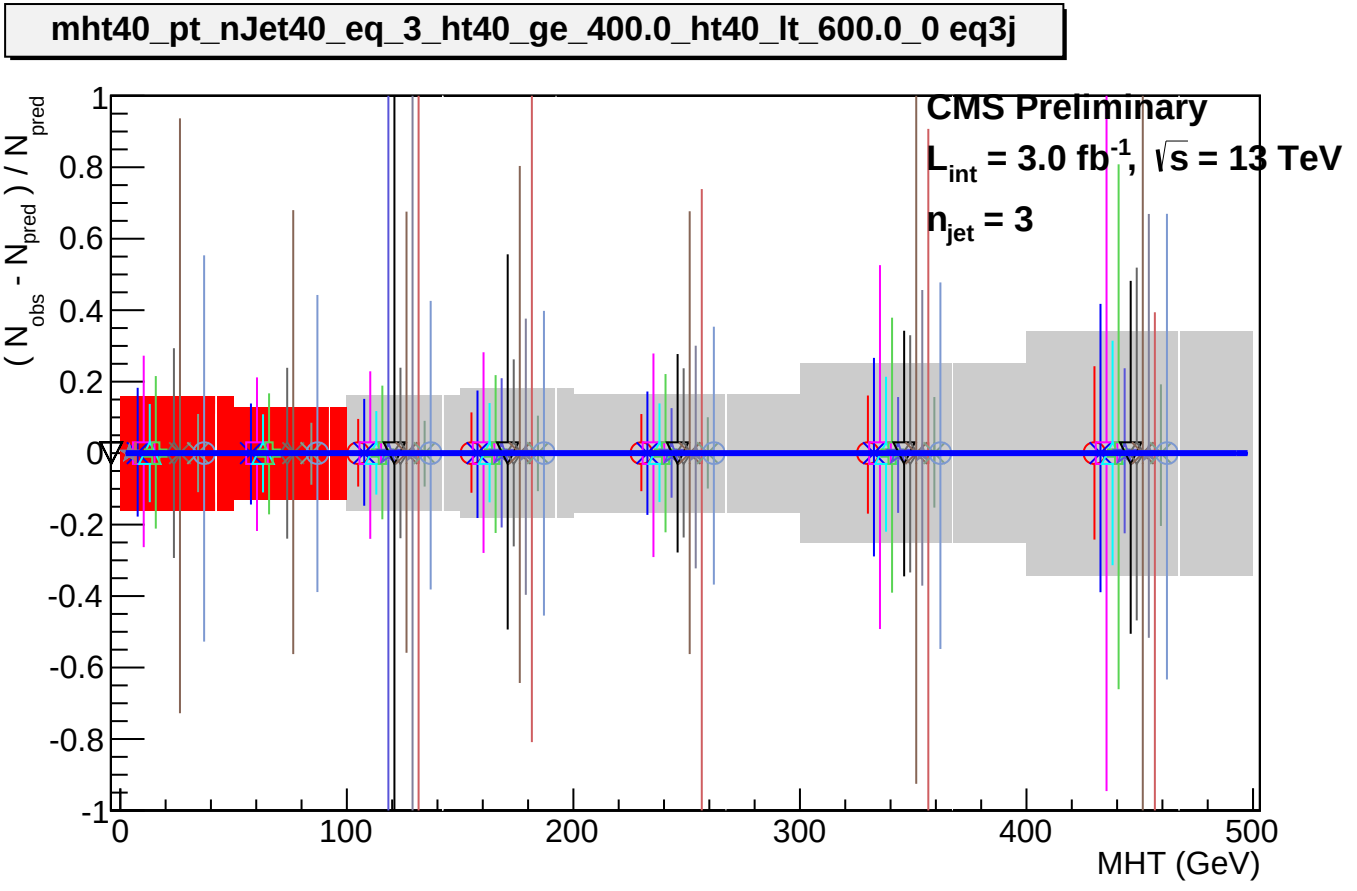

mht40_pt_nJet40_eq_3_ht40_ge_250.0_ht40_lt_300.0_Asym_0 eq3a
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 3 asym
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300


mht40_pt_nJet40_eq_3_ht40_ge_300.0_ht40_lt_350.0_0 eq3j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 3
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400

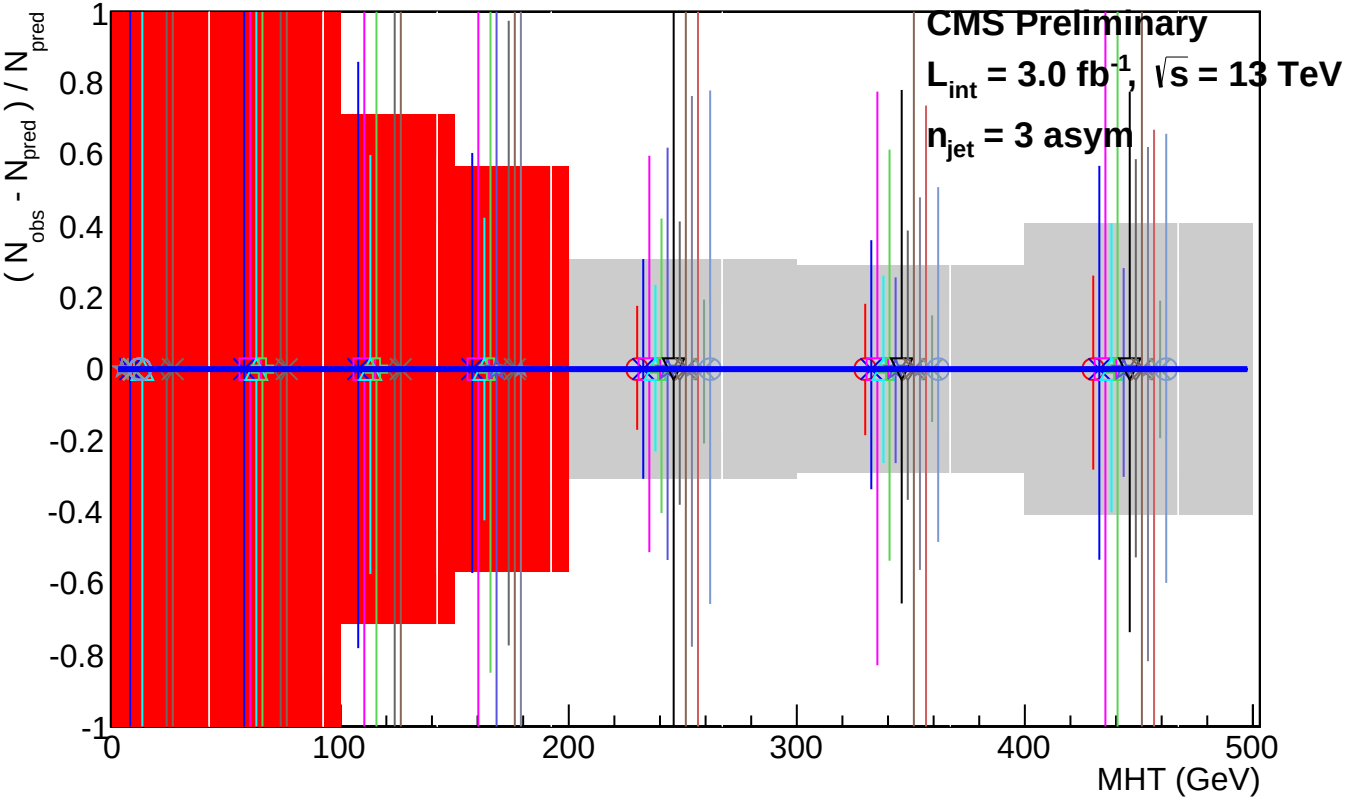

mht40_pt_nJet40_eq_3_ht40_ge_300.0_ht40_lt_350.0_Asym_0 eq3a
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 3 asym
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400

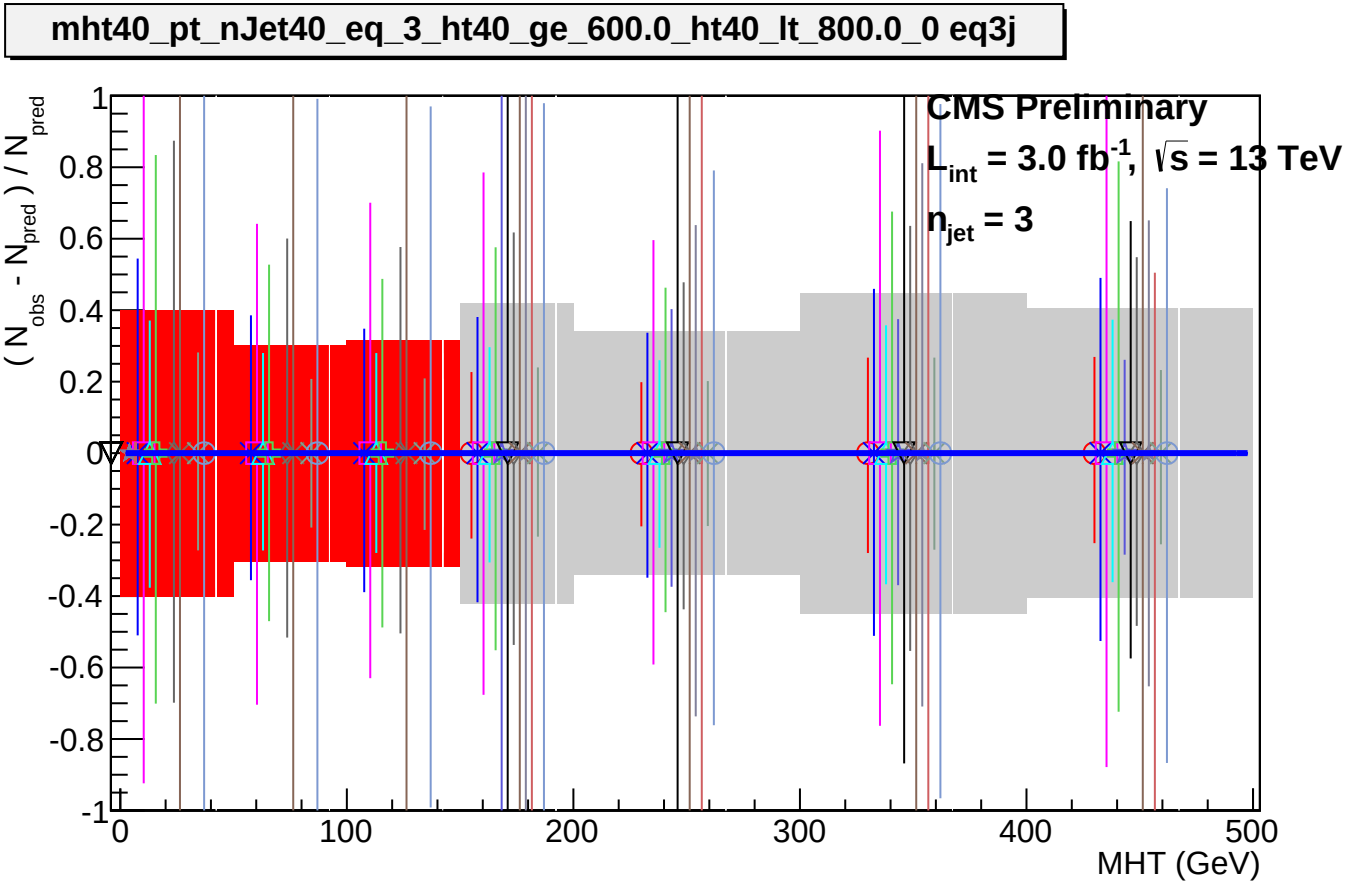

mht40_pt_nJet40_eq_3_ht40_ge_350.0_ht40_lt_400.0_0 eq3j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 3
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400


mht40_pt_nJet40_eq_3_ht40_ge_350.0_ht40_lt_400.0_Asym_0 eq3a
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 3 asym
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400

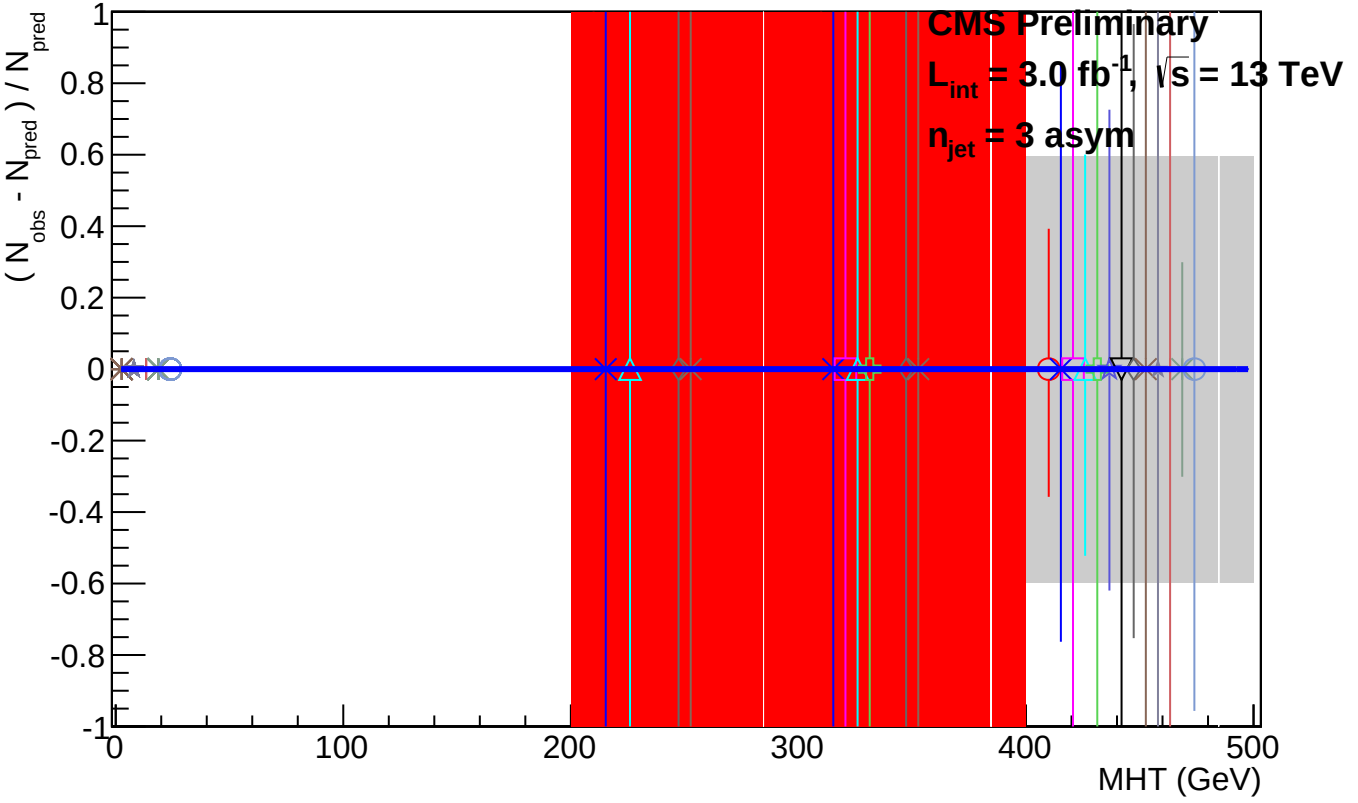

mht40_pt_nJet40_eq_3_ht40_ge_400.0_ht40_lt_600.0_0 eq3j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 3
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500

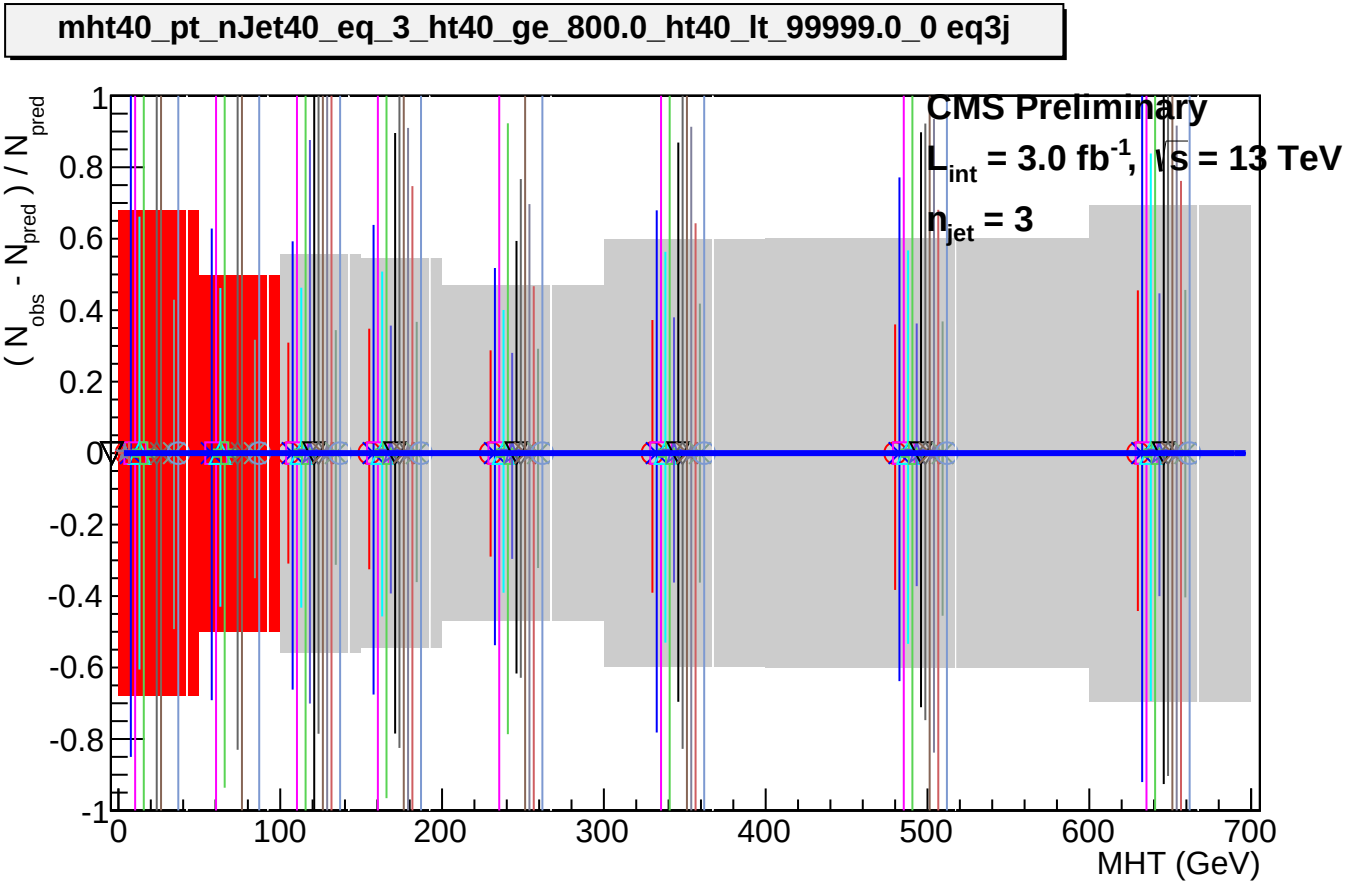
mht40_pt_nJet40_eq_3_ht40_ge_400.0_ht40_lt_600.0_Asym_0 eq3a

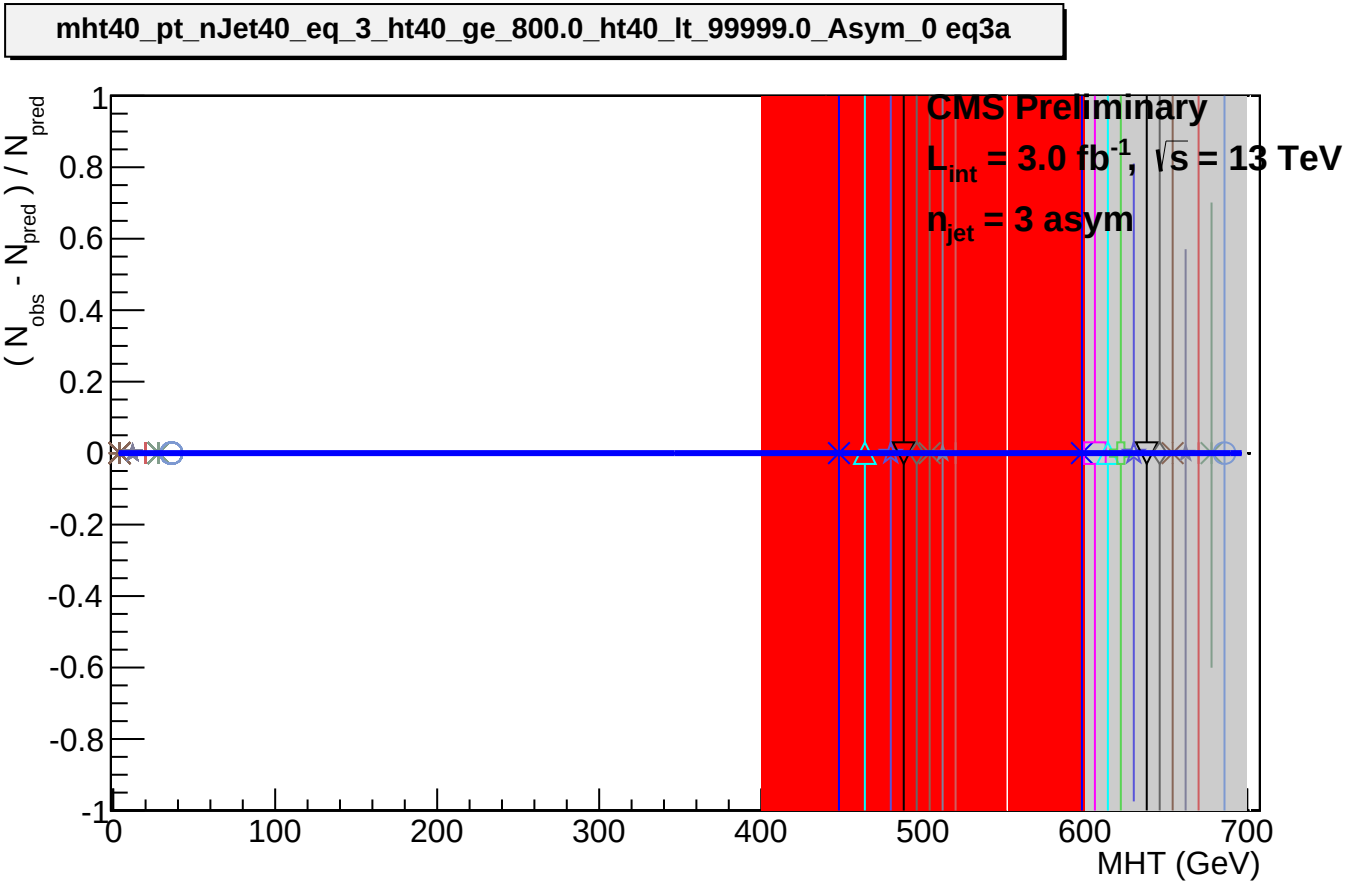


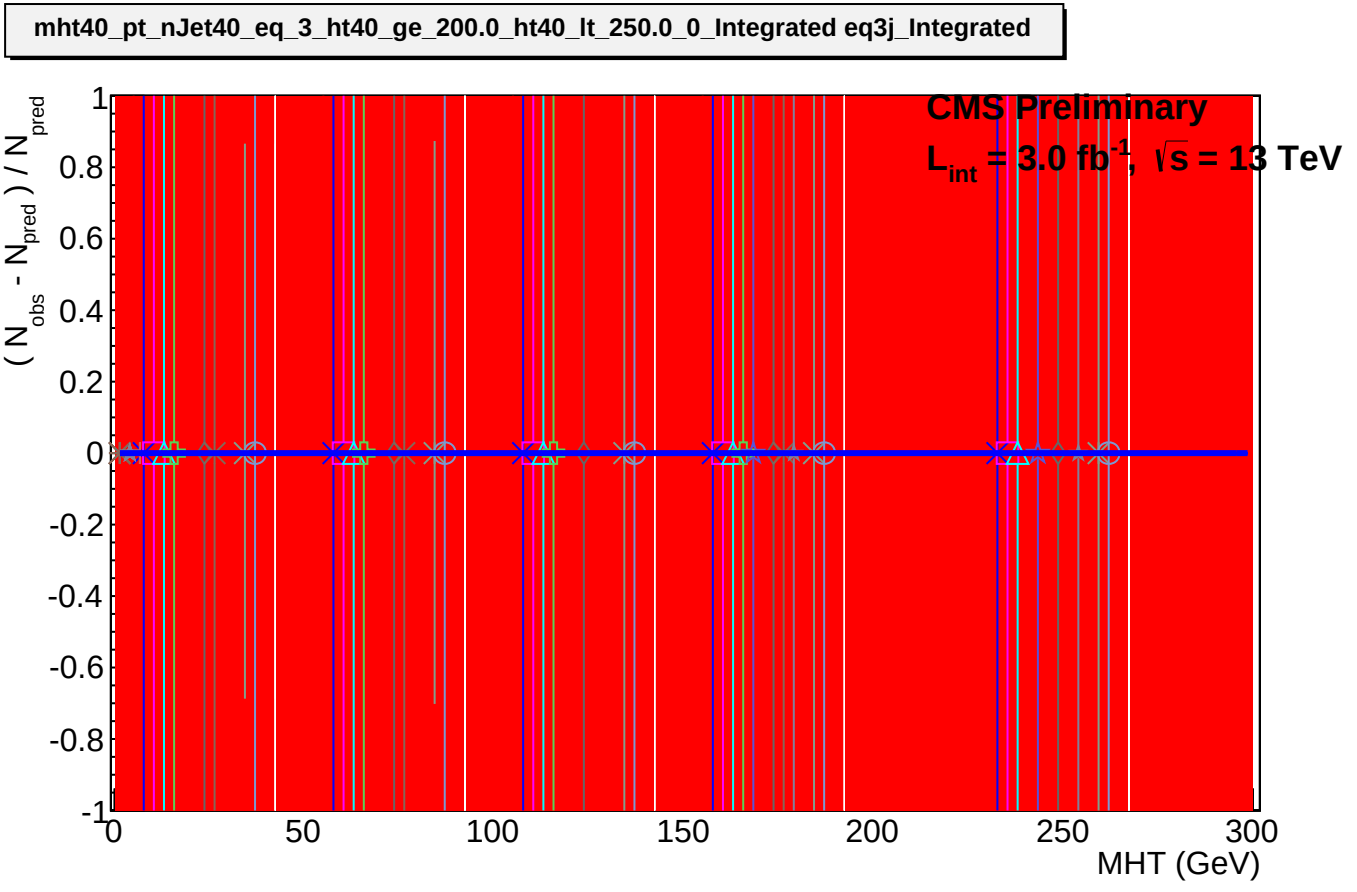

mht40_pt_nJet40_eq_3_ht40_ge_600.0_ht40_lt_800.0_0 eq3j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 3
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500

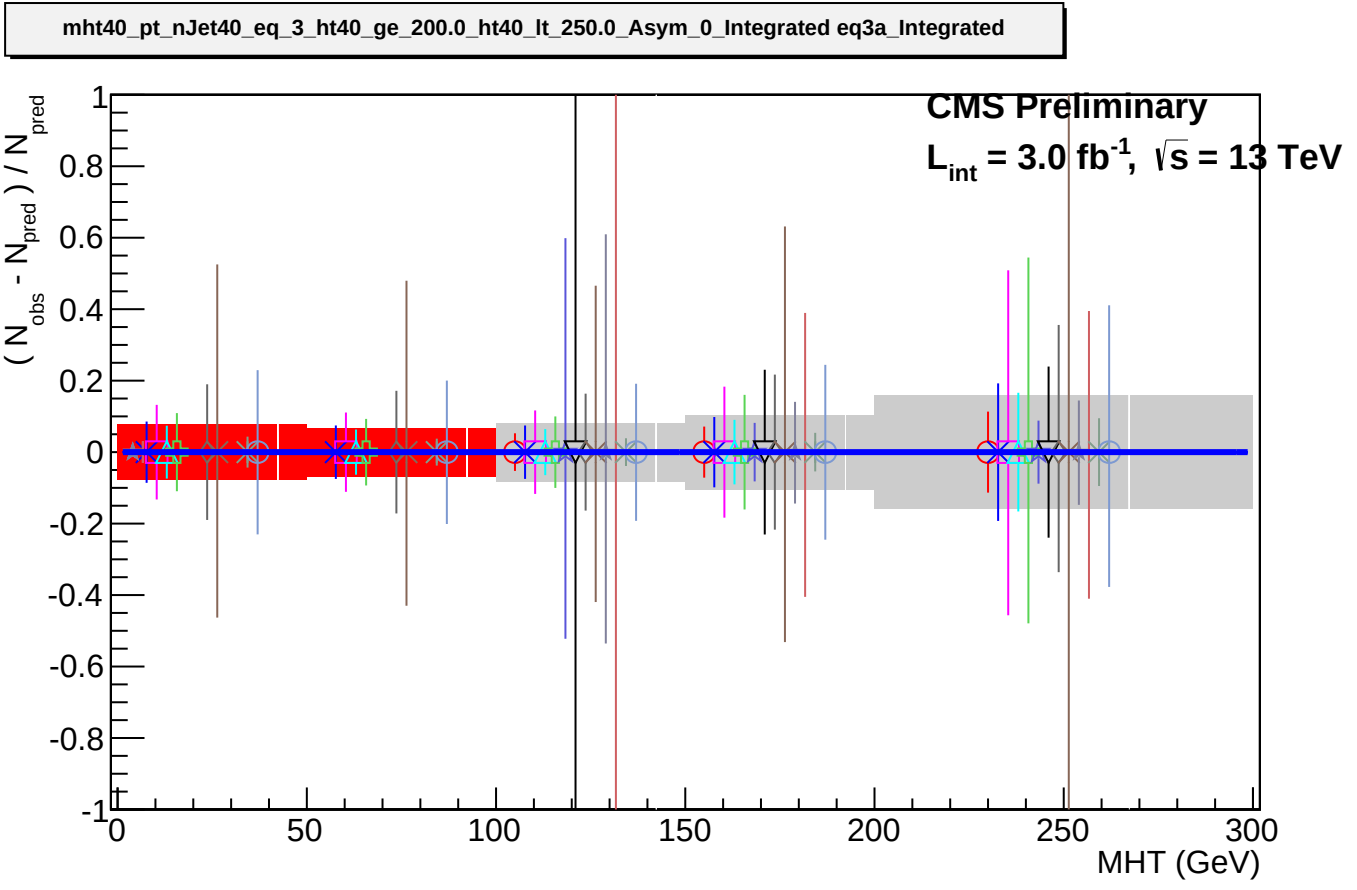
mht40_pt_nJet40_eq_3_ht40_ge_600.0_ht40_lt_800.0_Asym_0 eq3a

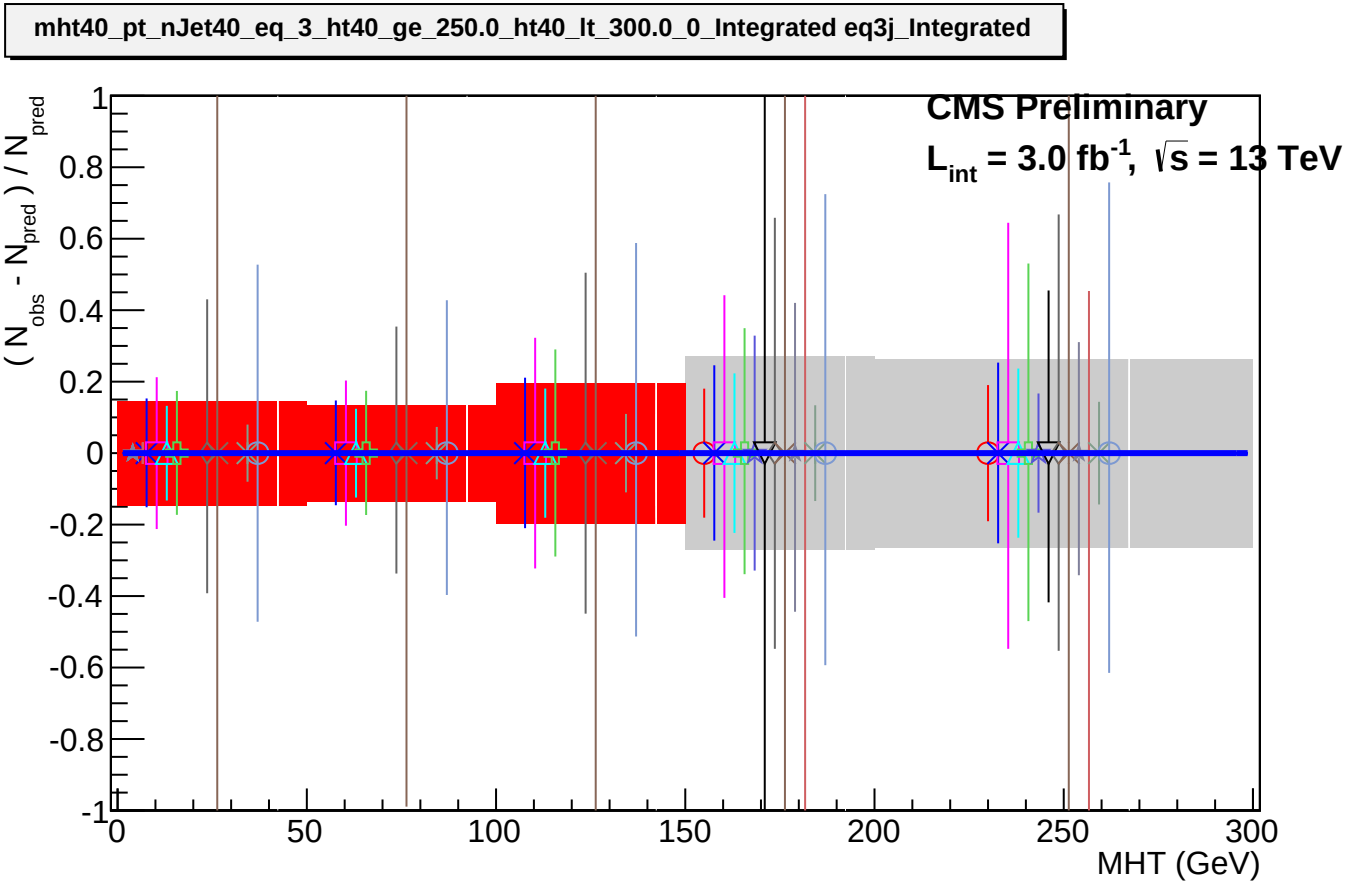


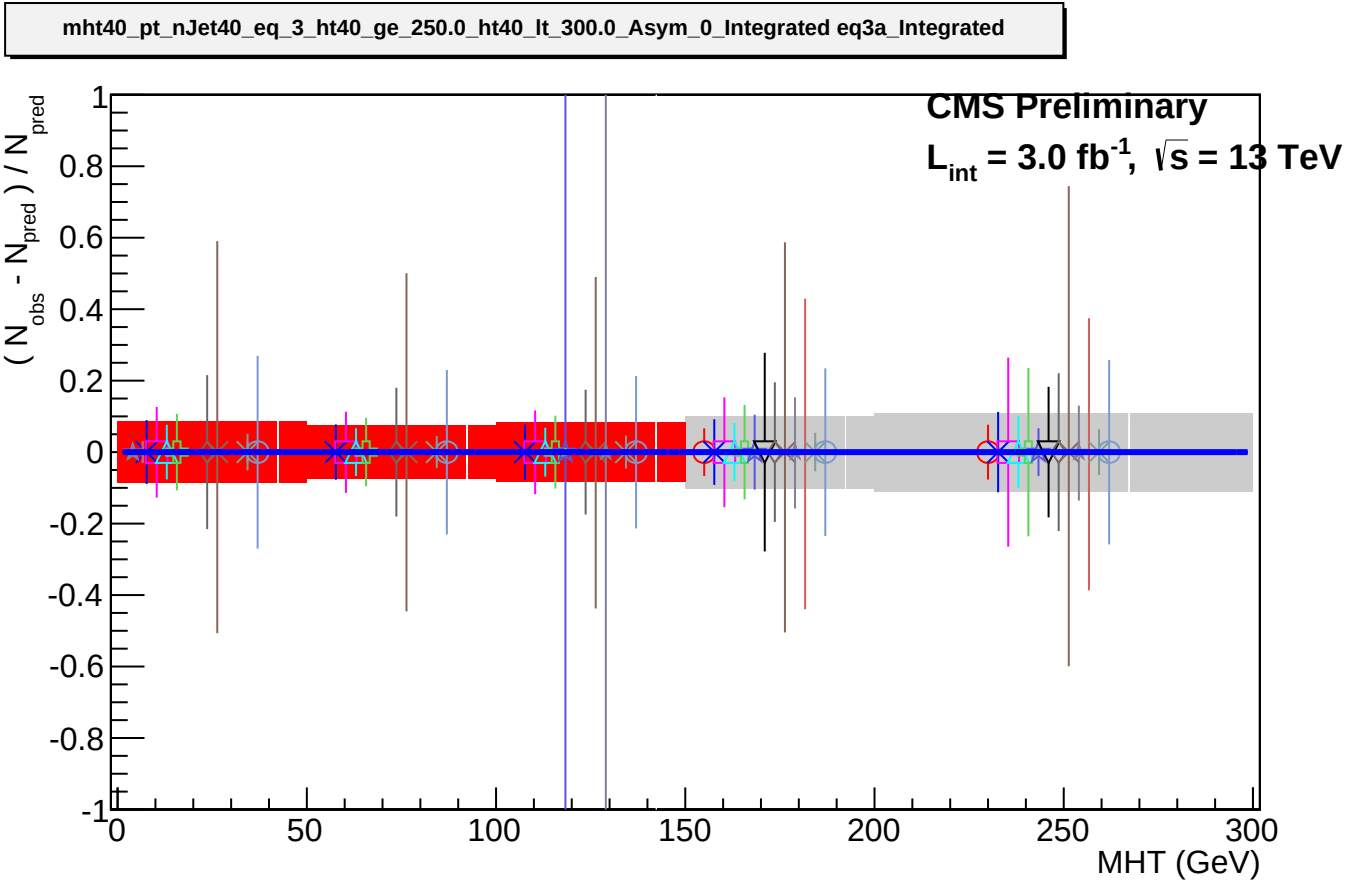

mht40_pt_nJet40_eq_3_ht40_ge_800.0_ht40_lt_99999.0_0 eq3j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 3
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
600
700

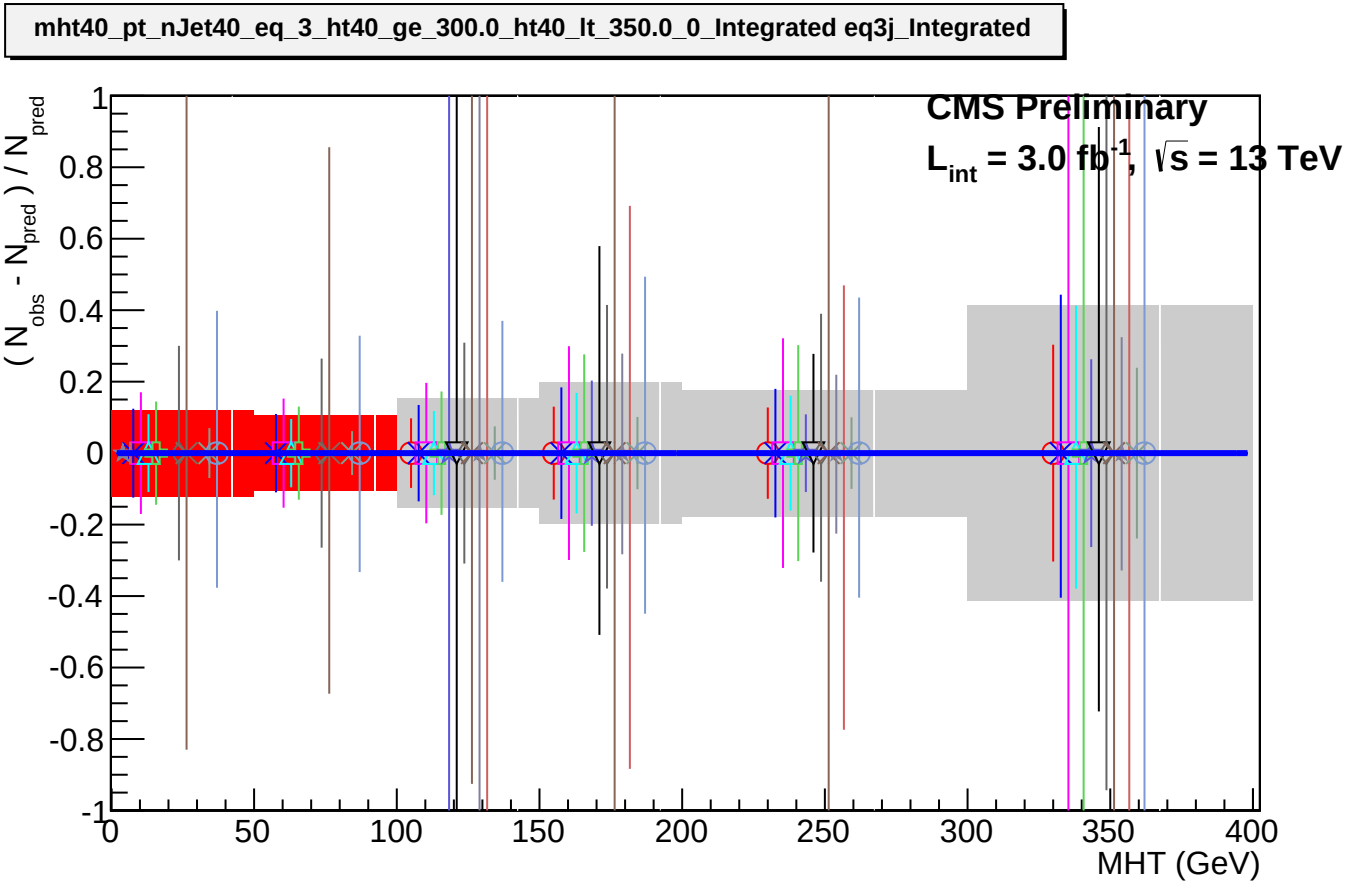

mht40_pt_nJet40_eq_3_ht40_ge_800.0_ht40_lt_99999.0_Asym_0 eq3a
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
n_jet = 3 asym
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
600
700

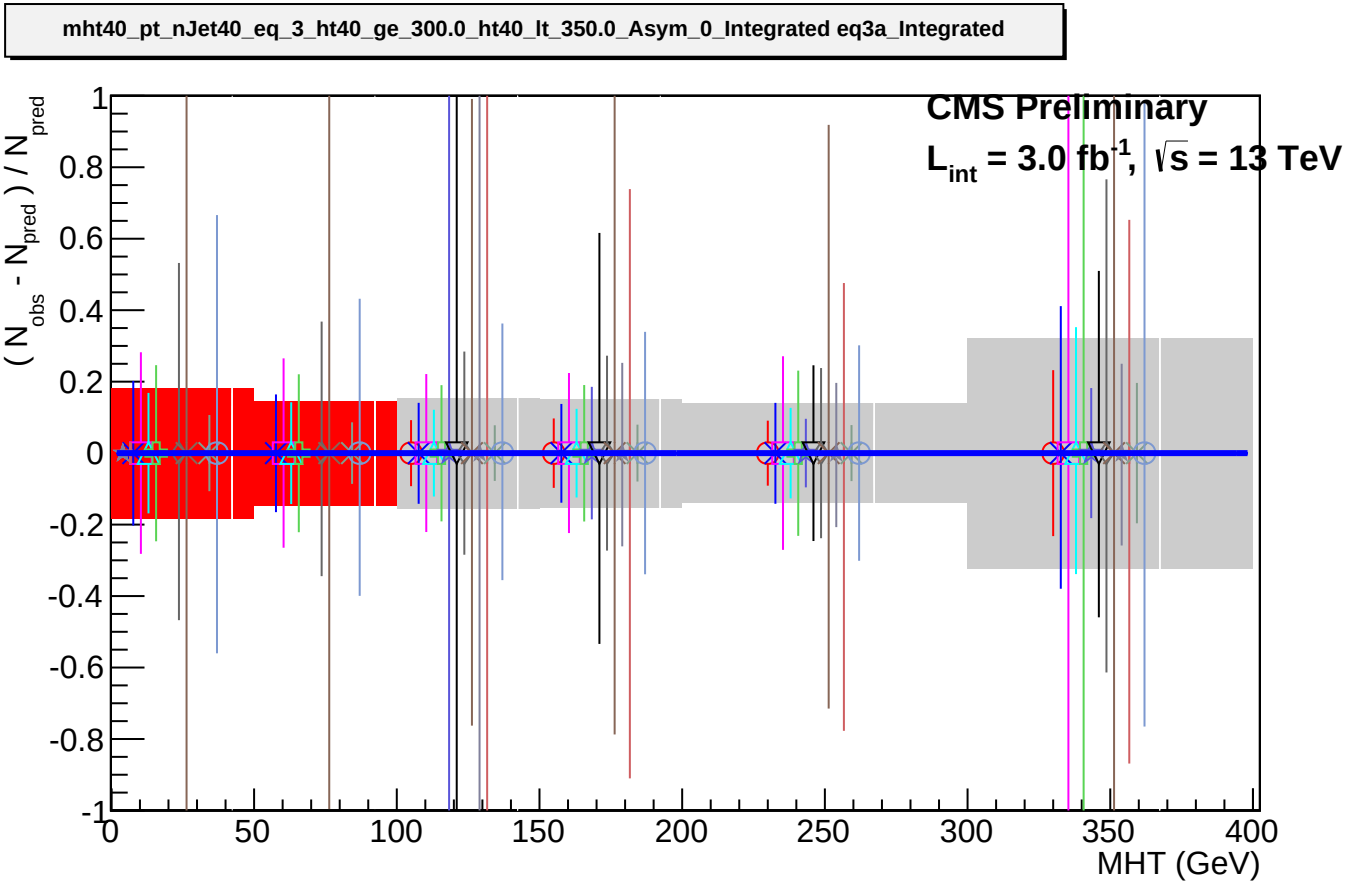

mht40_pt_nJet40_eq_3_ht40_ge_200.0_ht40_lt_250.0_0_Integrated eq3j_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
MHT (GeV)

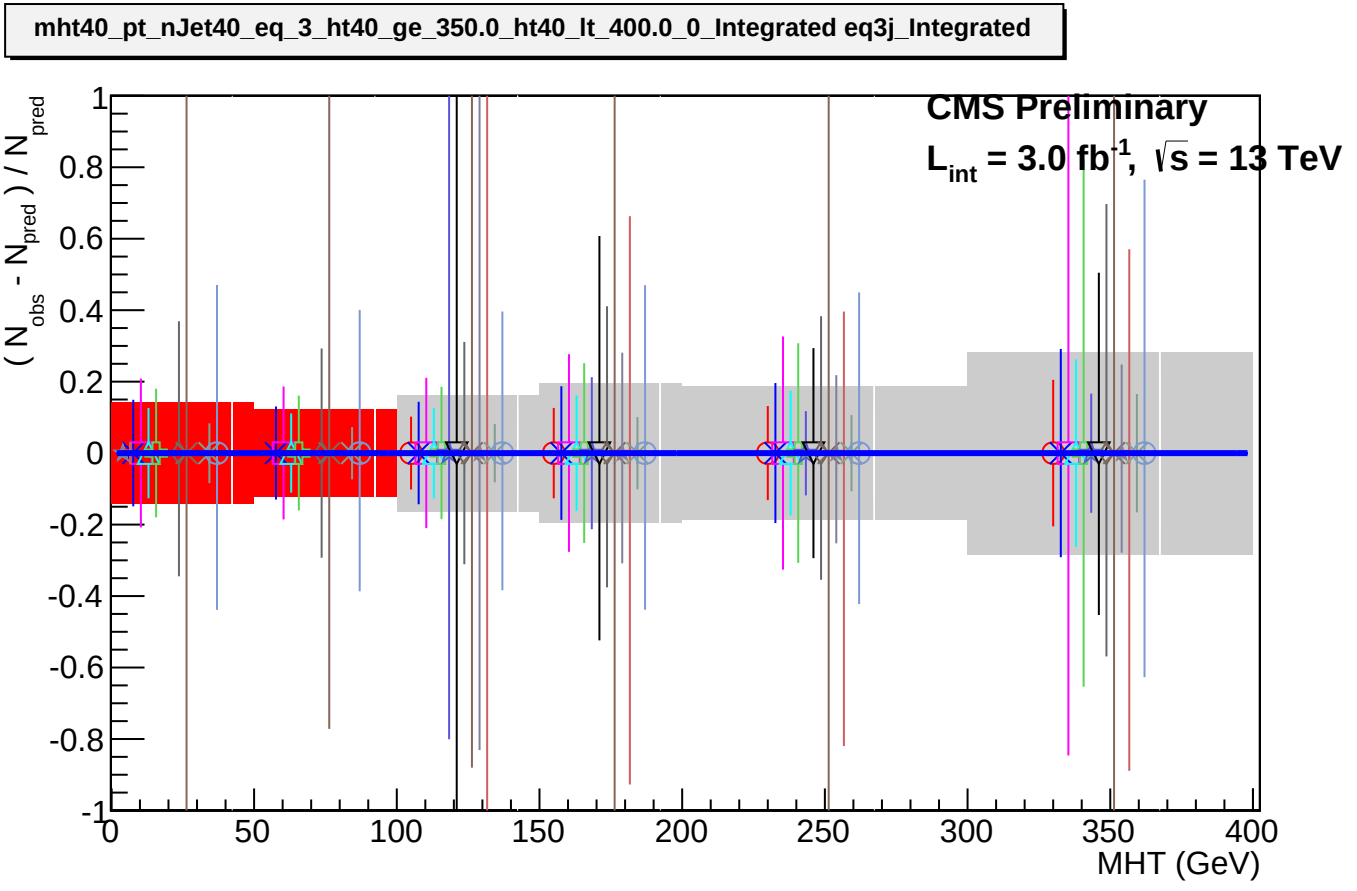

mht40_pt_nJet40_eq_3_ht40_ge_200.0_ht40_lt_250.0_Asym_0_Integrated eq3a_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
MHT (GeV)

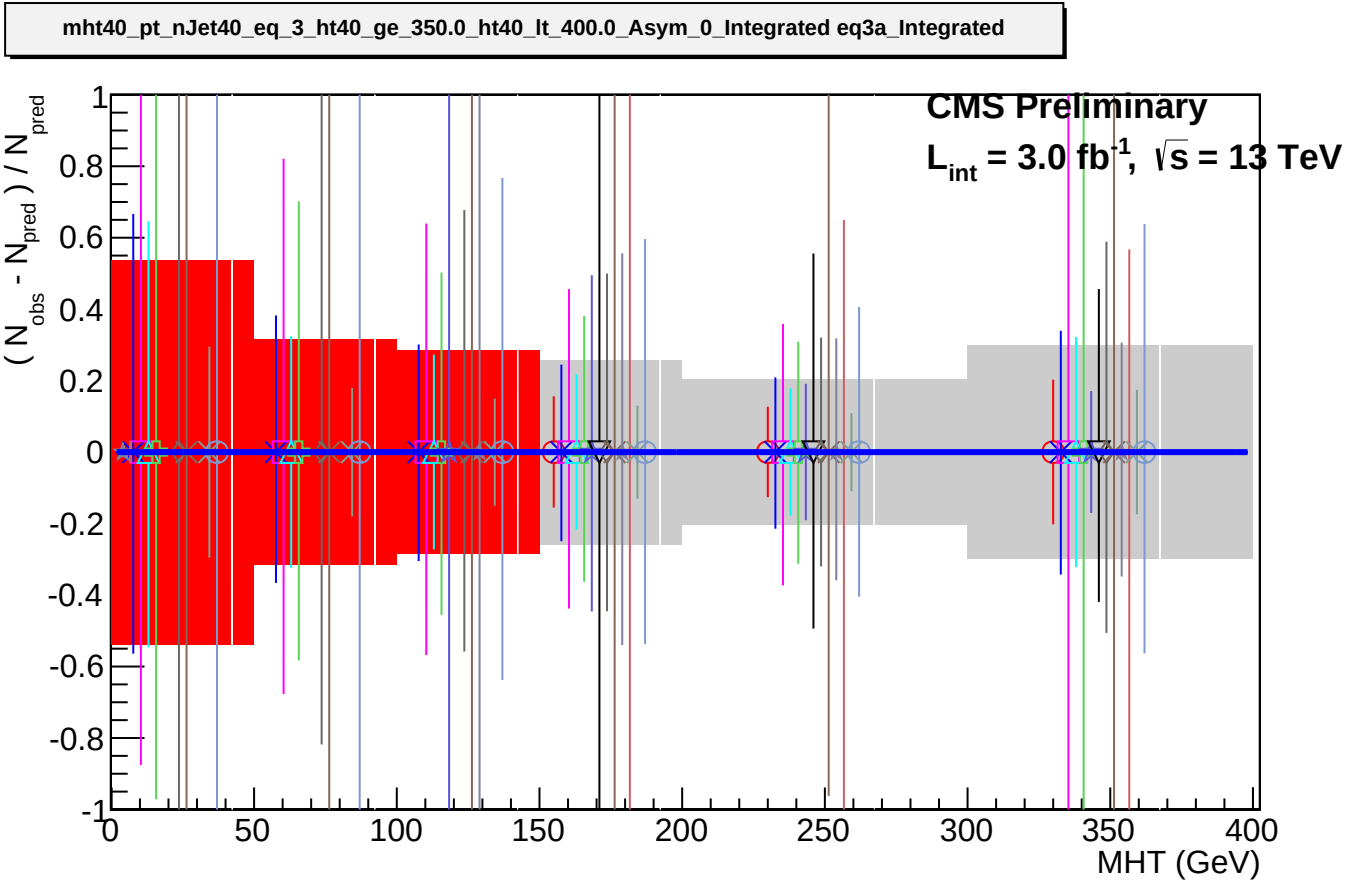

mht40_pt_nJet40_eq_3_ht40_ge_250.0_ht40_lt_300.0_0_Integrated eq3j_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300


mht40_pt_nJet40_eq_3_ht40_ge_250.0_ht40_lt_300.0_Asym_0_Integrated eq3a_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
MHT (GeV)

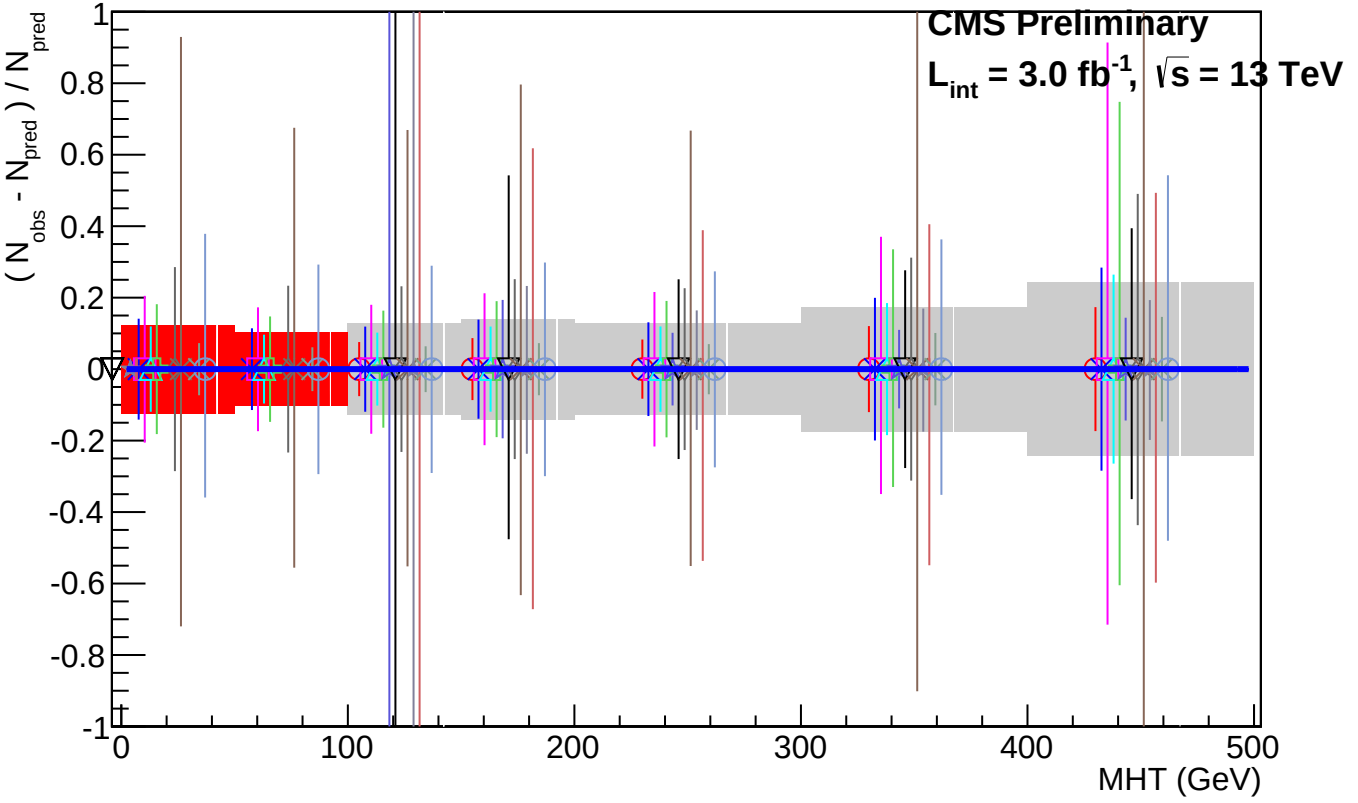

mht40_pt_nJet40_eq_3_ht40_ge_300.0_ht40_lt_350.0_0_Integrated eq3j_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400

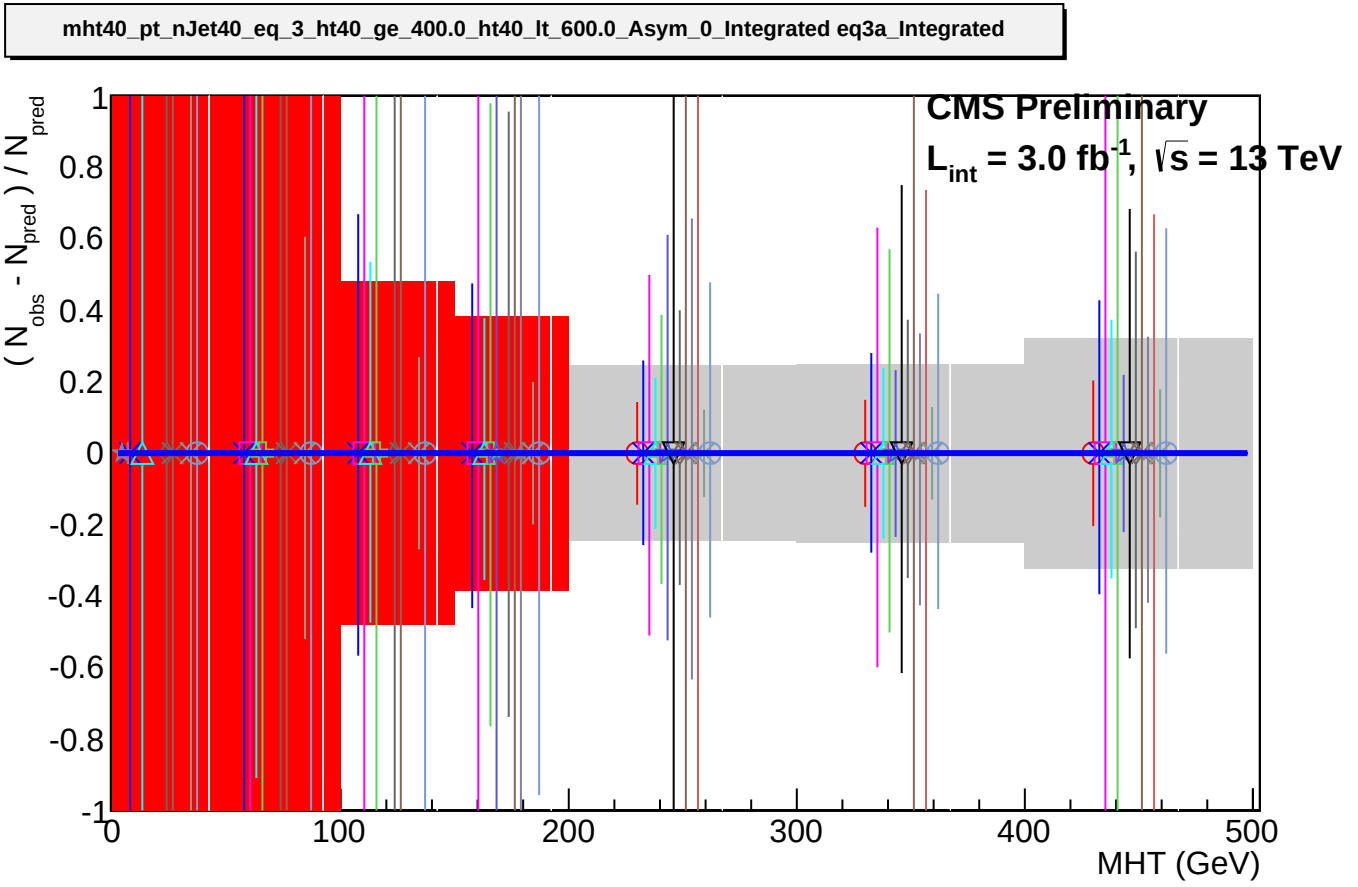

mht40_pt_nJet40_eq_3_ht40_ge_300.0_ht40_lt_350.0_Asym_0_Integrated eq3a_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400

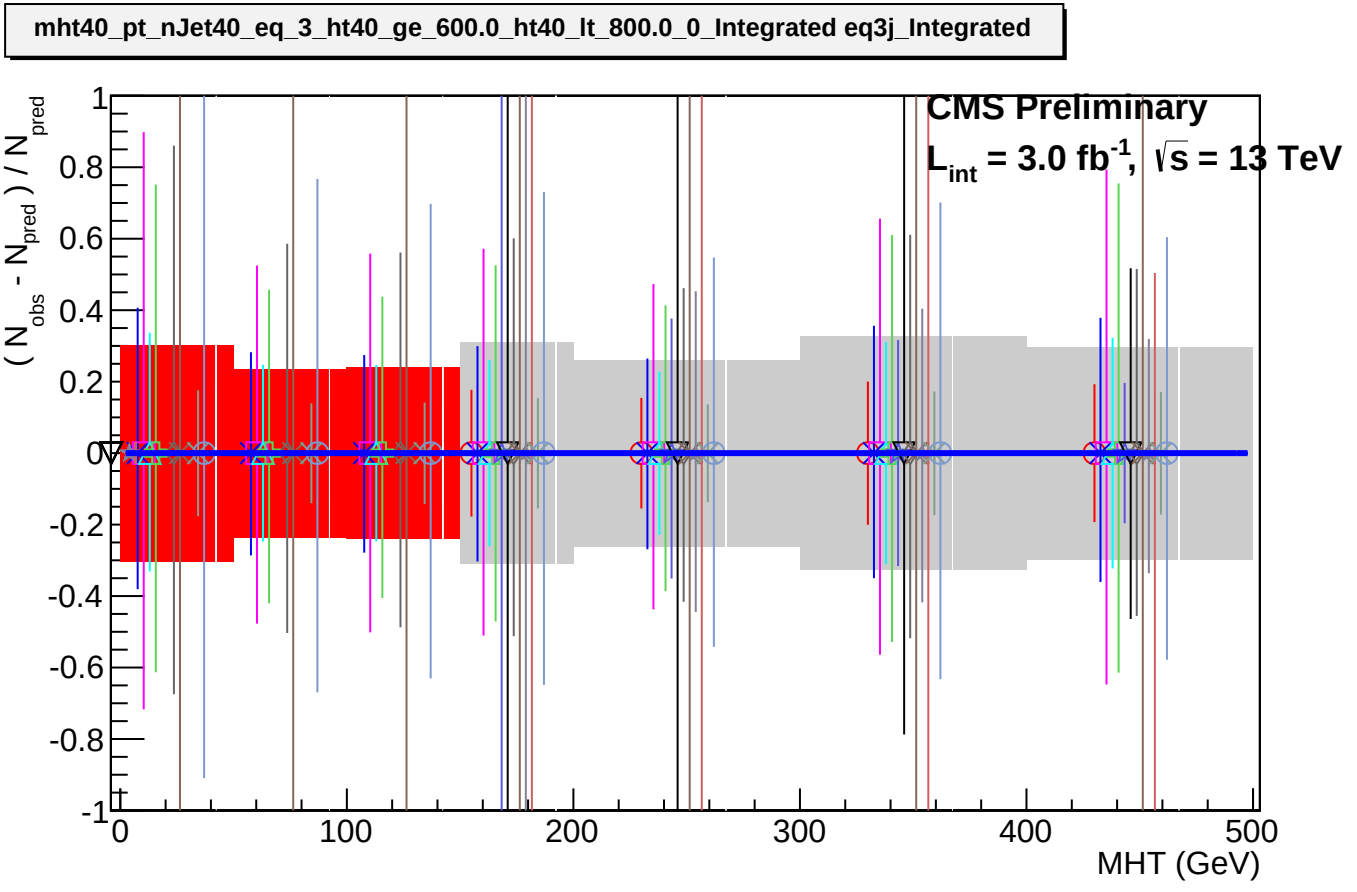

mht40_pt_nJet40_eq_3_ht40_ge_350.0_ht40_lt_400.0_0_Integrated eq3j_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400

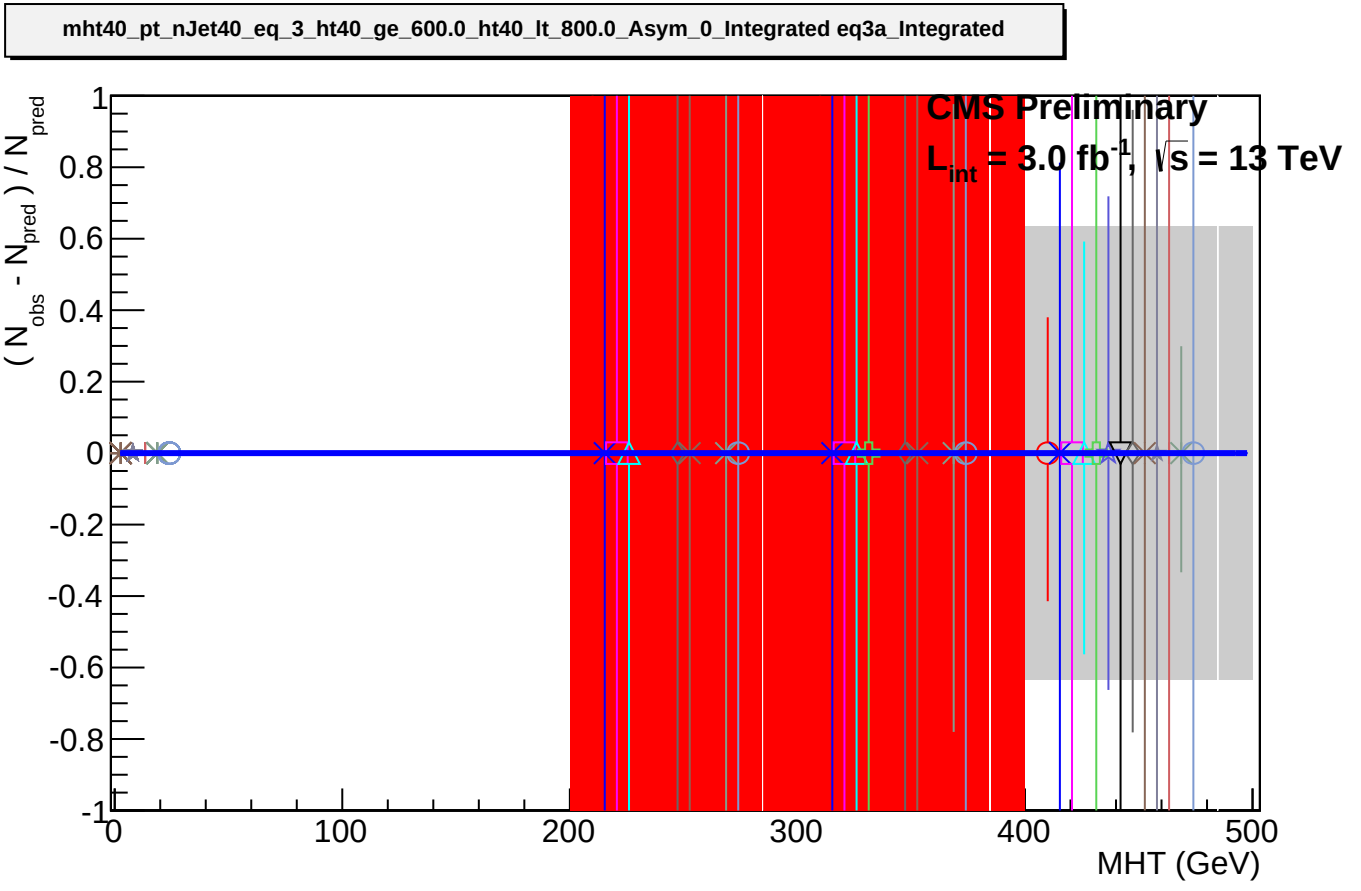

mht40_pt_nJet40_eq_3_ht40_ge_350.0_ht40_lt_400.0_Asym_0_Integrated eq3a_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400

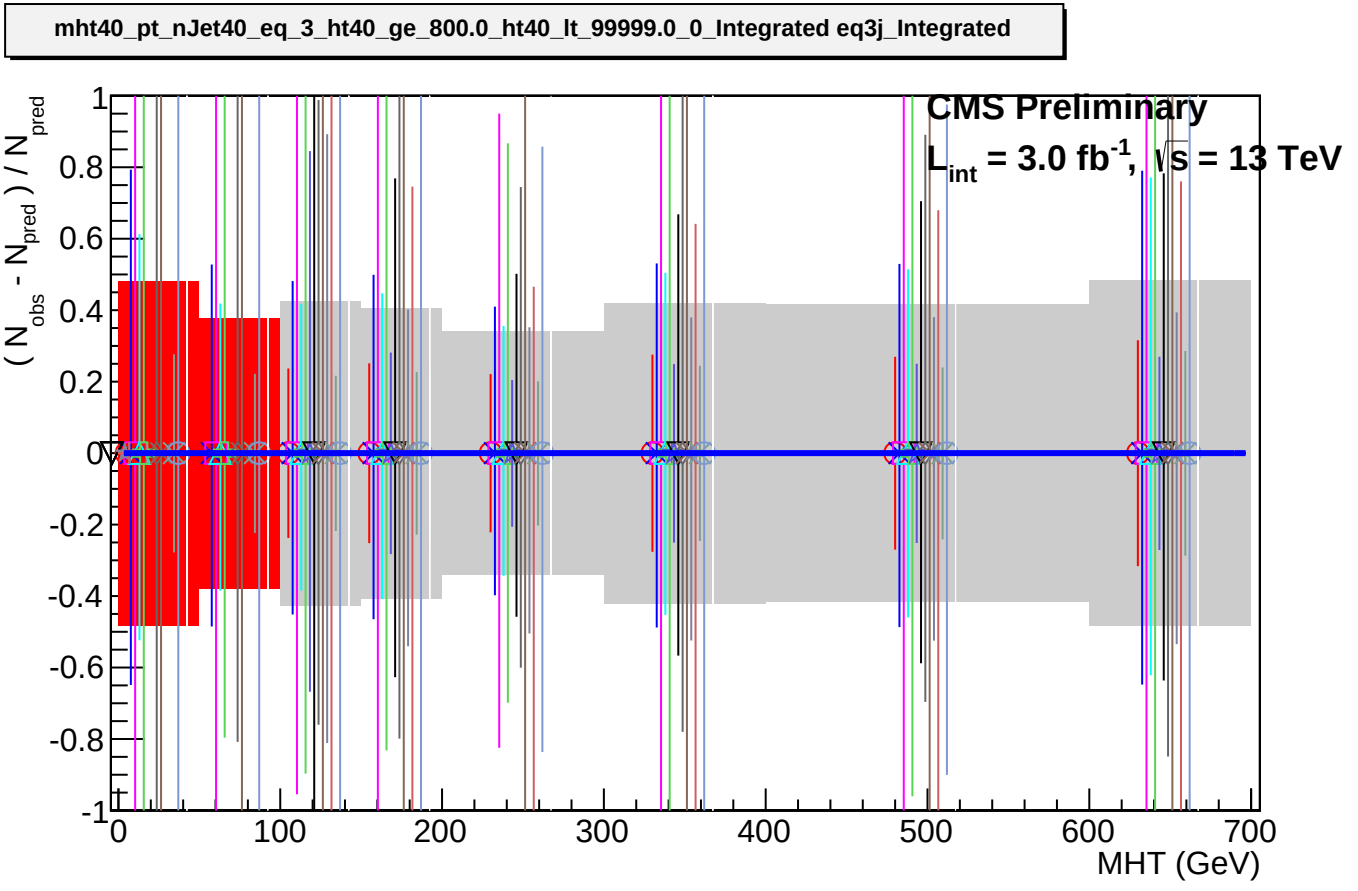
mht40_pt_nJet40_eq_3_ht40_ge_400.0_ht40_lt_600.0_0_Integrated eq3j_Integrated

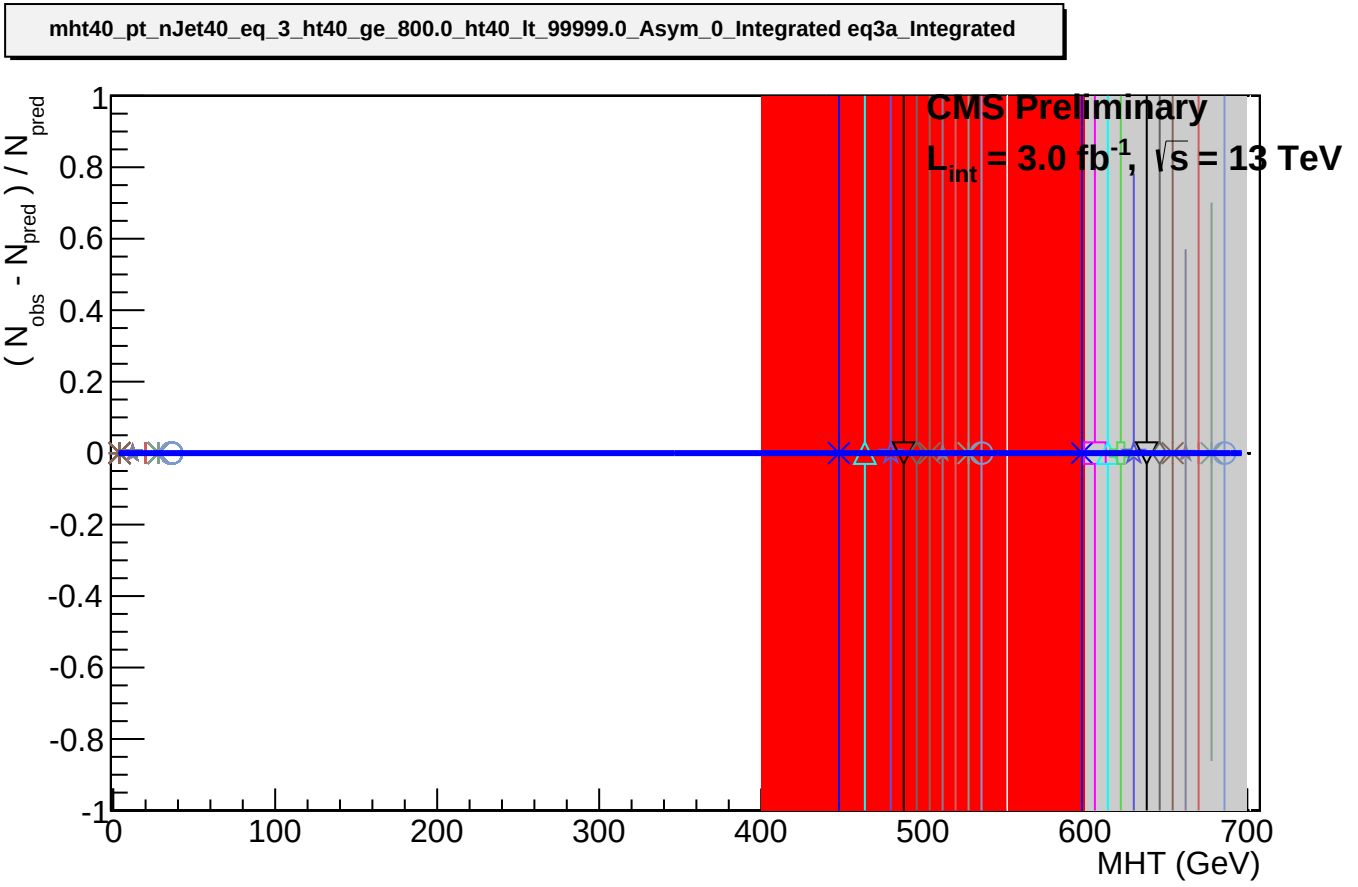



mht40_pt_nJet40_eq_3_ht40_ge_400.0_ht40_lt_600.0_Asym_0_Integrated eq3a_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500

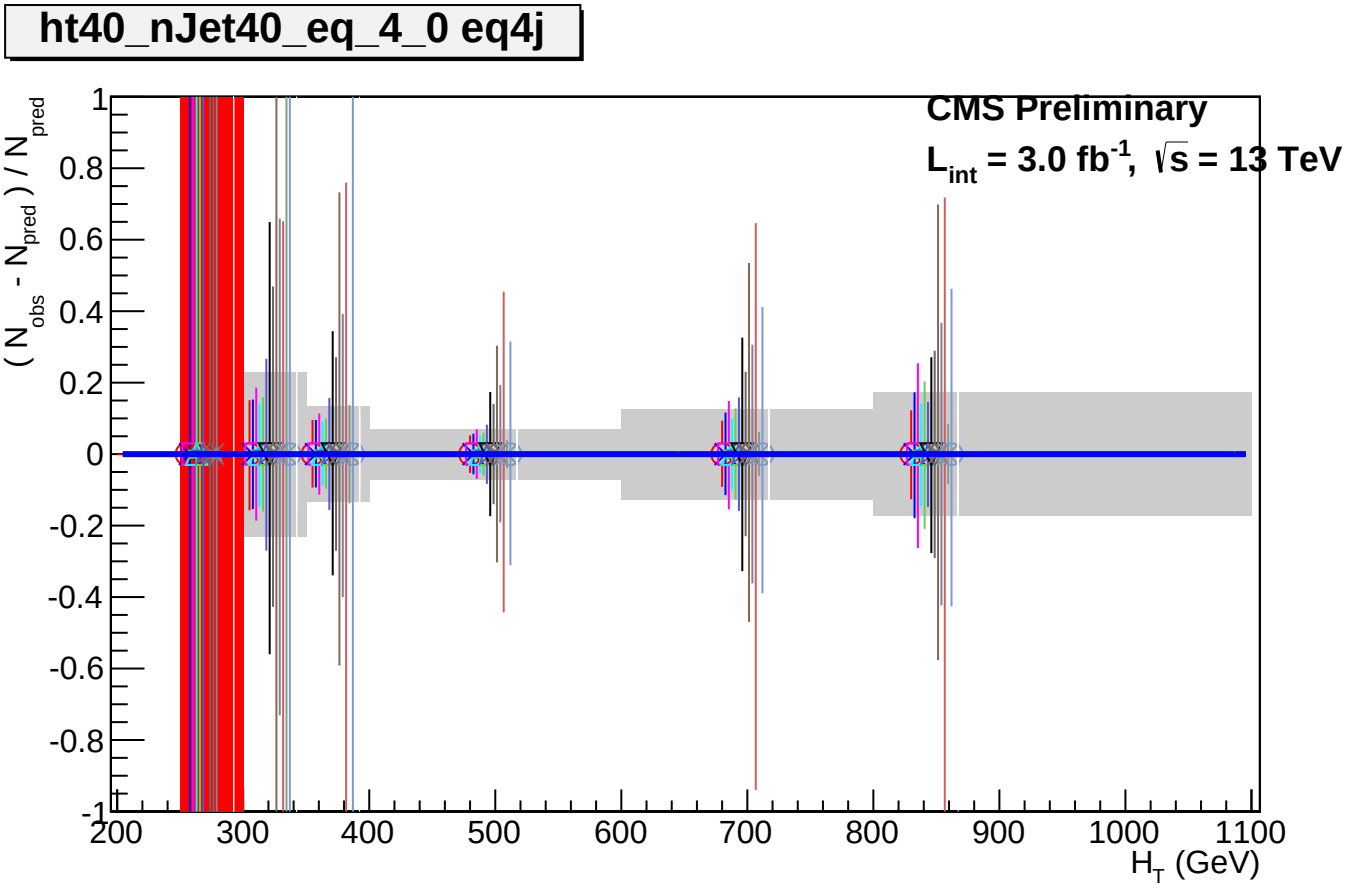

mht40_pt_nJet40_eq_3_ht40_ge_600.0_ht40_lt_800.0_0_Integrated eq3j_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500


mht40_pt_nJet40_eq_3_ht40_ge_600.0_ht40_lt_800.0_Asym_0_Integrated eq3a_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
MHT (GeV)

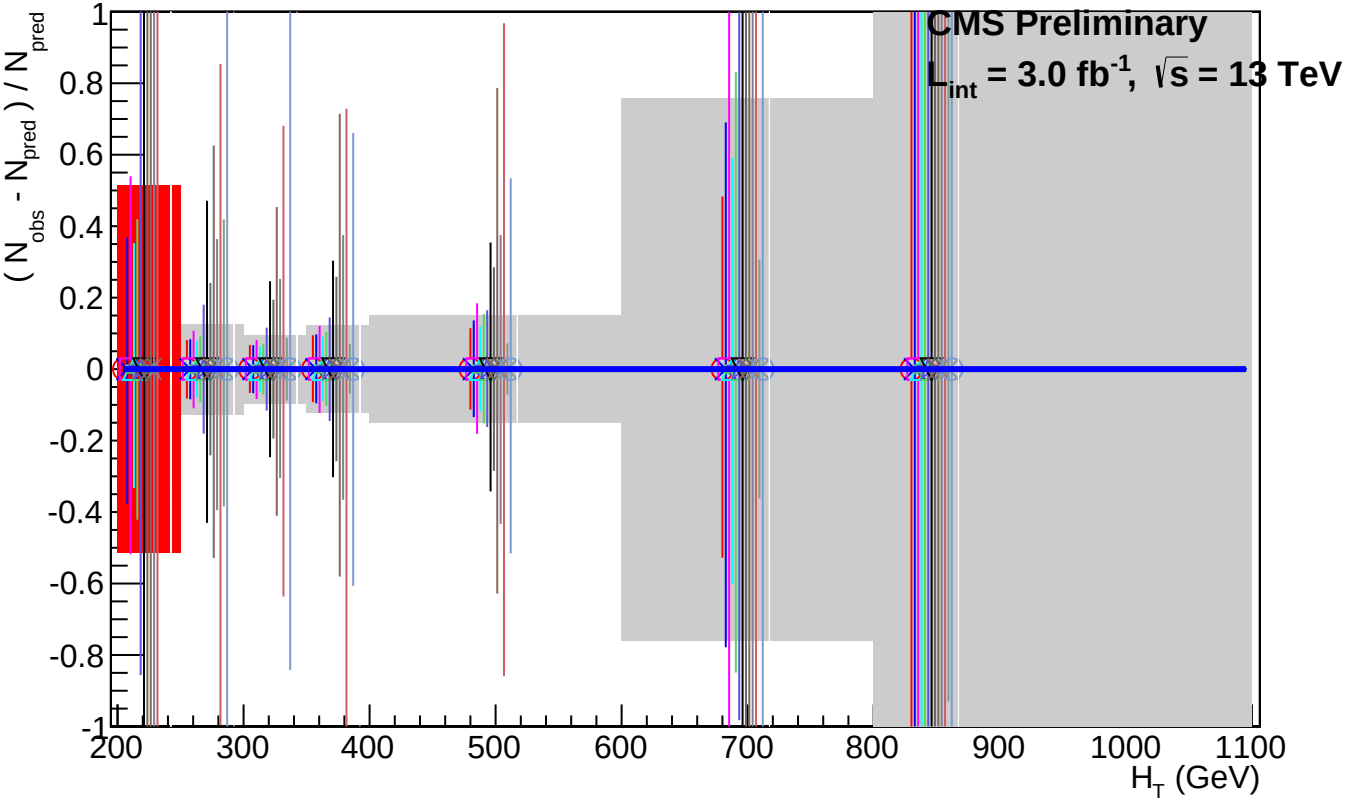

mht40_pt_nJet40_eq_3_ht40_ge_800.0_ht40_lt_99999.0_0_Integrated eq3j_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
600
700

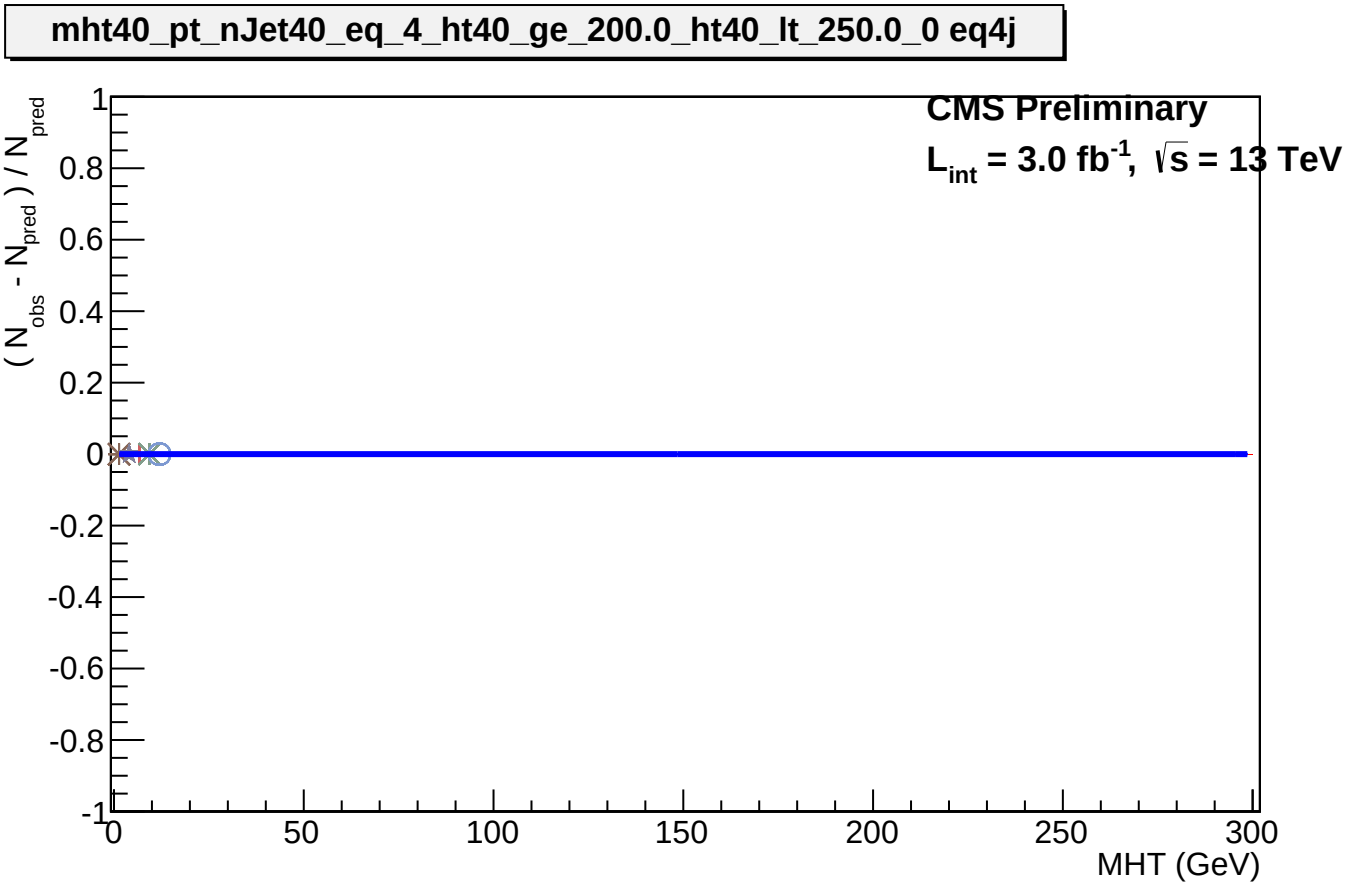

mht40_pt_nJet40_eq_3_ht40_ge_800.0_ht40_lt_99999.0_Asym_0_Integrated eq3a_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
600
700

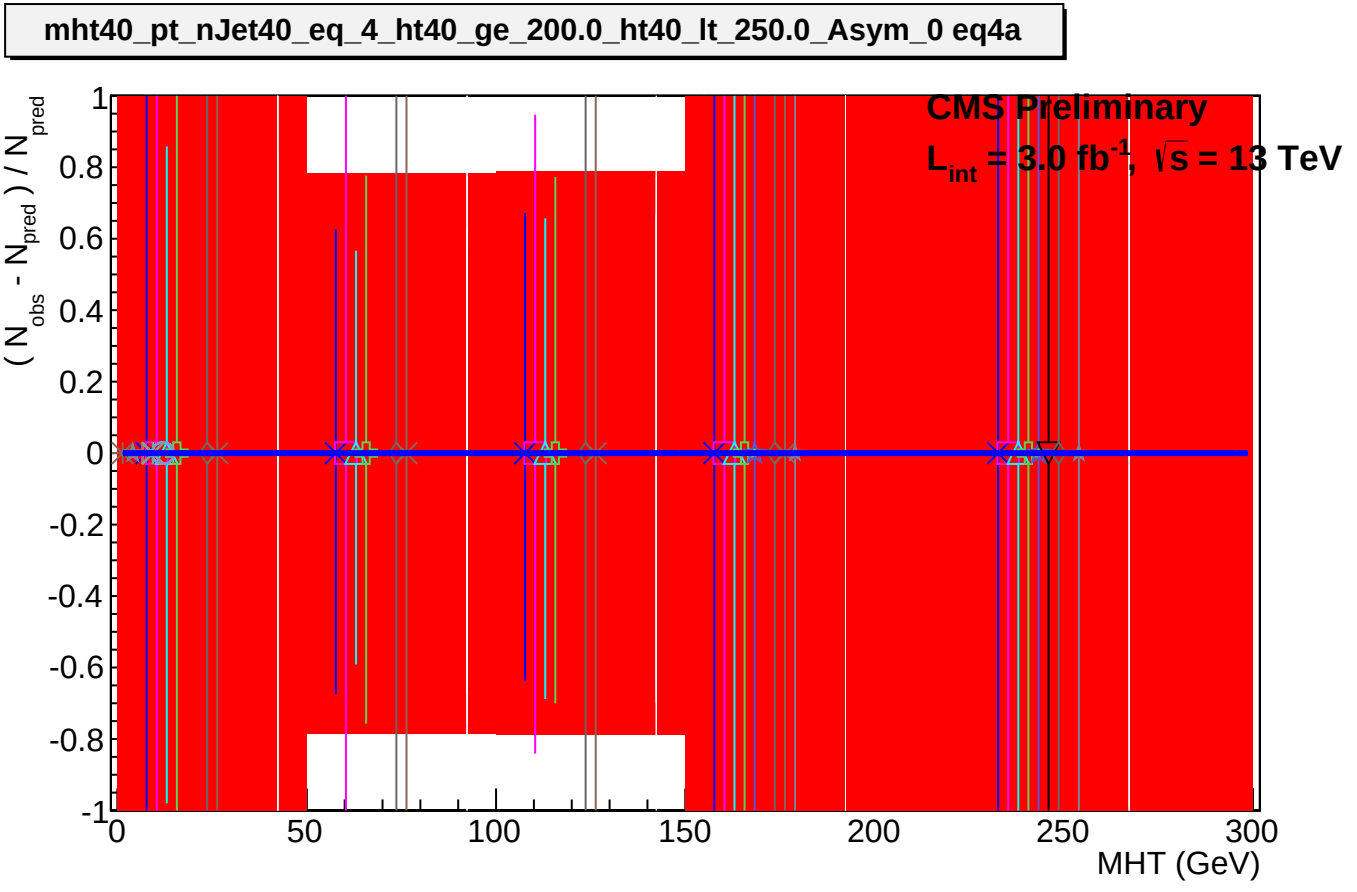

Systematic uncertainty
Missing closure point
μ + jets → e + jets (0 b-tags)
μ + jets → e + jets (1 b-tags)
μ + jets → e + jets (≥ 2 b-tags)
0 b-tags → 1 b-tag (μ + jets)
1 b-tags → ≥ 2 b-tag (μ + jets)
e + jets → γ + jets (0 b-tags)
e + jets → γ + jets (1 b-tags)
μ + jets → μμ + jets (0 b-tags)
μ + jets → μμ + jets (1 b-tags)
ee + jets → γ + jets (0 b-tags)
ee + jets → γ + jets (1 b-tags)
N_jet = 4 → N_jet ≥ 5 (e + jets)
N_jet = 4 → N_jet ≥ 5 (ee + jets)

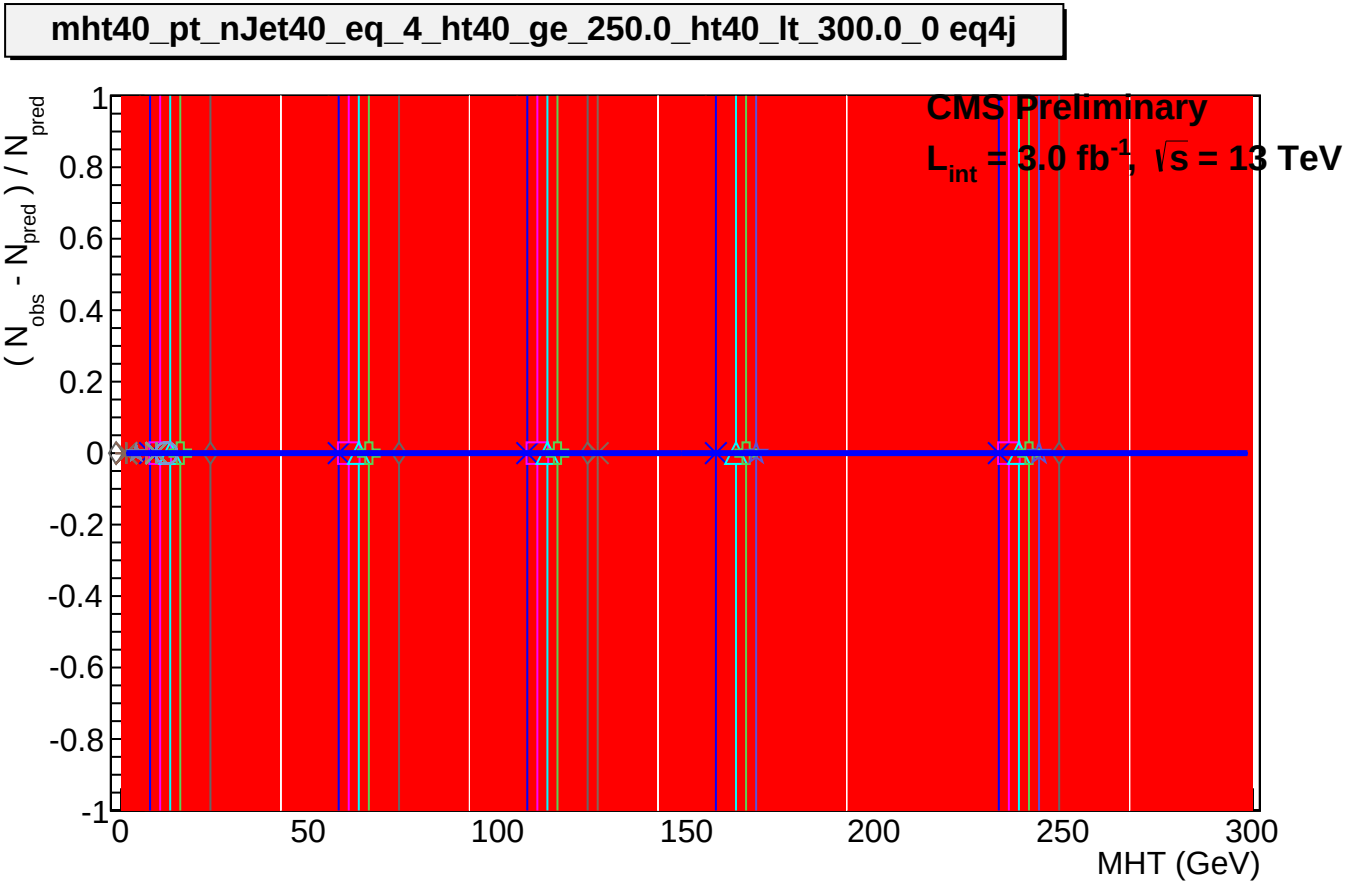

ht40_nJet40_eq_4_0 eq4j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
200
300
400
500
600
700
800
900
1000
1100
H_T (GeV)

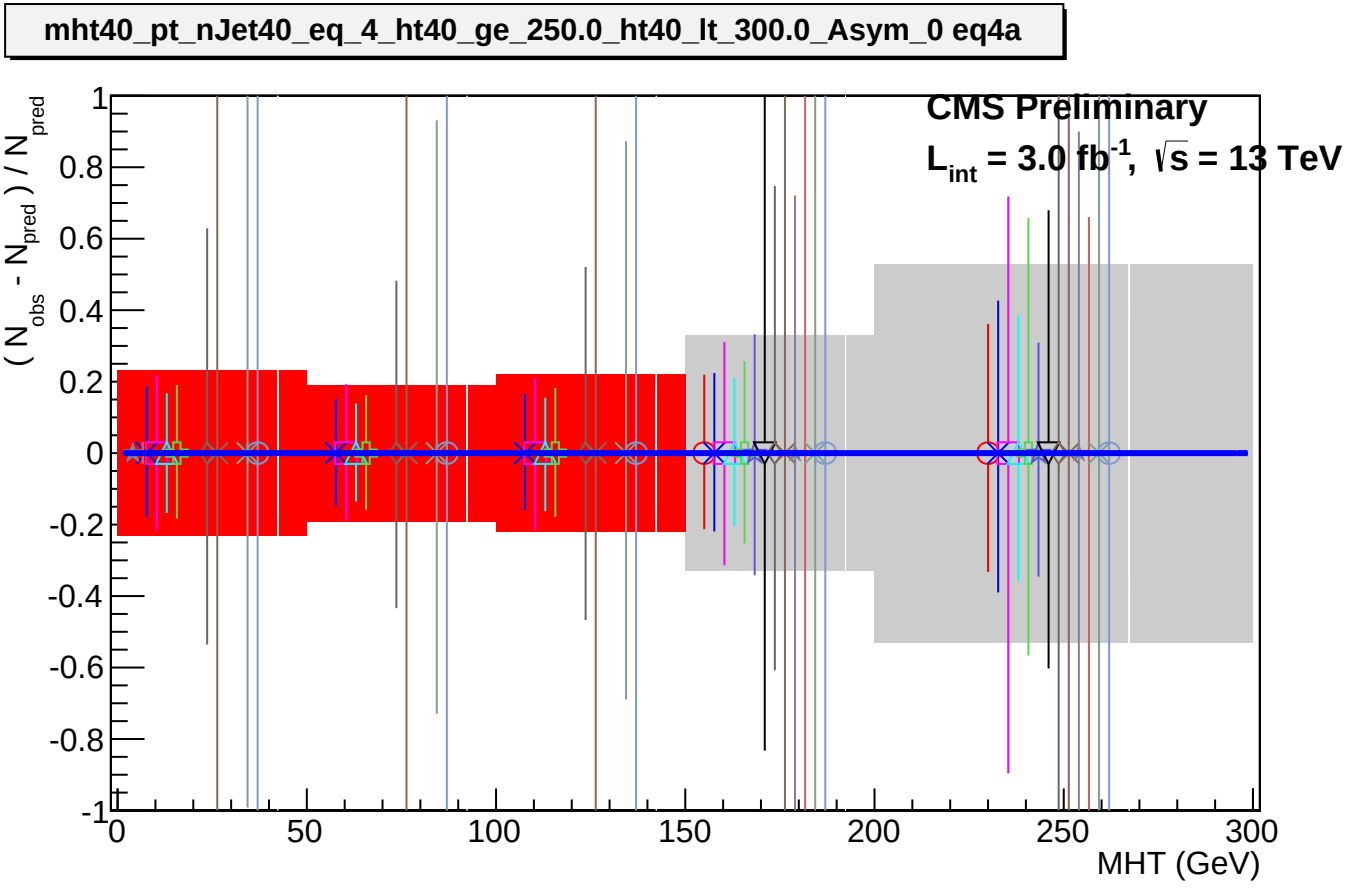
ht40_nJet40_eq_4_Asym_0 eq4a

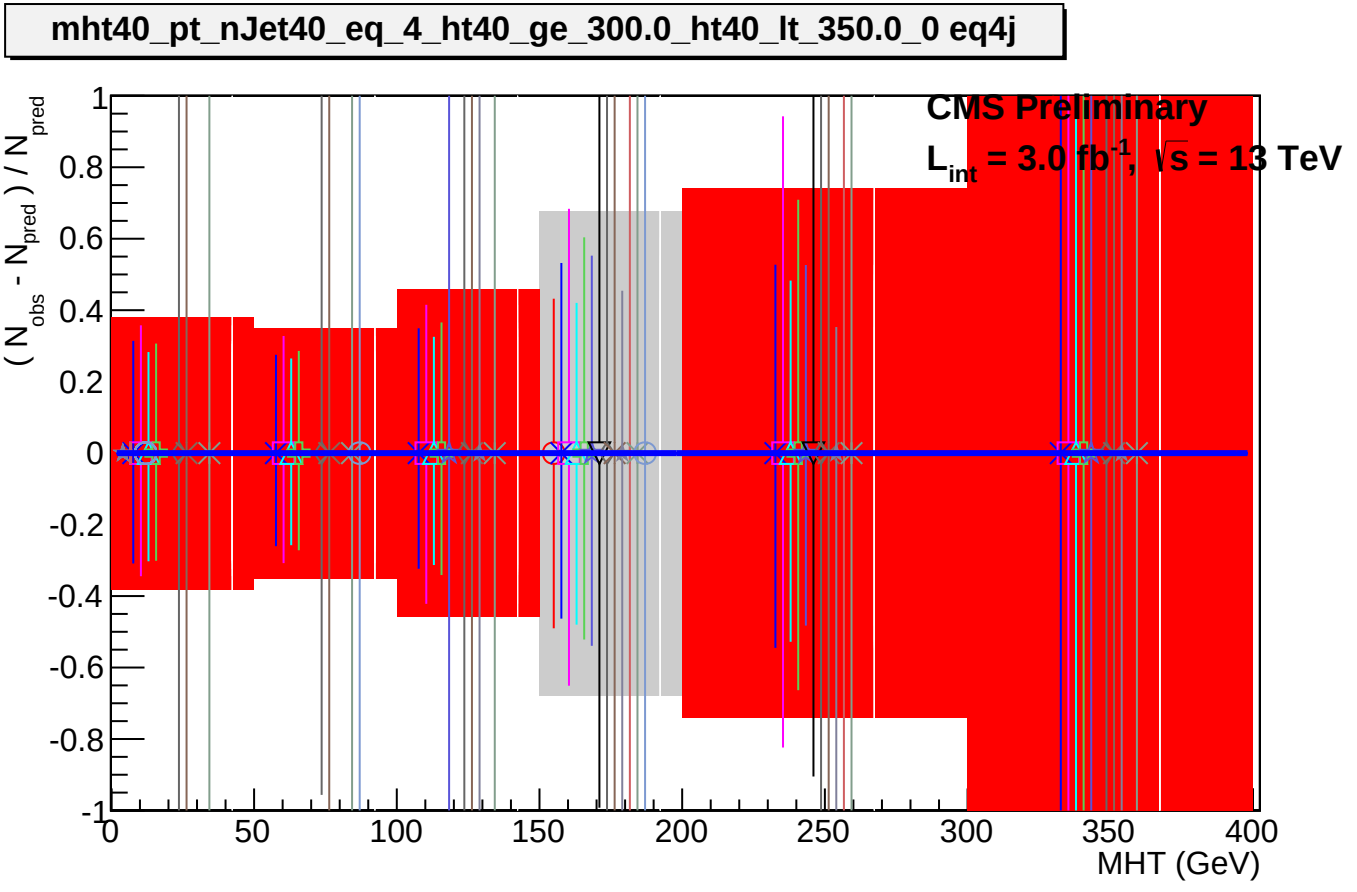


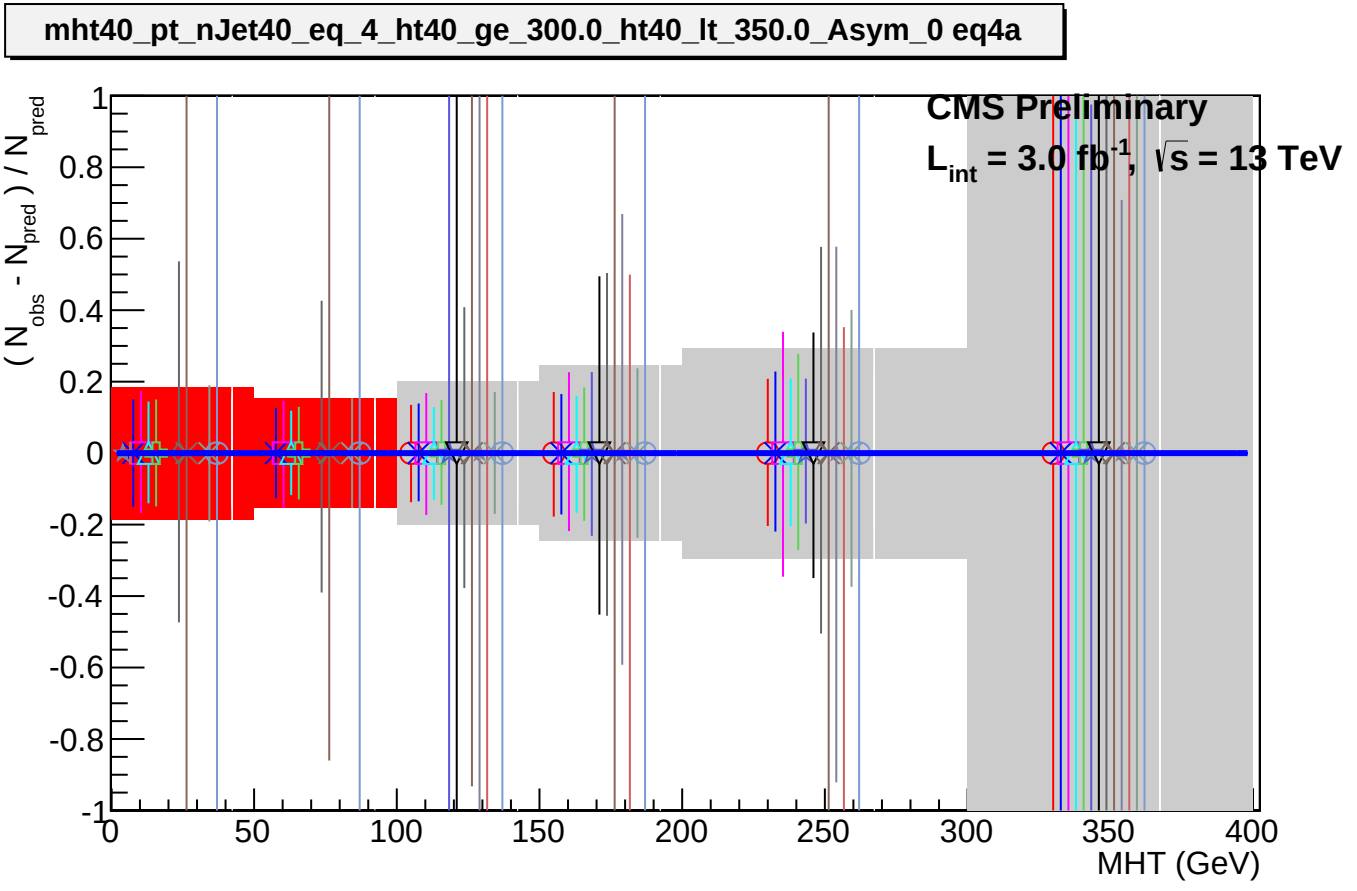

mht40_pt_nJet40_eq_4_ht40_ge_200.0_ht40_lt_250.0_0 eq4j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
MHT (GeV)


mht40_pt_nJet40_eq_4_ht40_ge_200.0_ht40_lt_250.0_Asym_0 eq4a
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
MHT (GeV)


mht40_pt_nJet40_eq_4_ht40_ge_250.0_ht40_lt_300.0_0 eq4j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
MHT (GeV)


mht40_pt_nJet40_eq_4_ht40_ge_250.0_ht40_lt_300.0_Asym_0 eq4a
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300


mht40_pt_nJet40_eq_4_ht40_ge_300.0_ht40_lt_350.0_0 eq4j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400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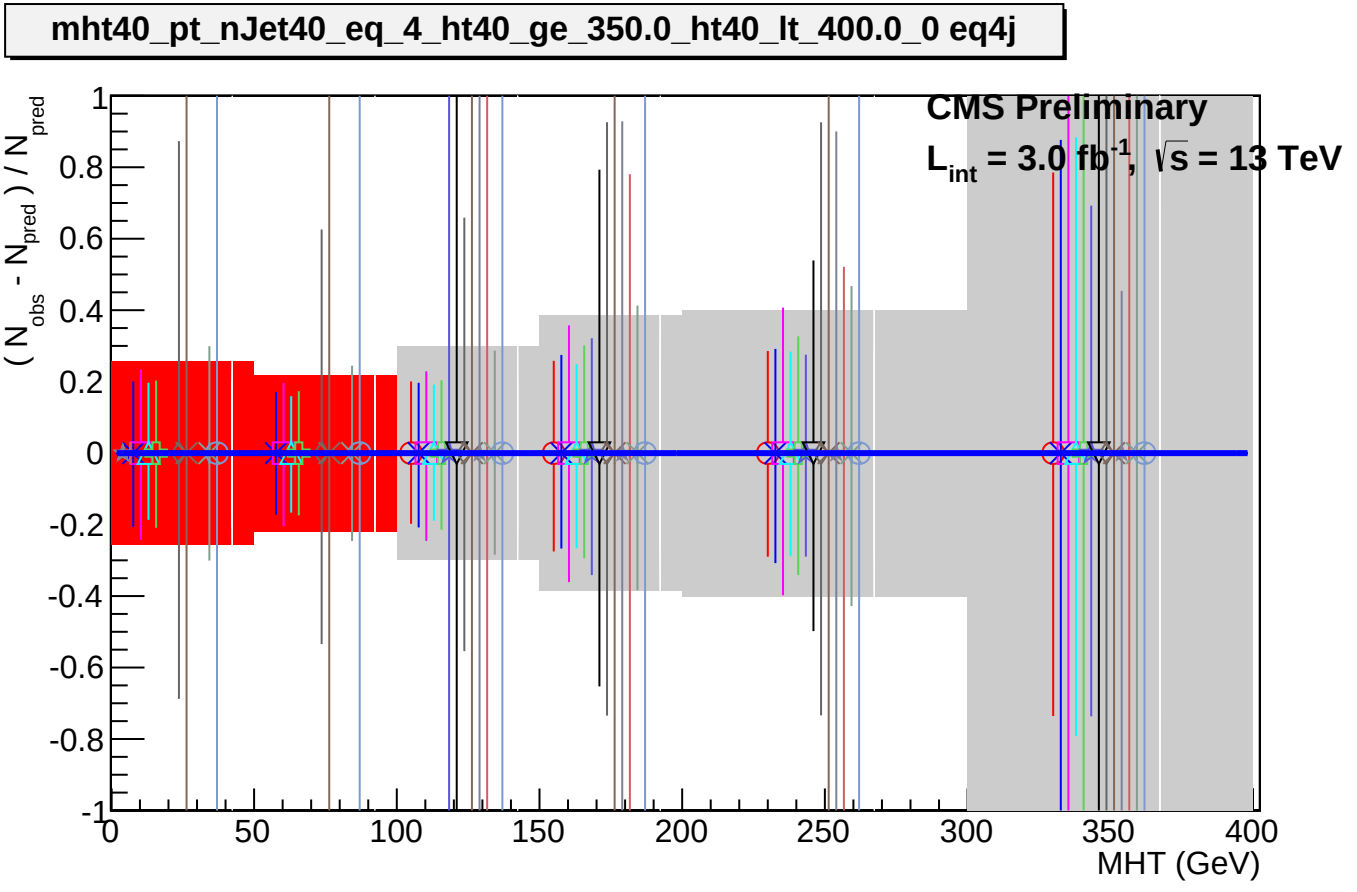
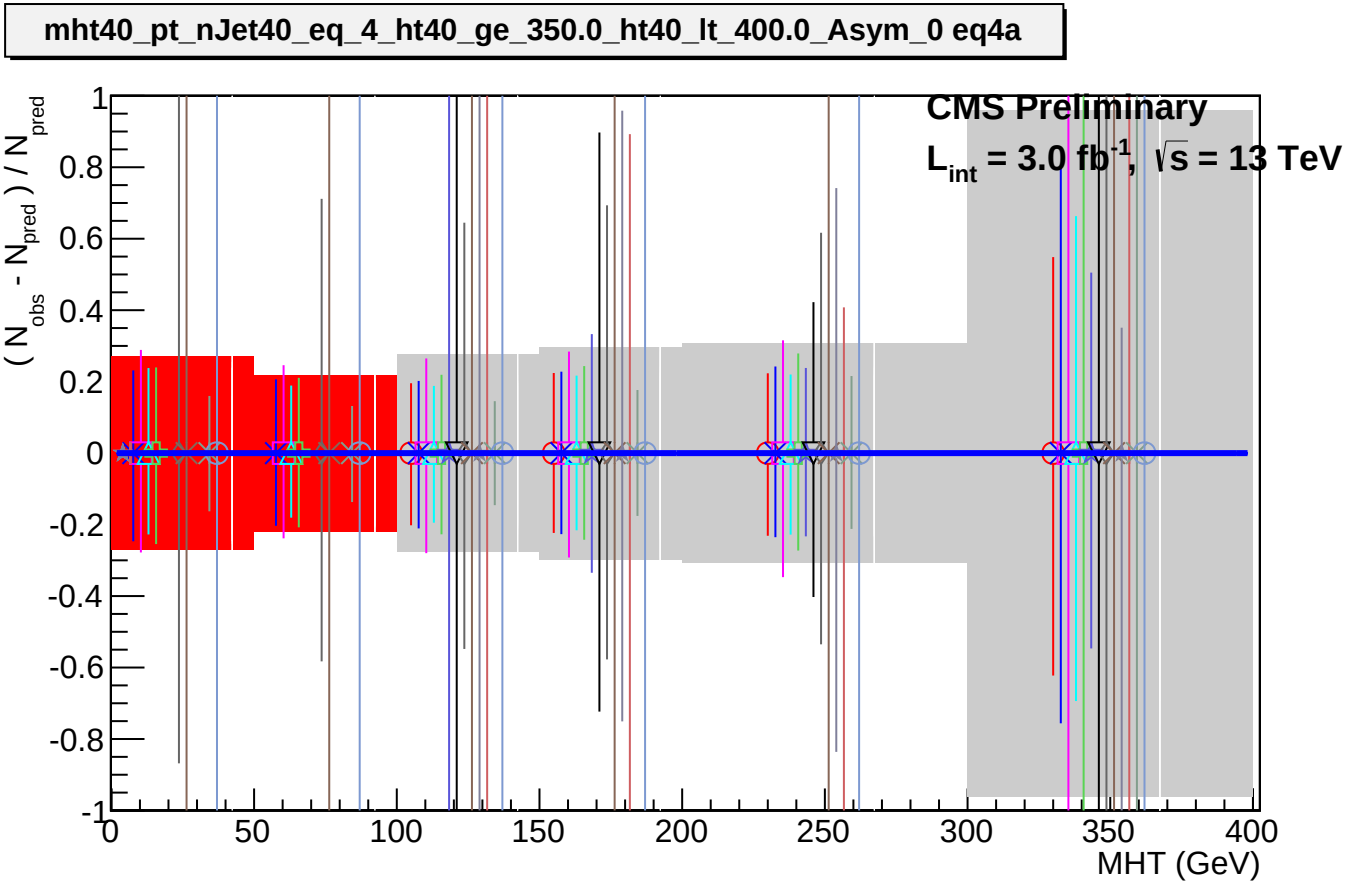
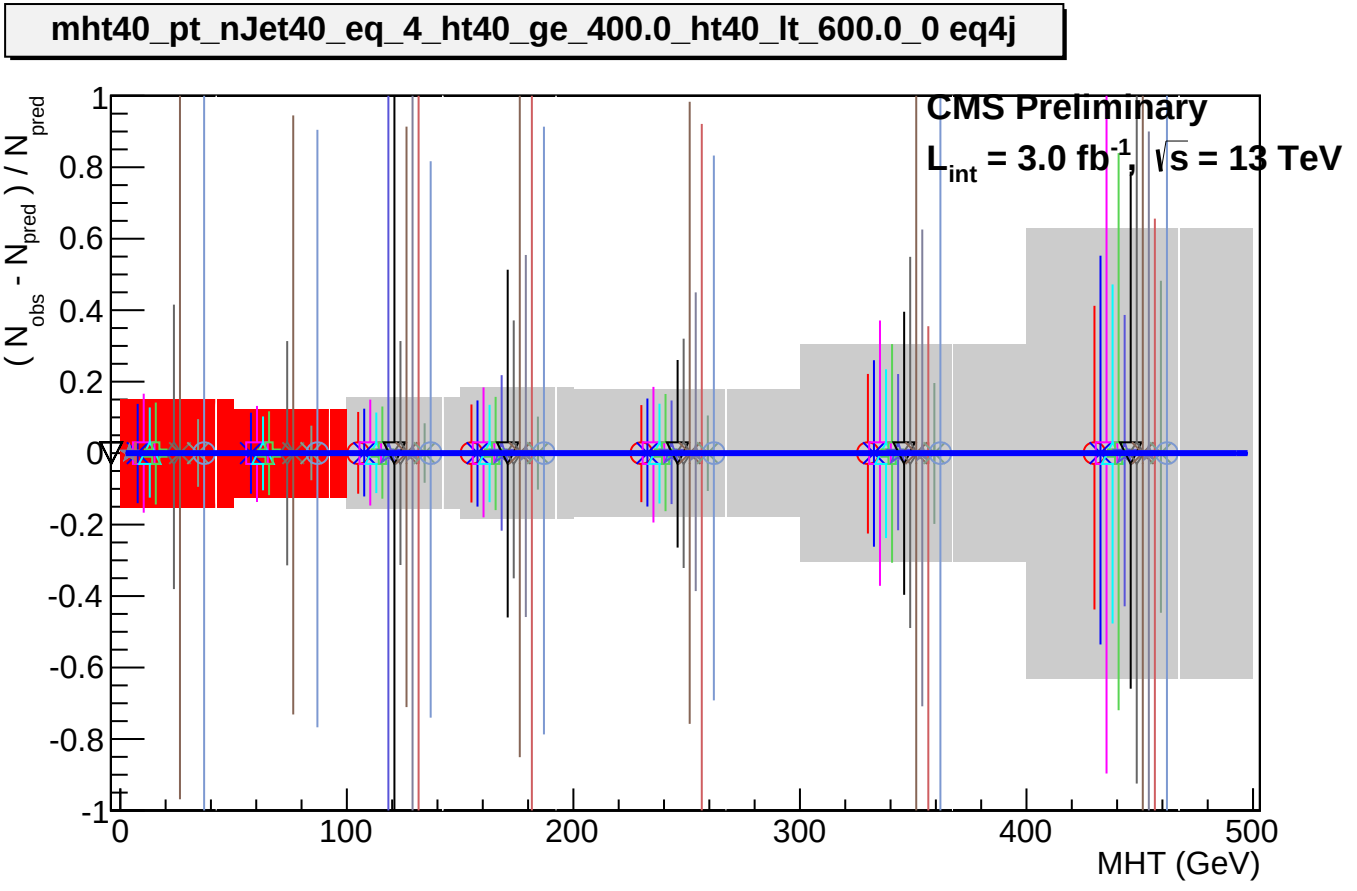
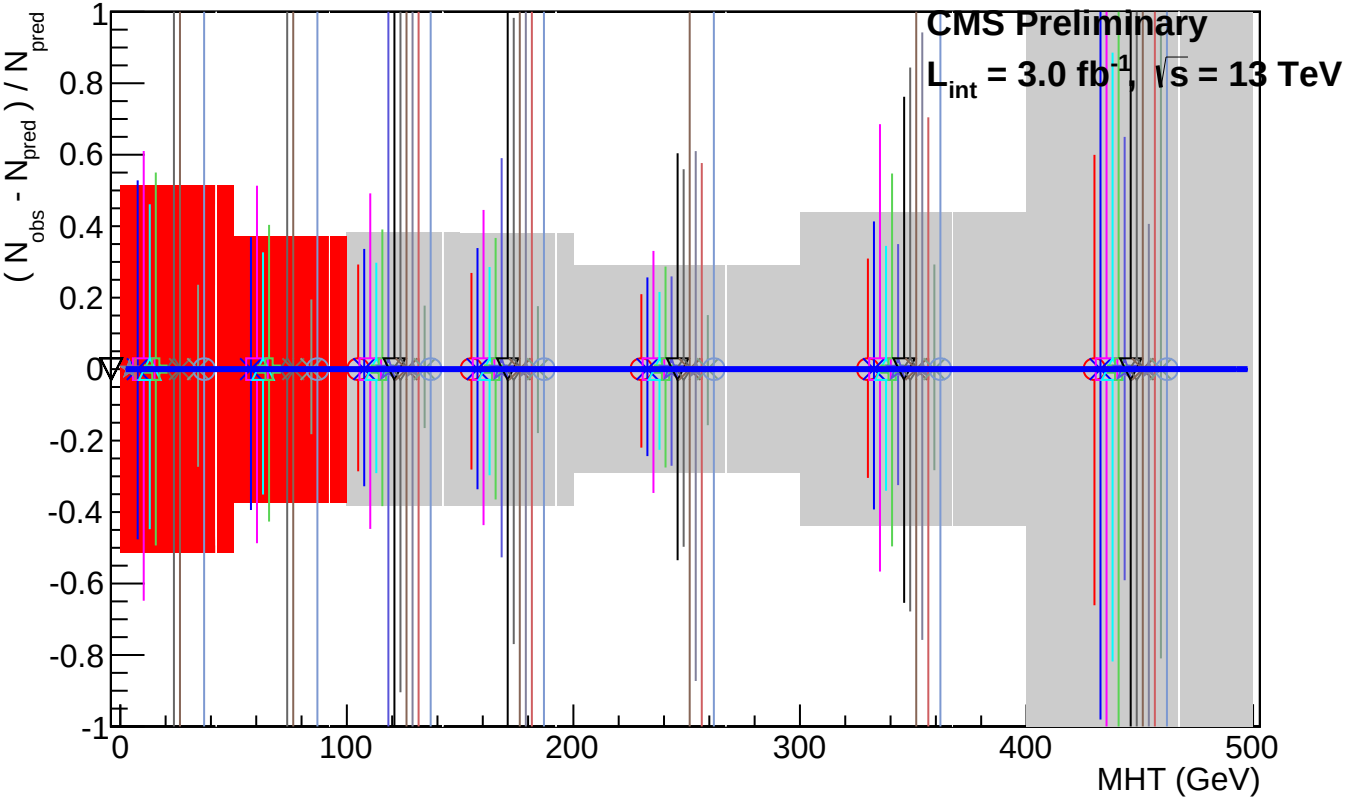
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400

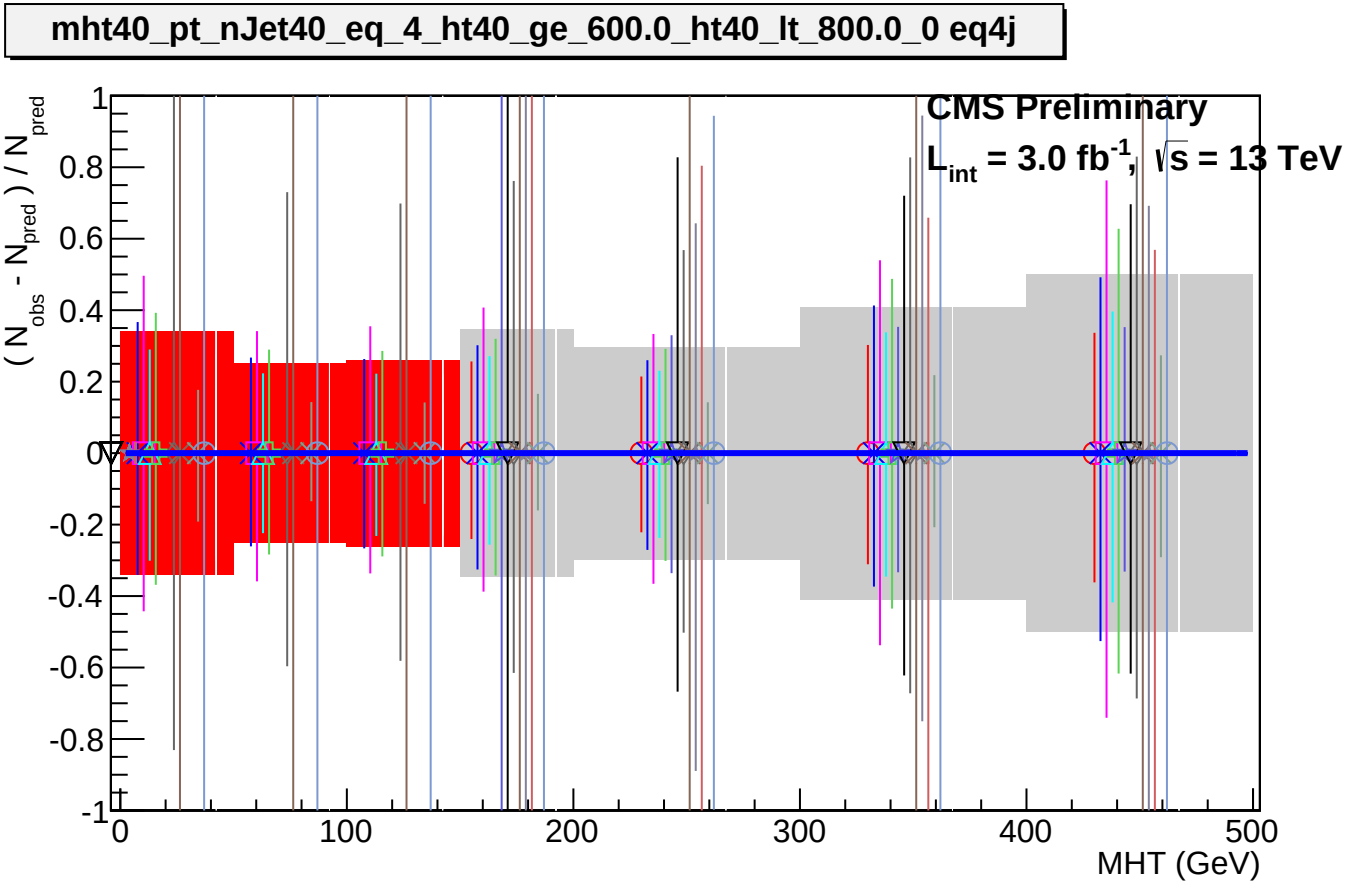

mht40_pt_nJet40_eq_4_ht40_ge_350.0_ht40_lt_400.0_0 eq4j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400


mht40_pt_nJet40_eq_4_ht40_ge_350.0_ht40_lt_400.0_Asym_0 eq4a
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400

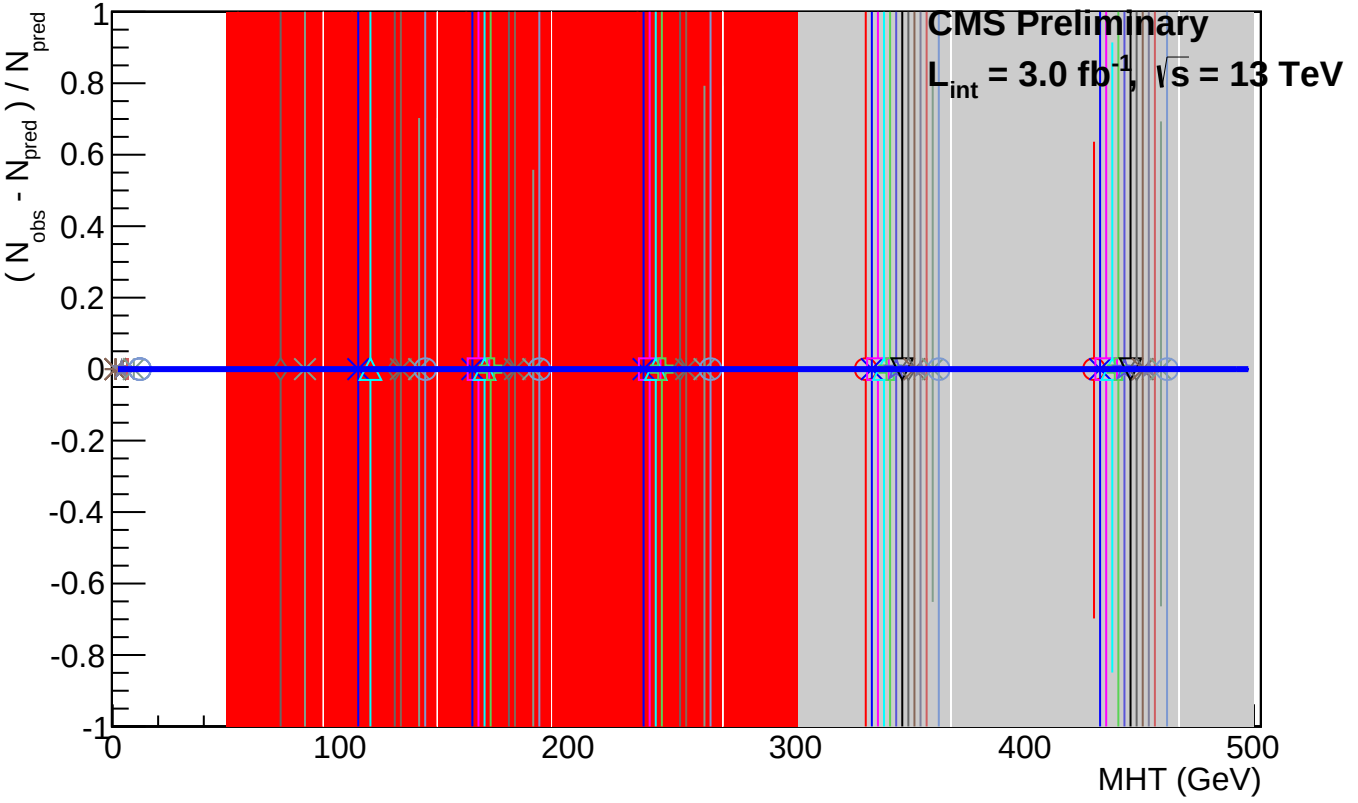

mht40_pt_nJet40_eq_4_ht40_ge_400.0_ht40_lt_600.0_0 eq4j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
MHT (GeV)

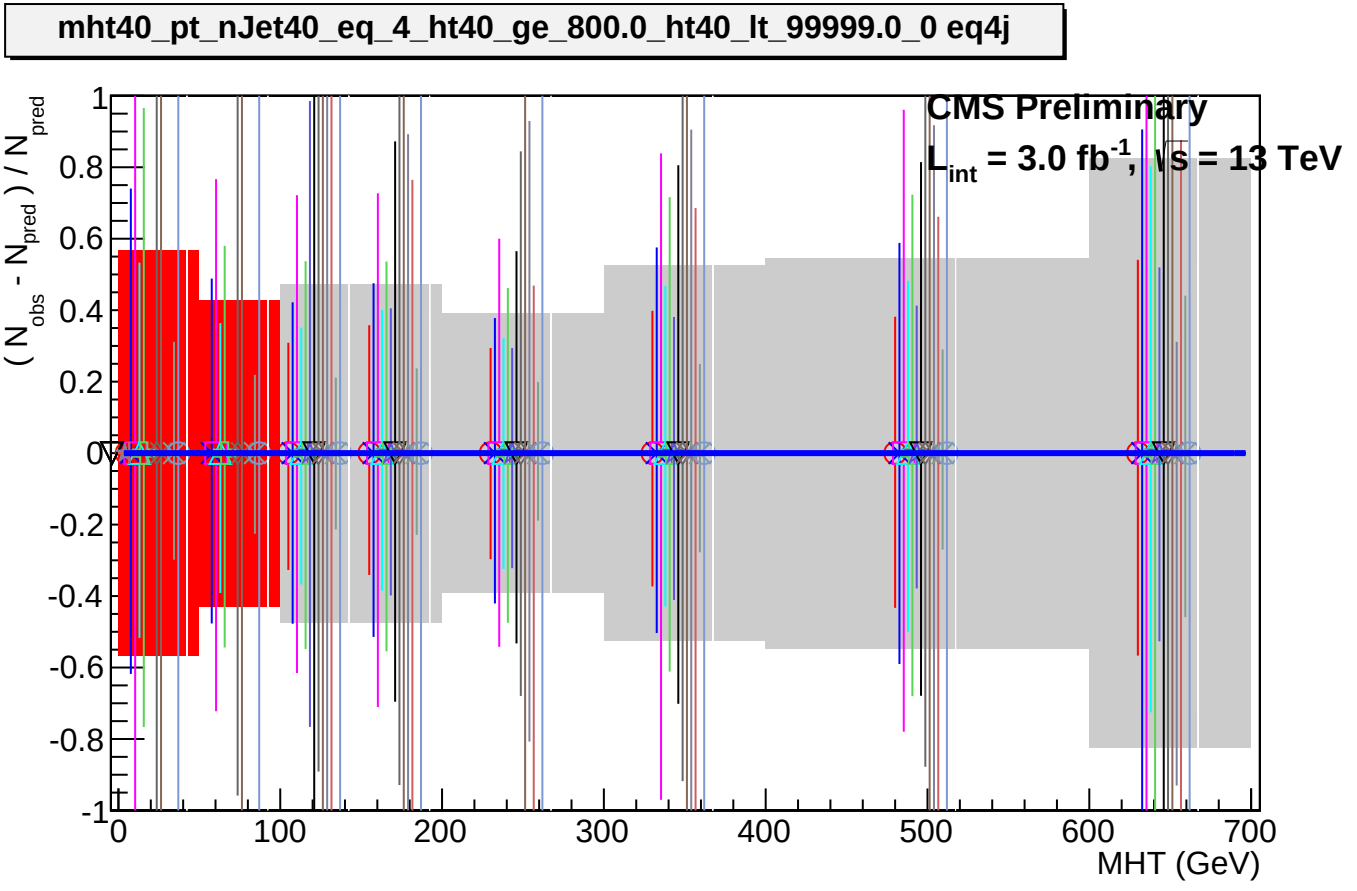
mht40_pt_nJet40_eq_4_ht40_ge_400.0_ht40_lt_600.0_Asym_0 eq4a

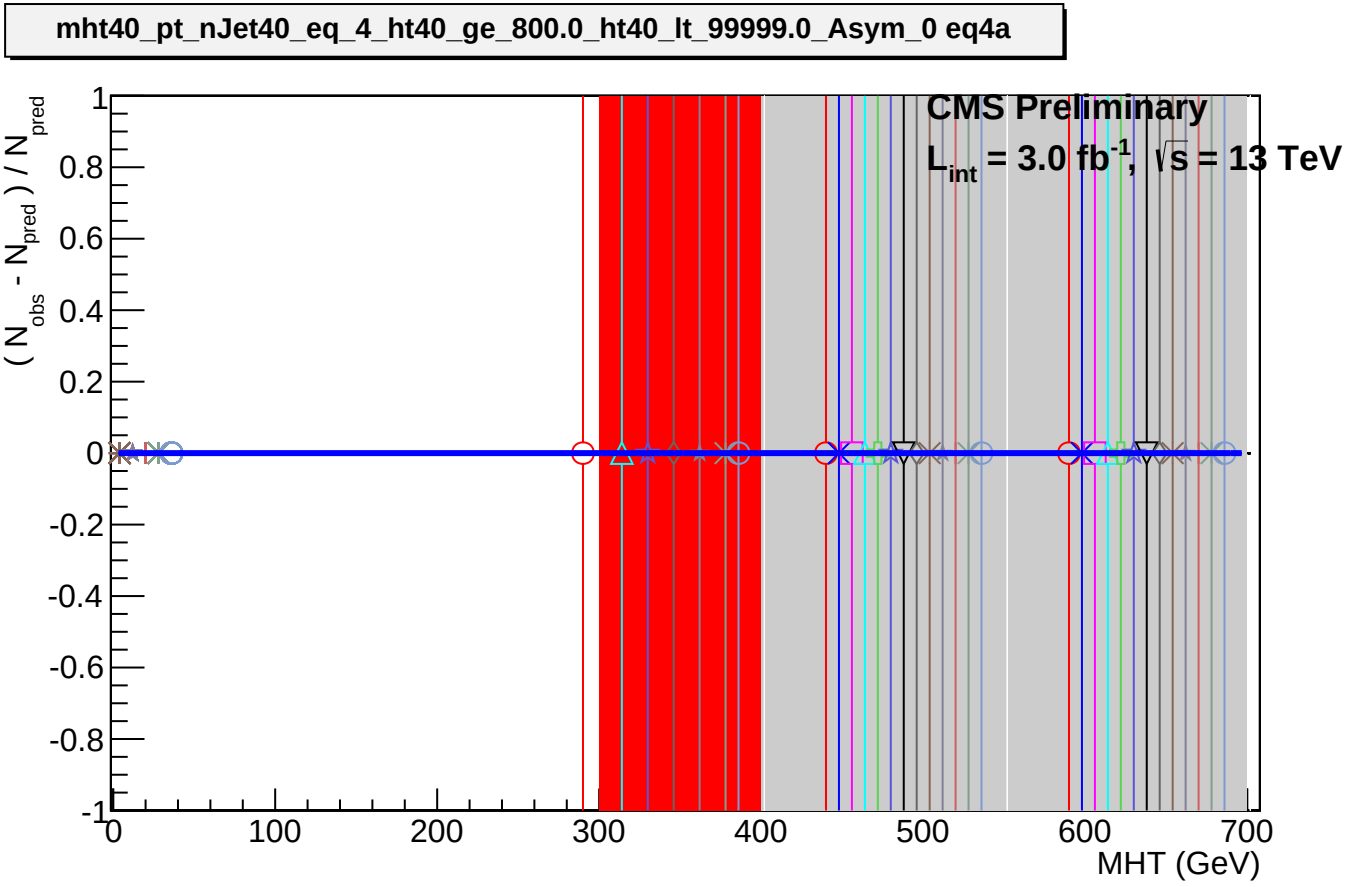



mht40_pt_nJet40_eq_4_ht40_ge_600.0_ht40_lt_800.0_0 eq4j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
MHT (GeV)

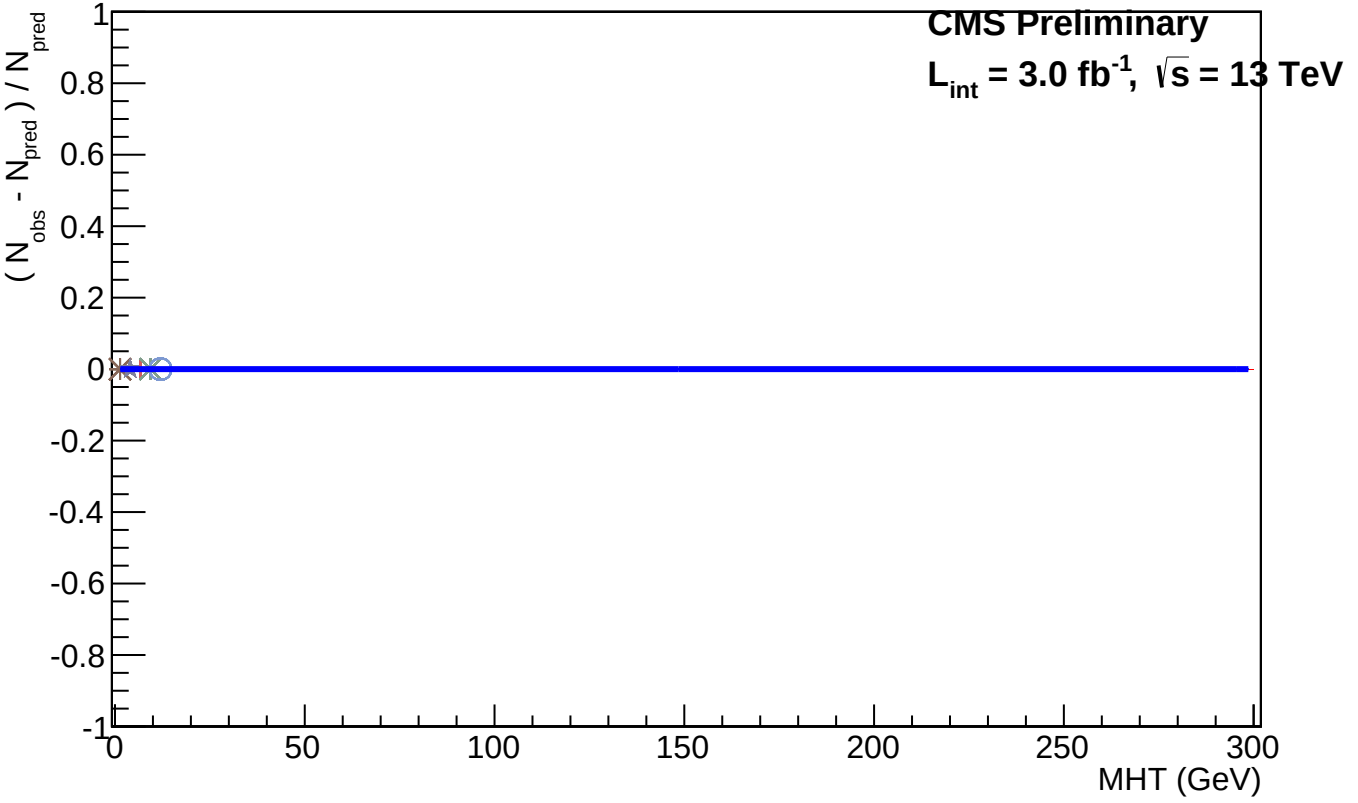
mht40_pt_nJet40_eq_4_ht40_ge_600.0_ht40_lt_800.0_Asym_0 eq4a

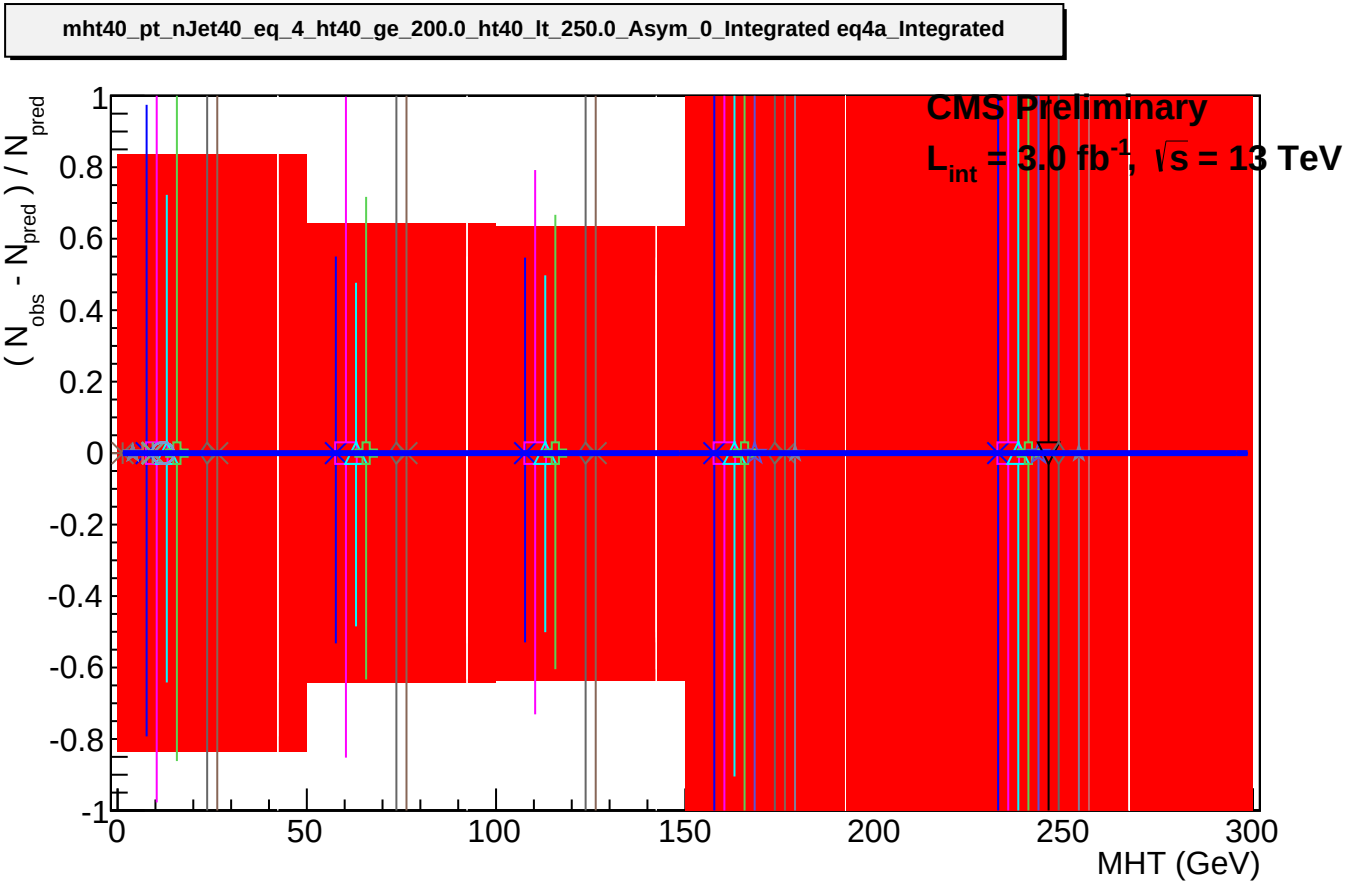



mht40_pt_nJet40_eq_4_ht40_ge_800.0_ht40_lt_99999.0_0 eq4j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
600
700

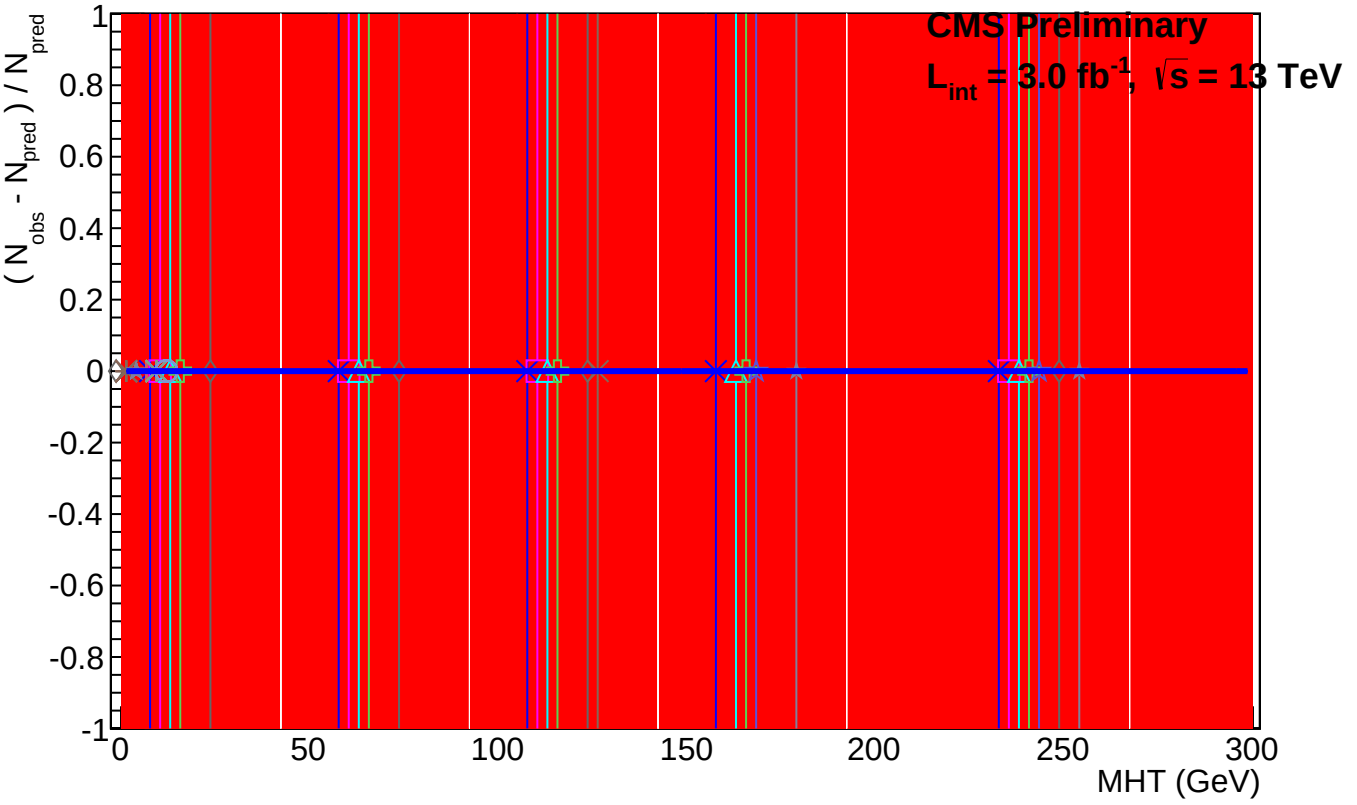

mht40_pt_nJet40_eq_4_ht40_ge_800.0_ht40_lt_99999.0_Asym_0 eq4a
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
600
700
MHT (GeV)

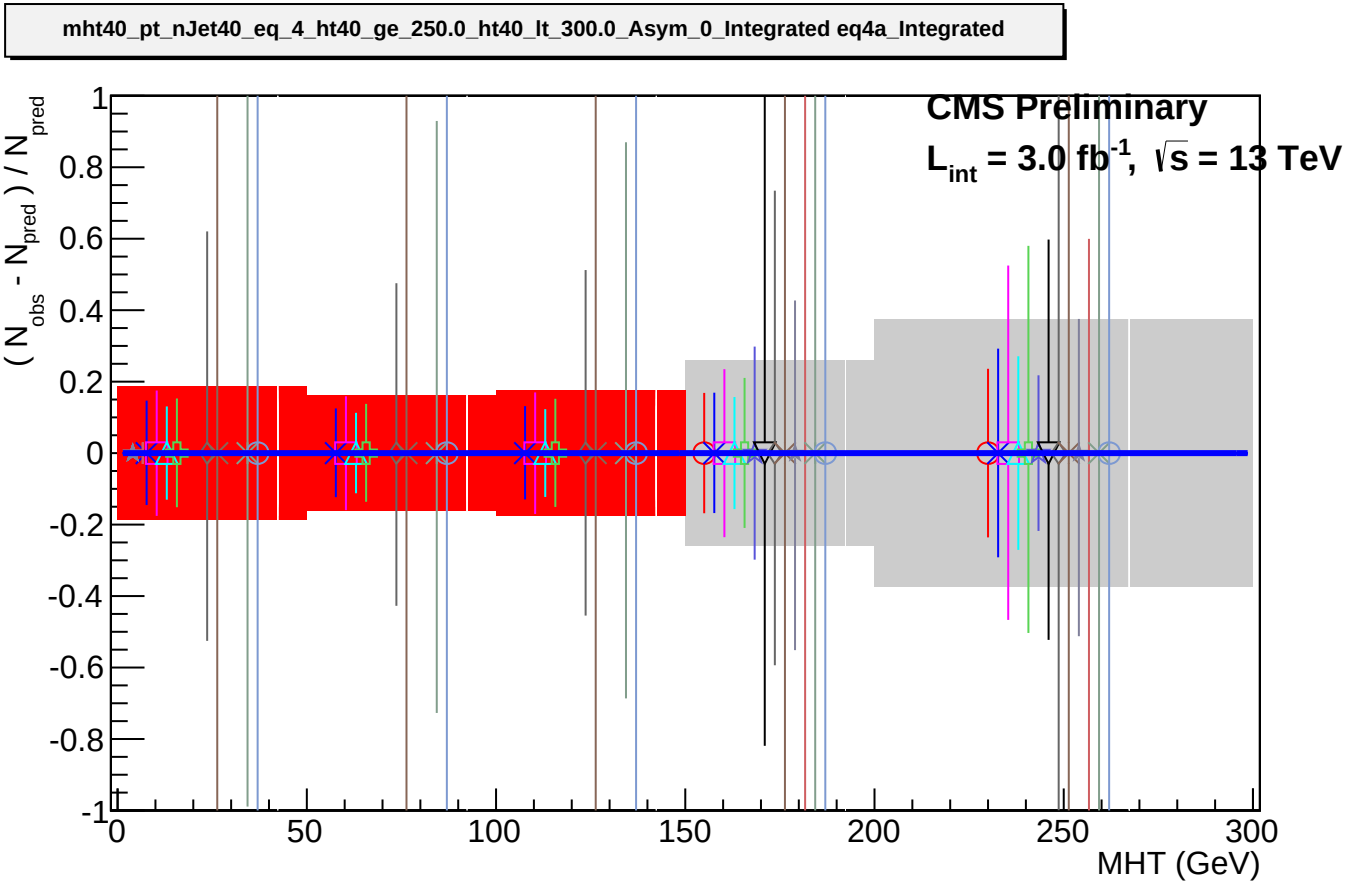
mht40_pt_nJet40_eq_4_ht40_ge_200.0_ht40_lt_250.0_0_Integrated eq4j_Integrated




mht40_pt_nJet40_eq_4_ht40_ge_200.0_ht40_lt_250.0_Asym_0_Integrated eq4a_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
MHT (GeV)

mht40_pt_nJet40_eq_4_ht40_ge_250.0_ht40_lt_300.0_0_Integrated eq4j_Integrated

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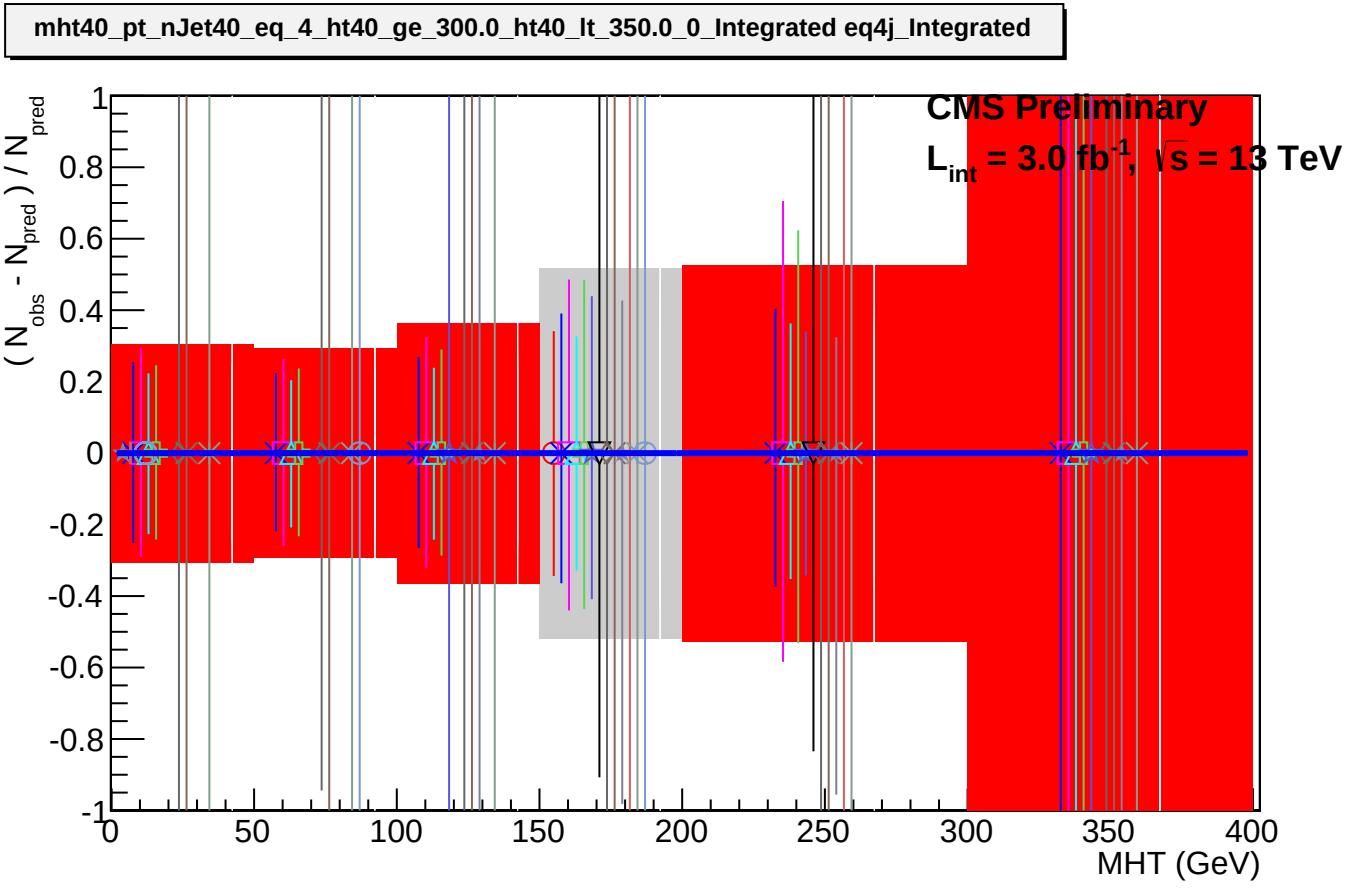
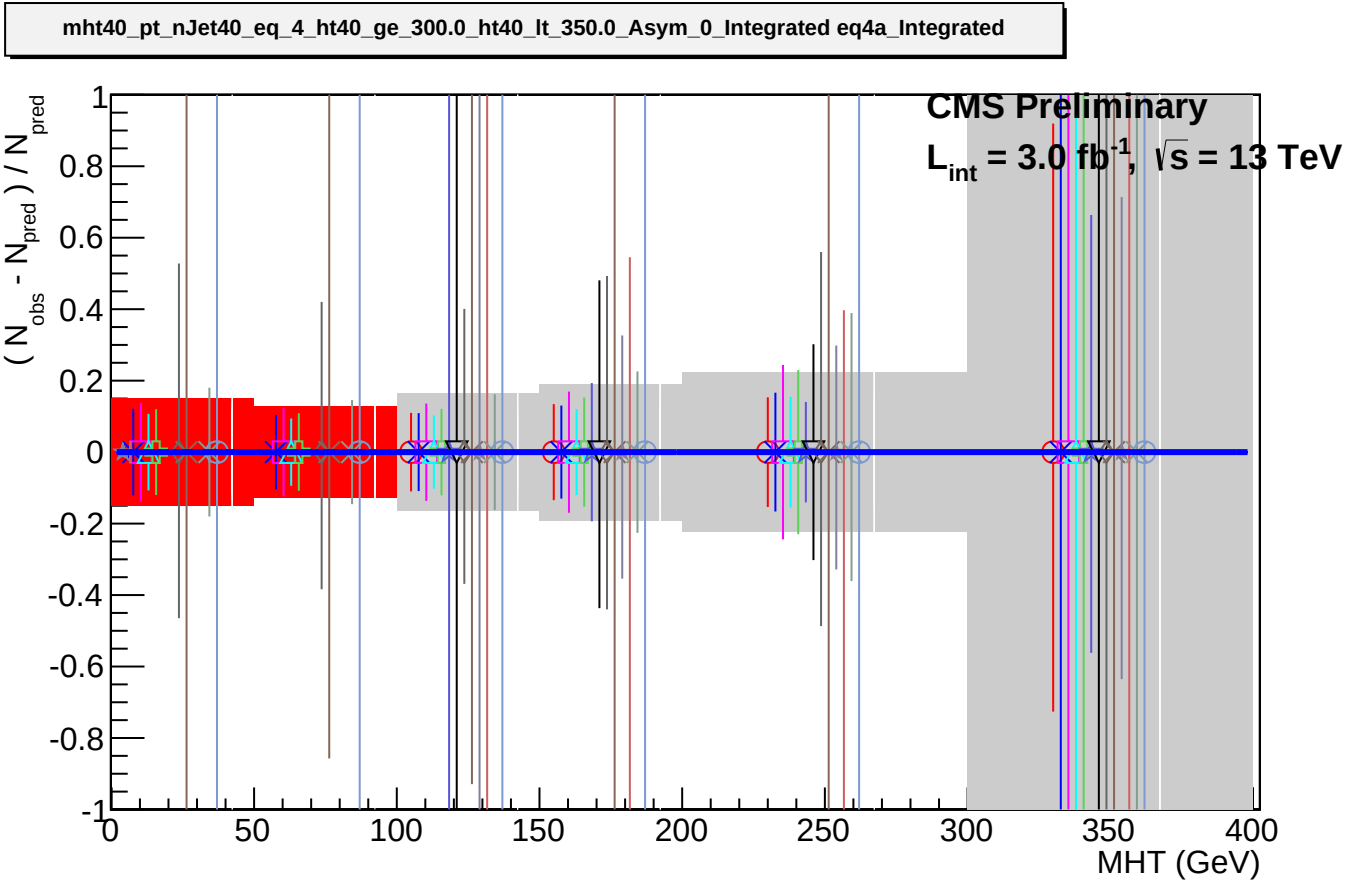
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300


mht40_pt_nJet40_eq_4_ht40_ge_300.0_ht40_lt_350.0_0_Integrated eq4j_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400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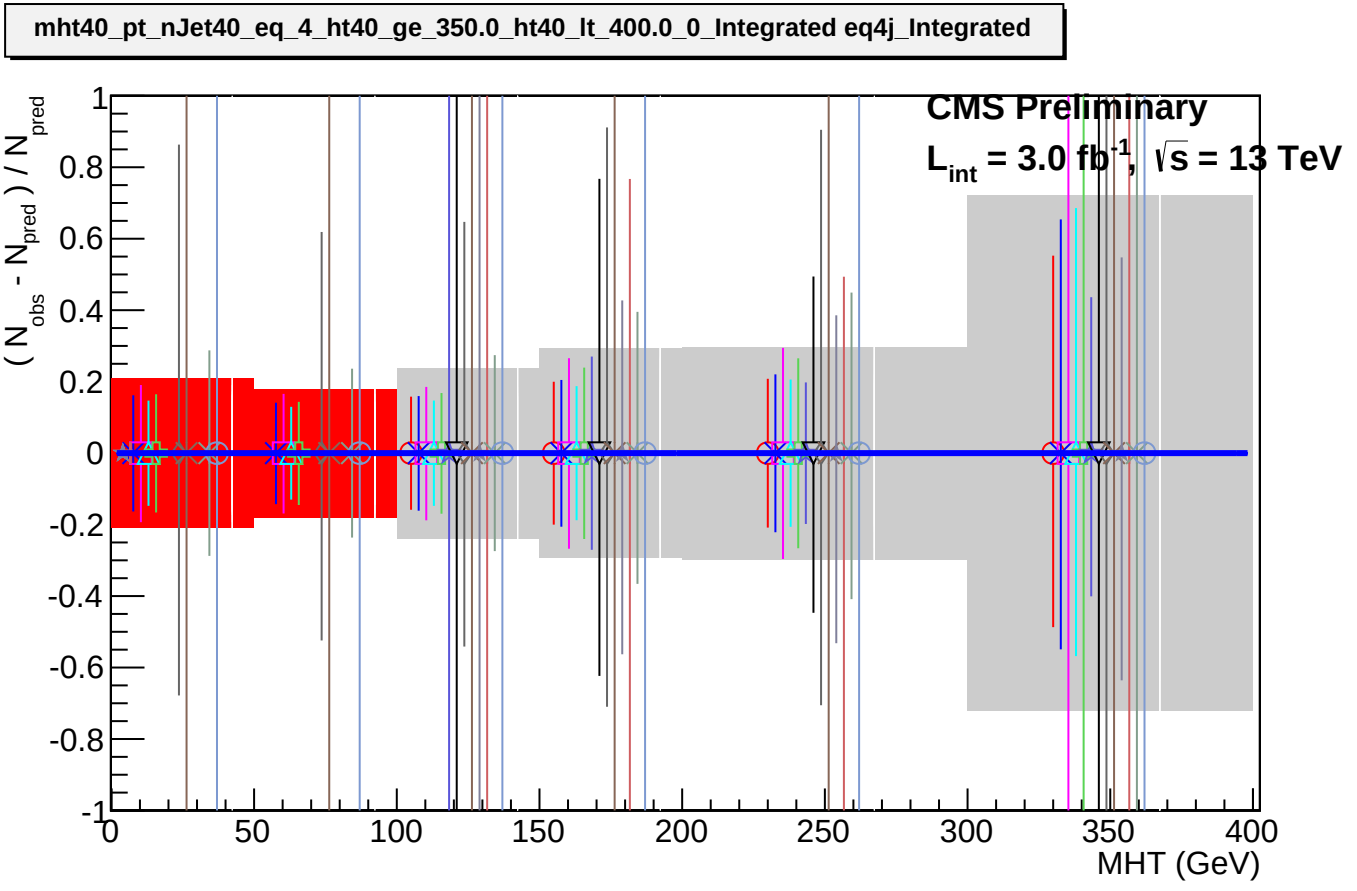
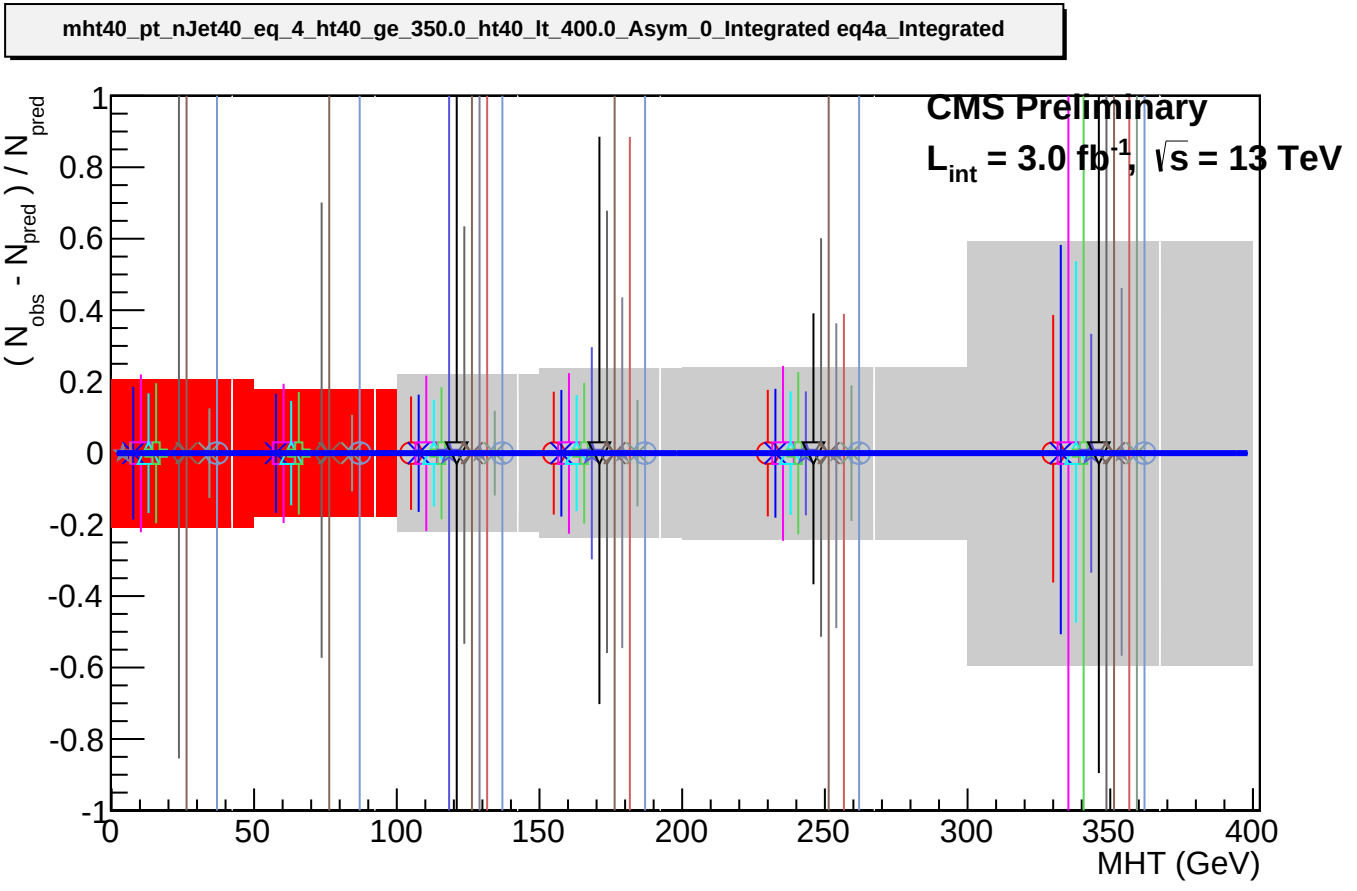
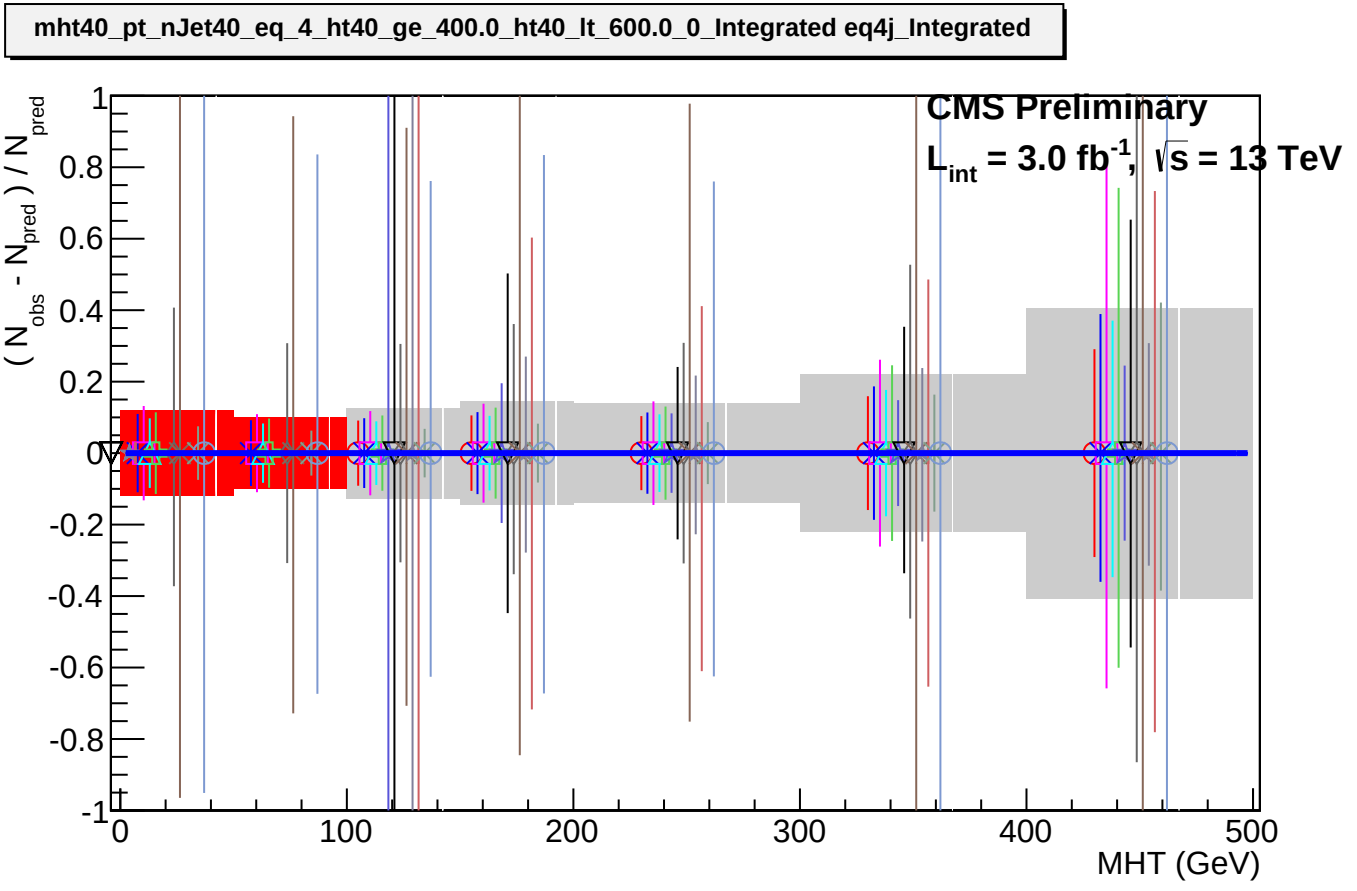
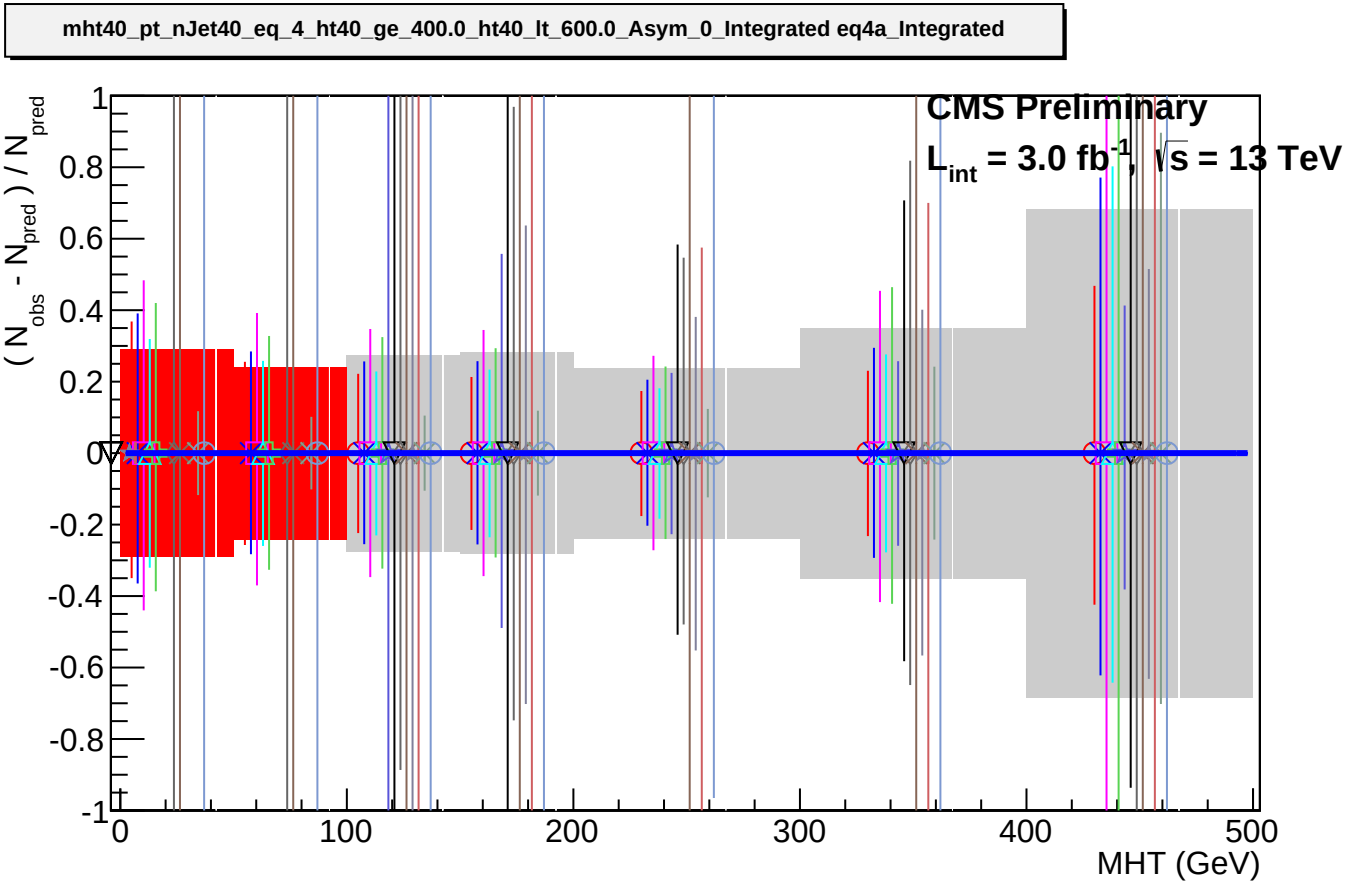
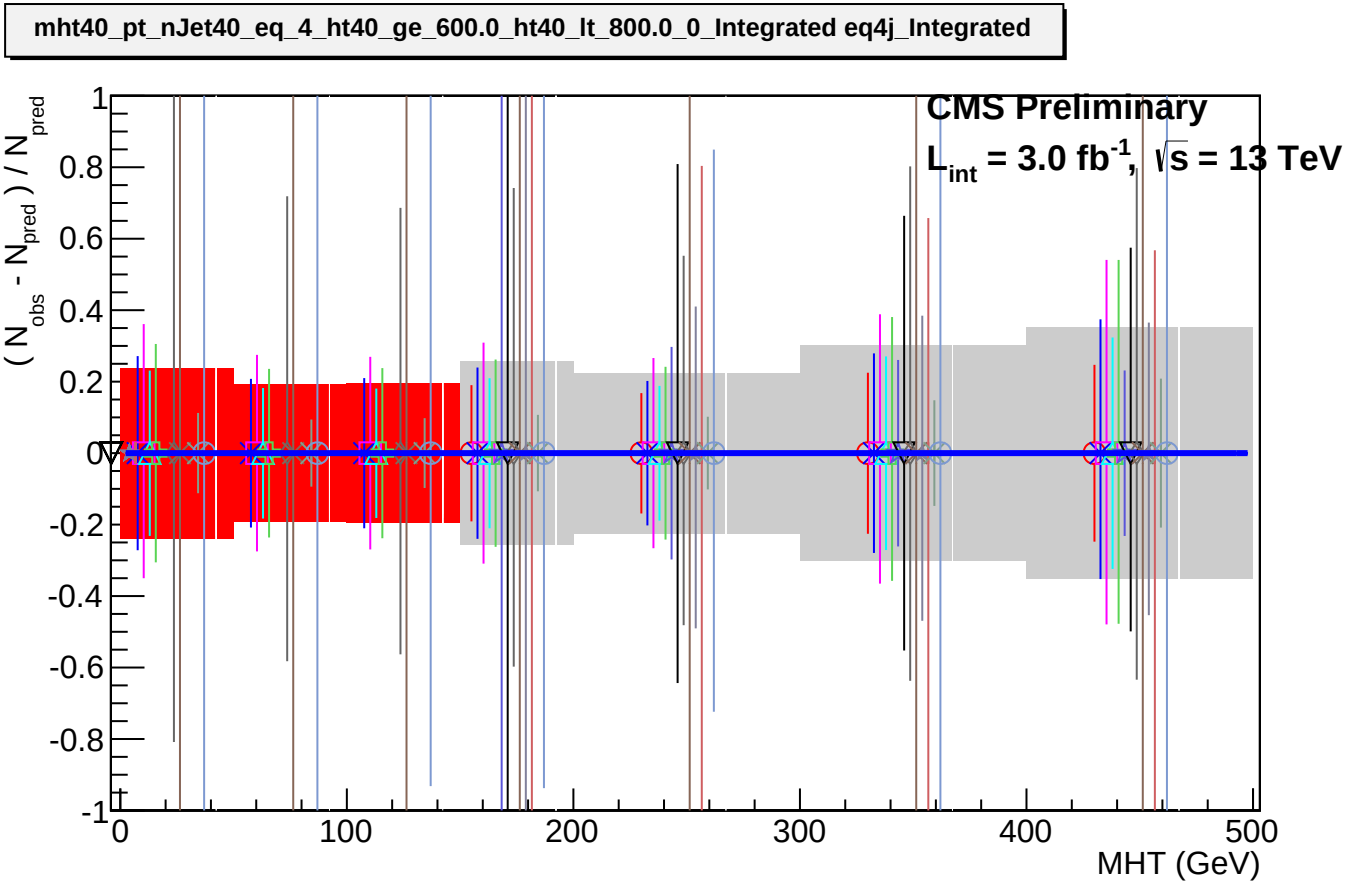
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400

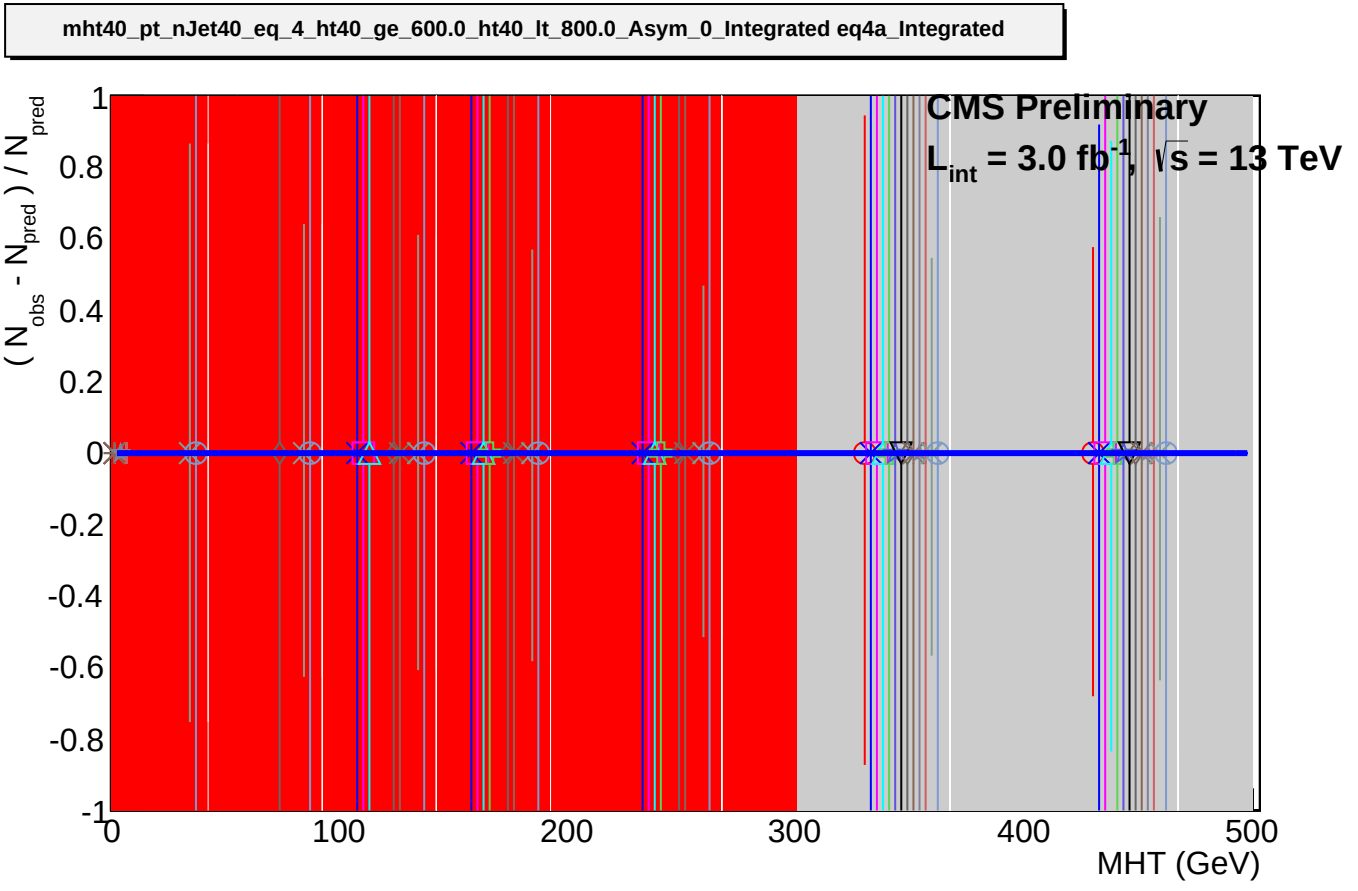

mht40_pt_nJet40_eq_4_ht40_ge_350.0_ht40_lt_400.0_0_Integrated eq4j_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400

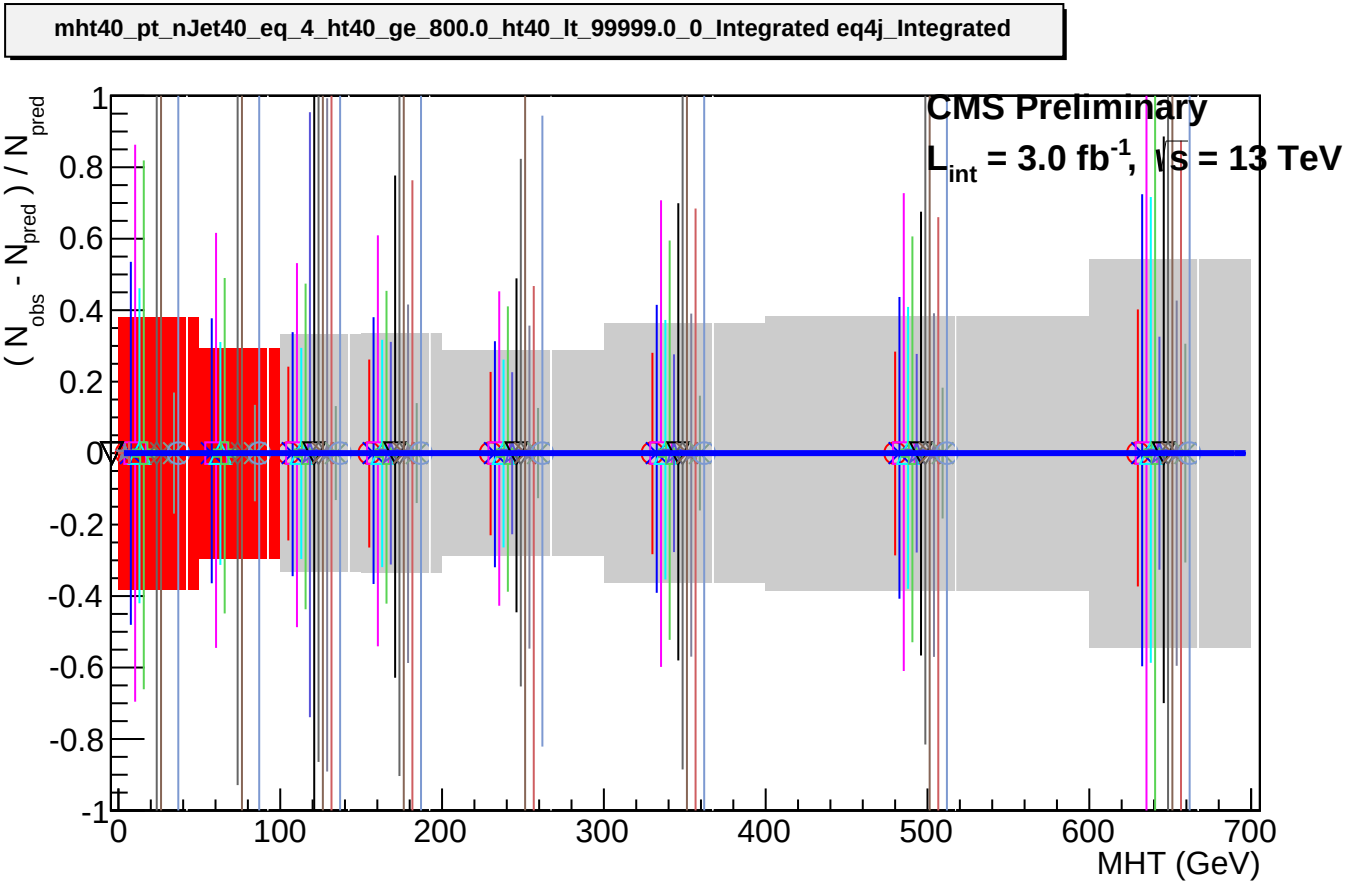

mht40_pt_nJet40_eq_4_ht40_ge_350.0_ht40_lt_400.0_Asym_0_Integrated eq4a_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400

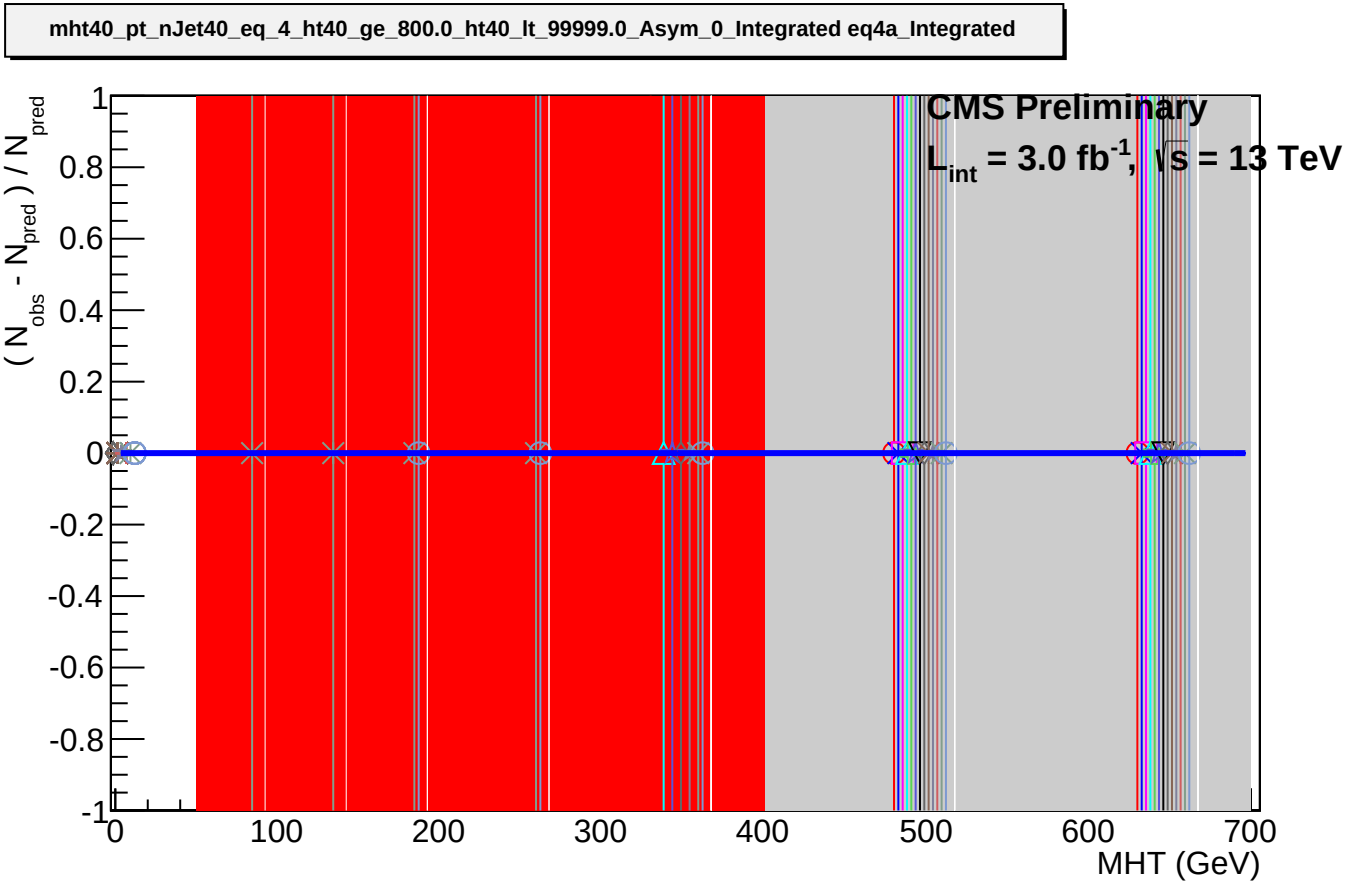

mht40_pt_nJet40_eq_4_ht40_ge_400.0_ht40_lt_600.0_0_Integrated eq4j_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500

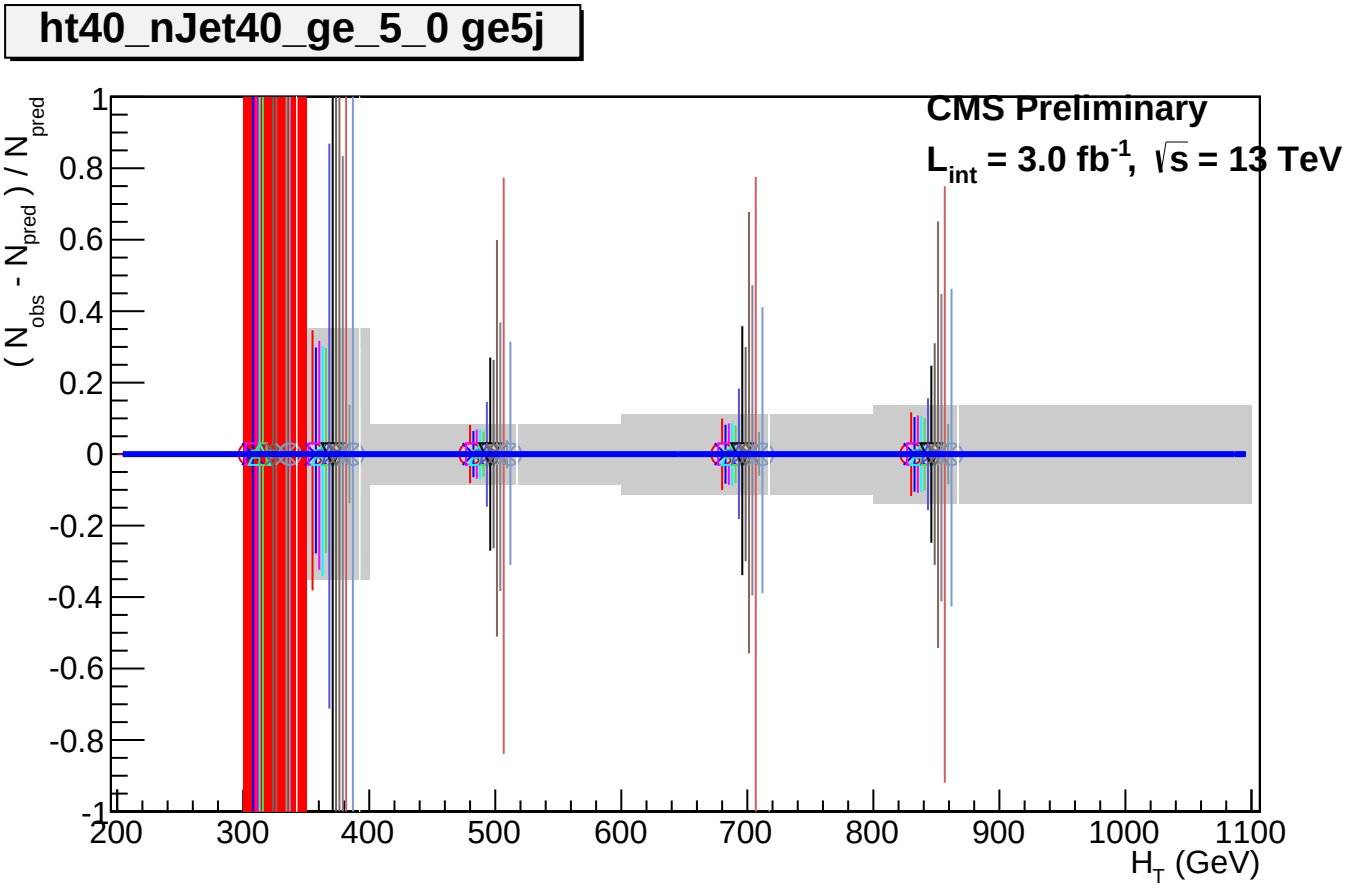

mht40_pt_nJet40_eq_4_ht40_ge_400.0_ht40_lt_600.0_Asym_0_Integrated eq4a_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
MHT (GeV)


mht40_pt_nJet40_eq_4_ht40_ge_600.0_ht40_lt_800.0_0_Integrated eq4j_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500

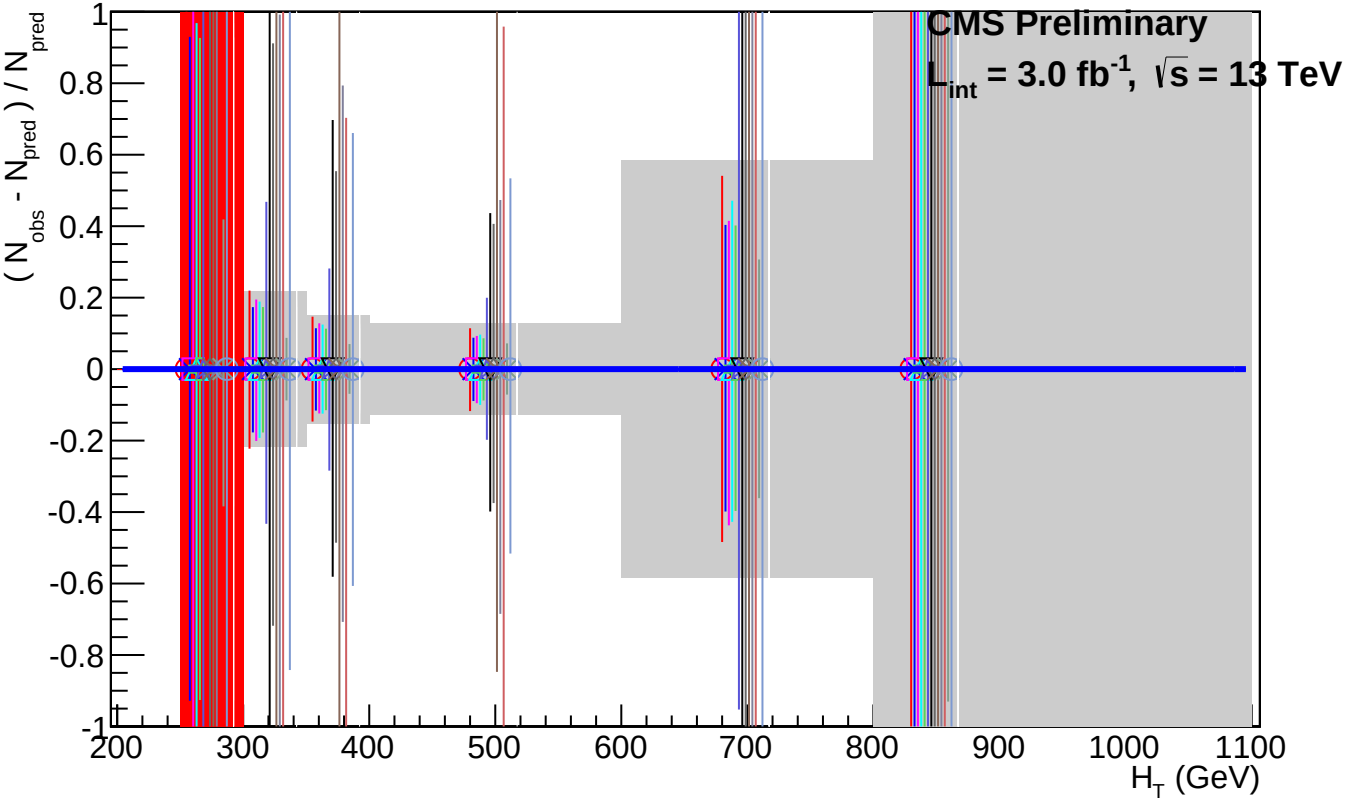

mht40_pt_nJet40_eq_4_ht40_ge_600.0_ht40_lt_800.0_Asym_0_Integrated eq4a_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
MHT (GeV)

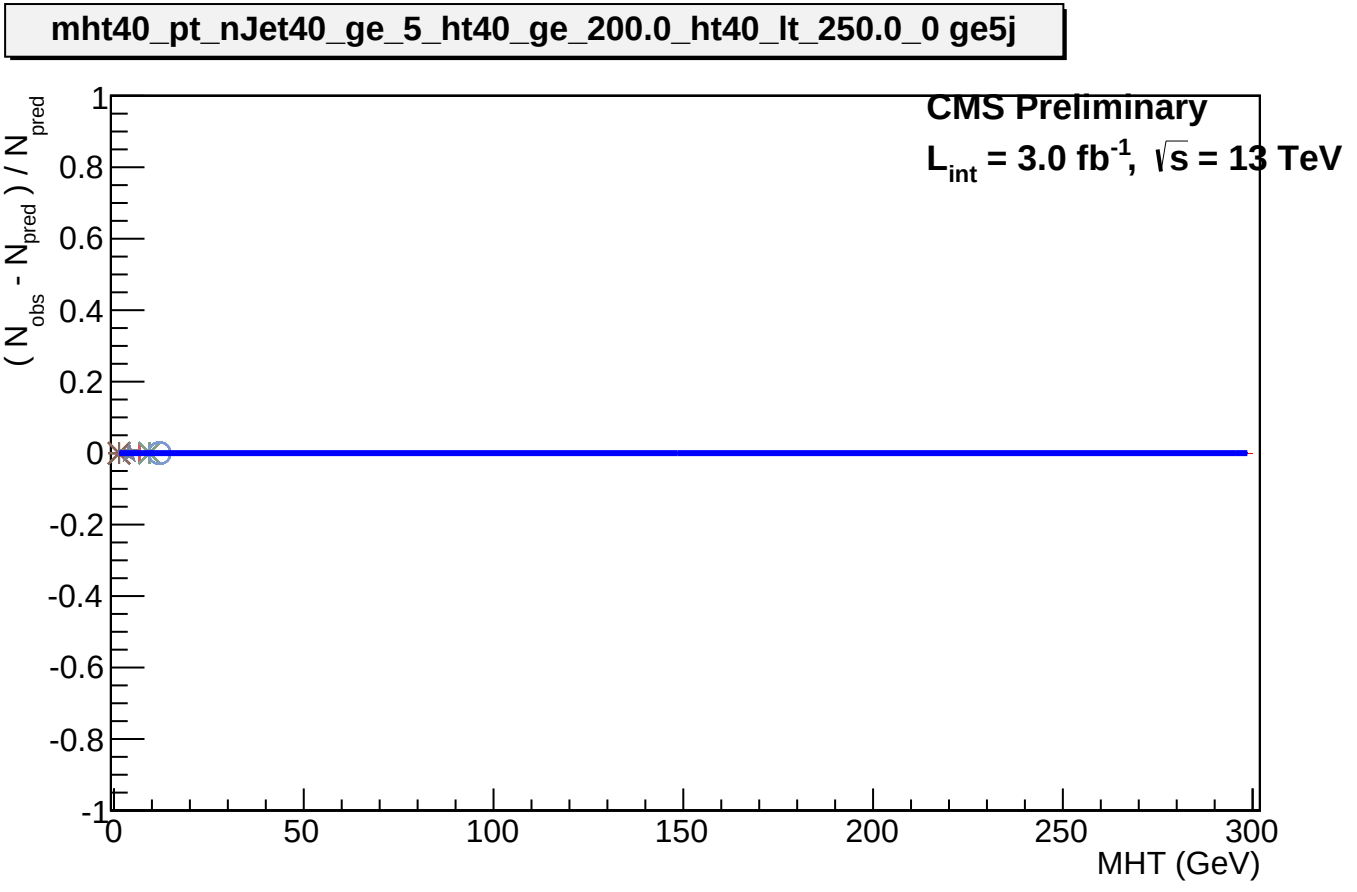

mht40_pt_nJet40_eq_4_ht40_ge_800.0_ht40_lt_99999.0_0_Integrated eq4j_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
600
700

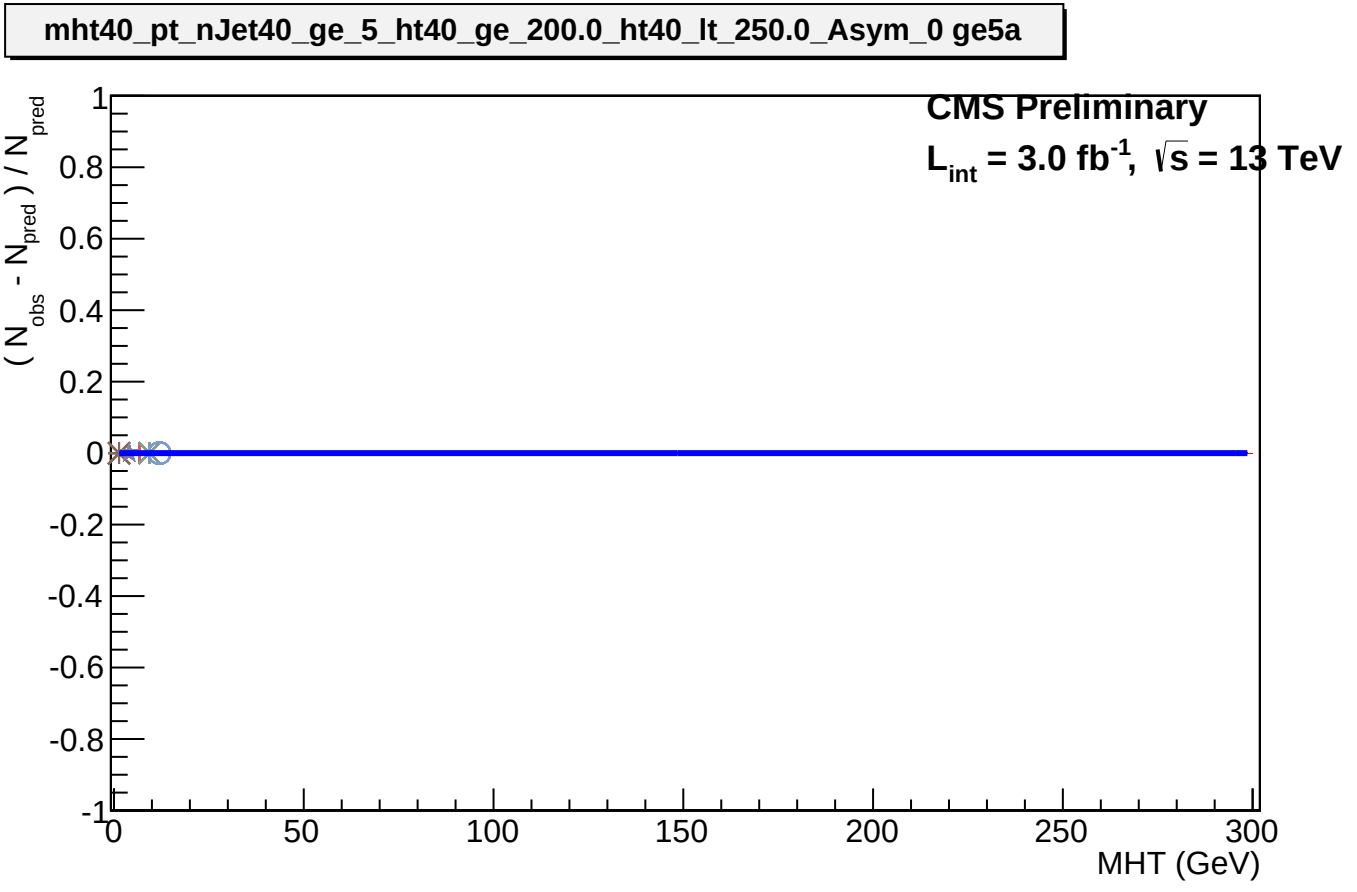

mht40_pt_nJet40_eq_4_ht40_ge_800.0_ht40_lt_99999.0_Asym_0_Integrated eq4a_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
600
700
MHT (GeV)

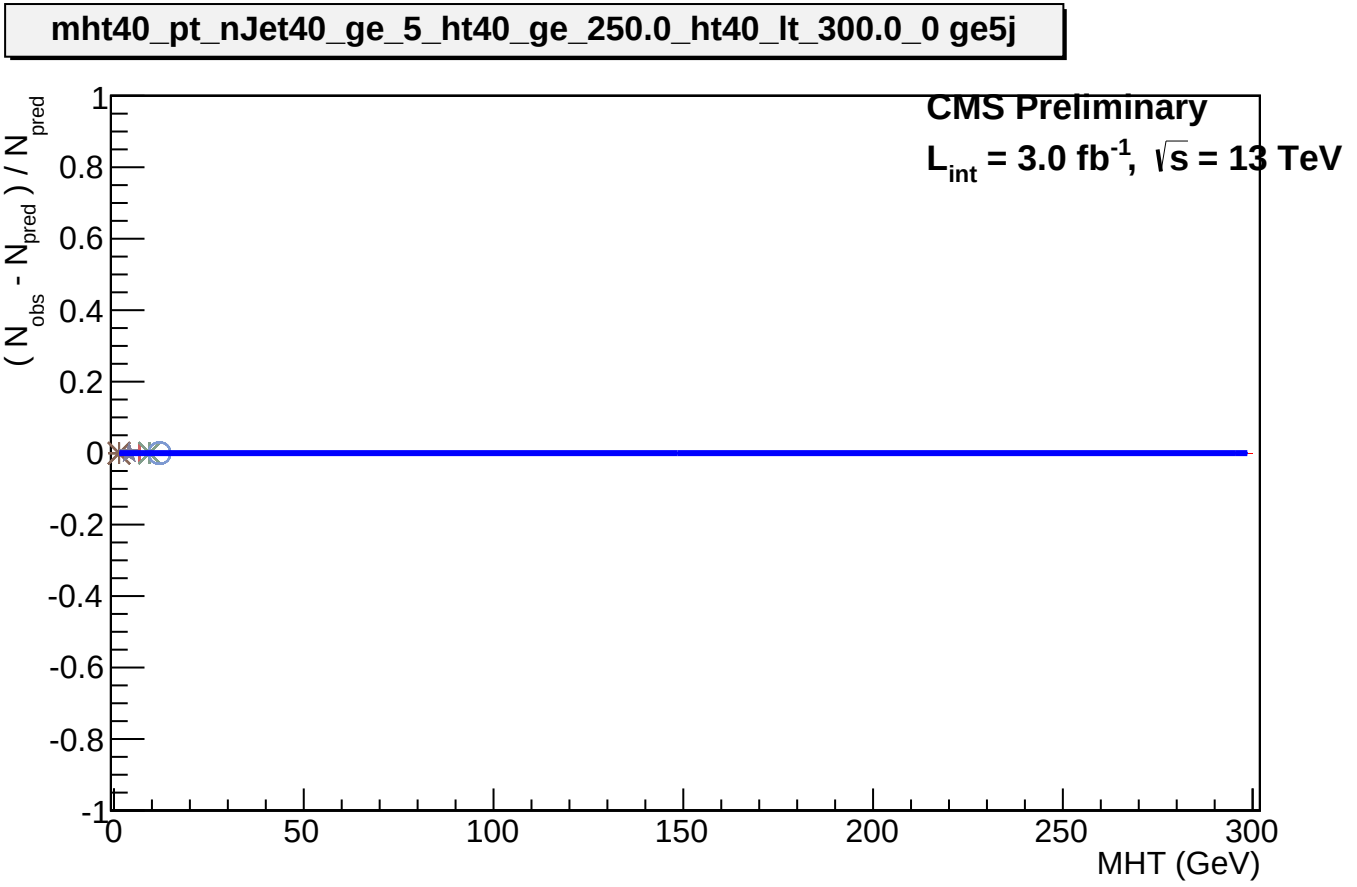

ht40_nJet40_ge_5_0 ge5j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
200
300
400
500
600
700
800
900
1000
1100
H_T (GeV)

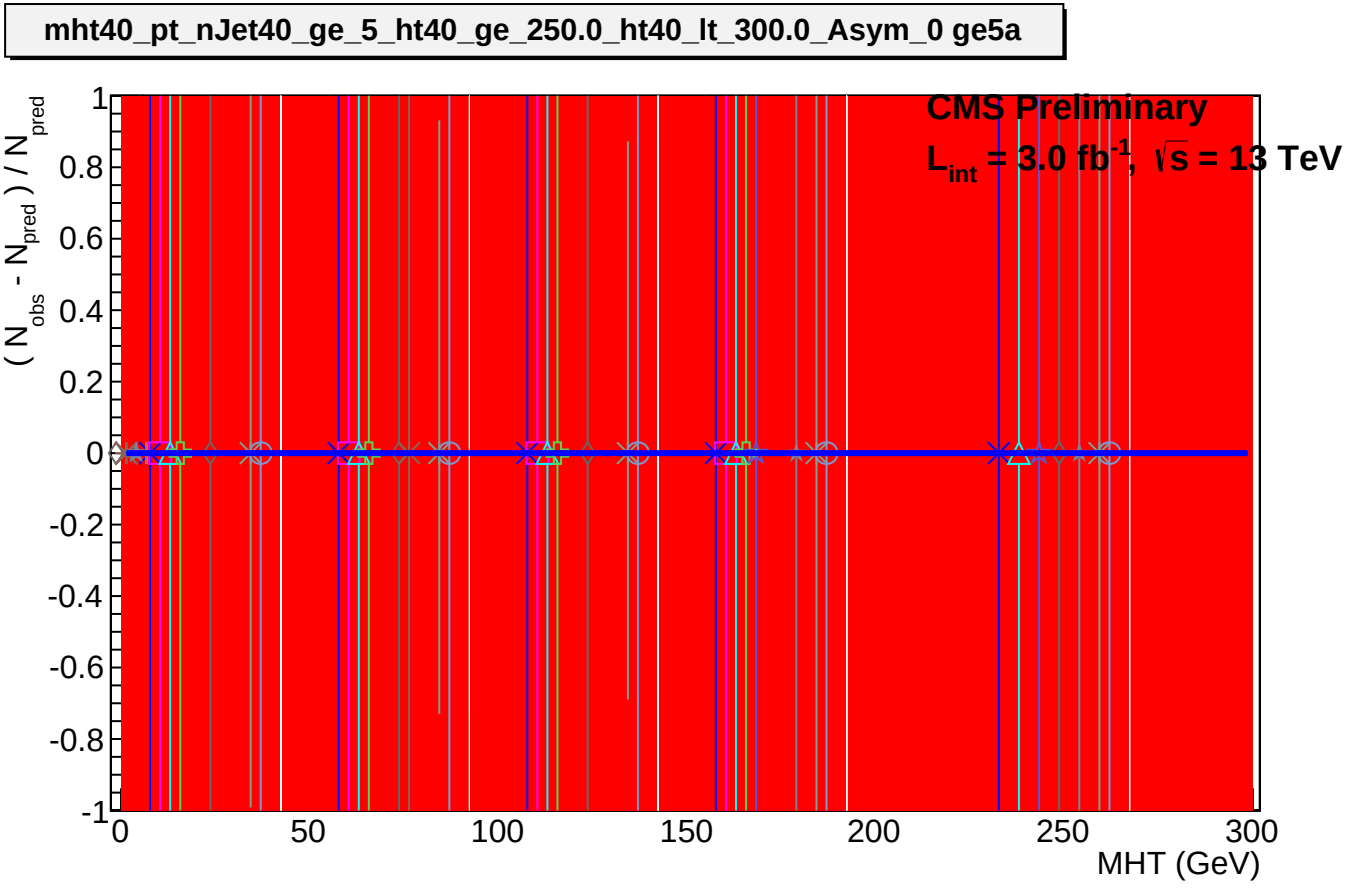
ht40_nJet40_ge_5_Asym_0 ge5a

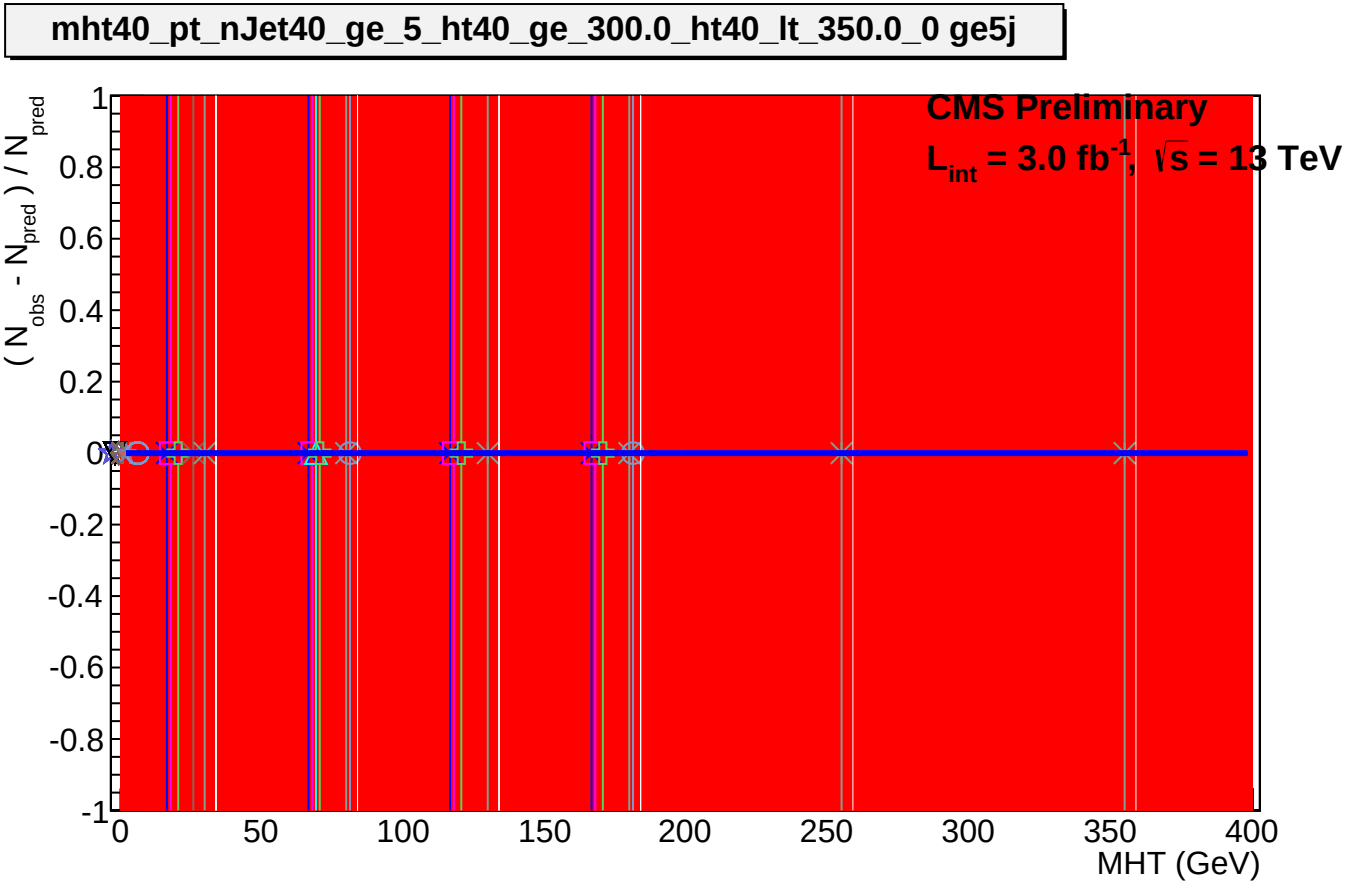


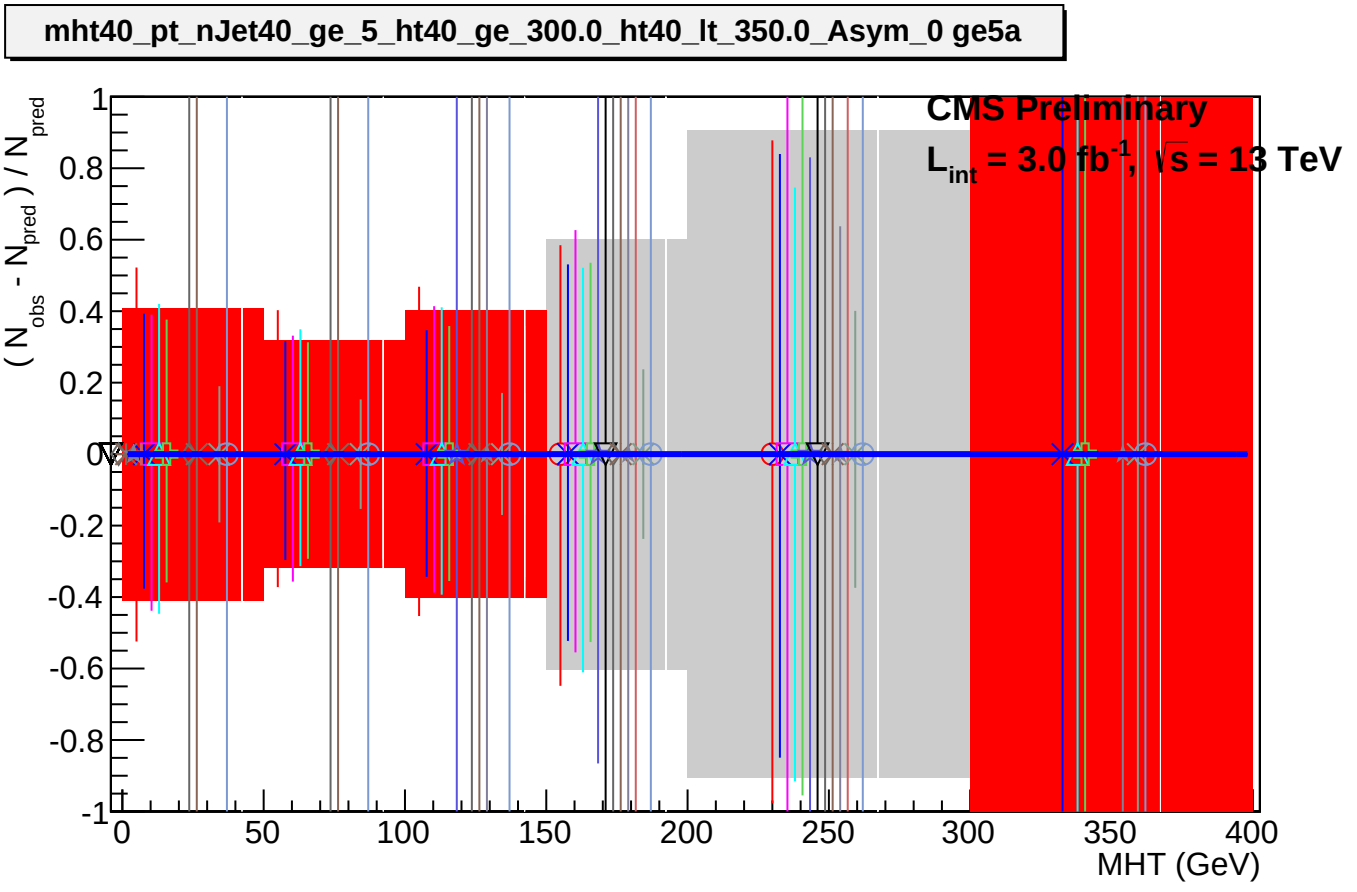

mht40_pt_nJet40_ge_5_ht40_ge_200.0_ht40_lt_250.0_0 ge5j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
MHT (GeV)

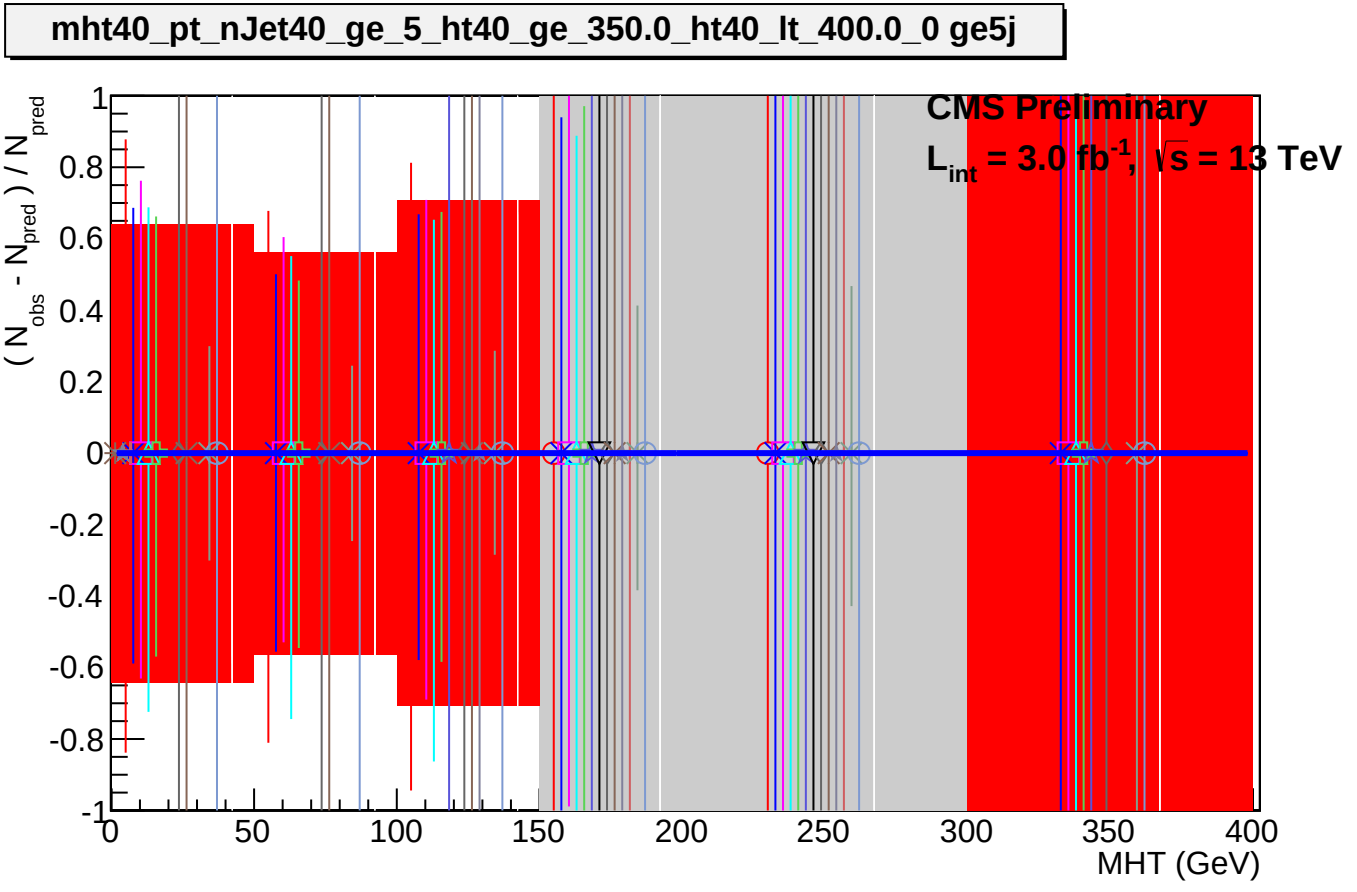

mht40_pt_nJet40_ge_5_ht40_ge_200.0_ht40_lt_250.0_Asym_0 ge5a
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
MHT (GeV)

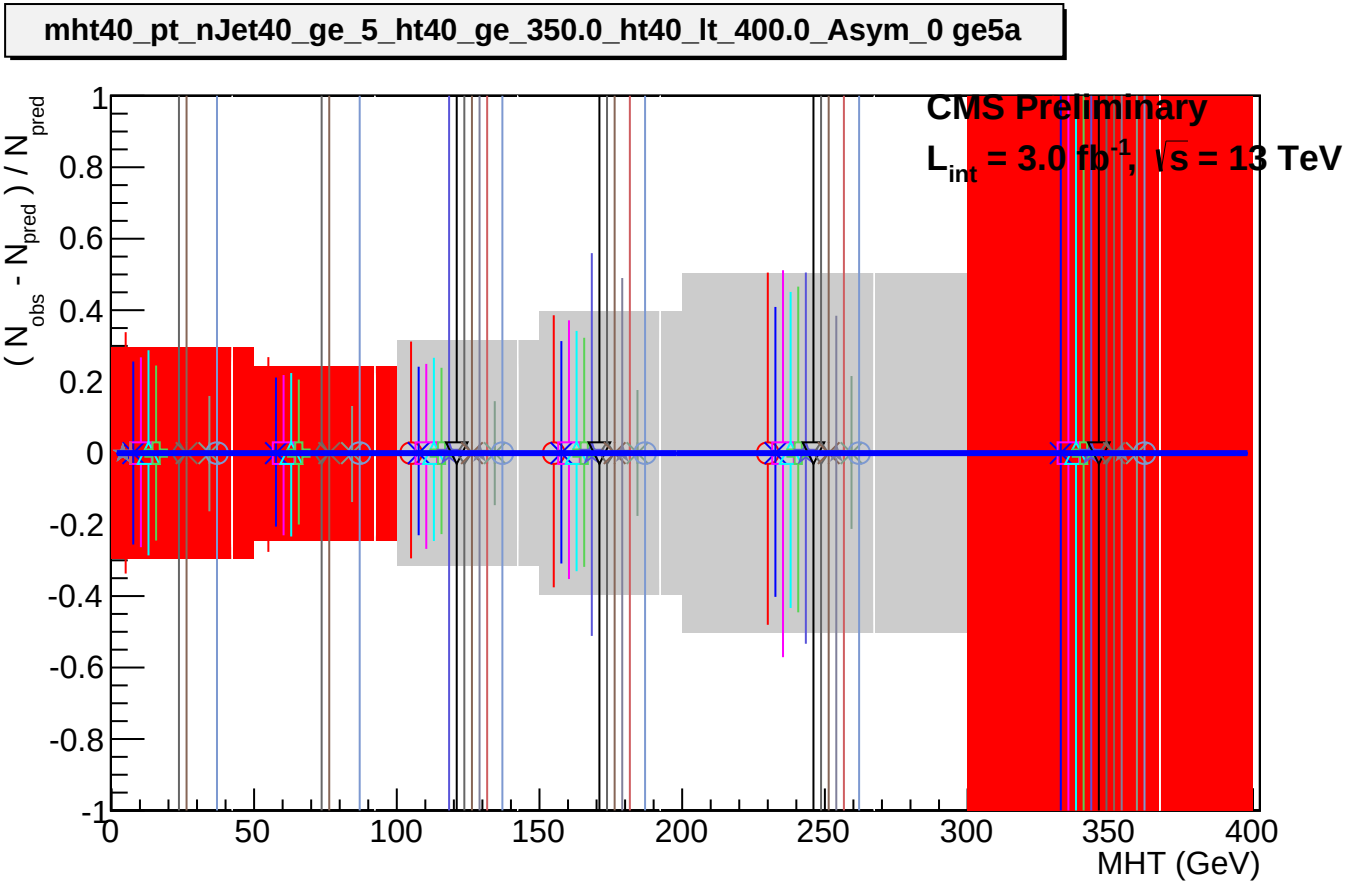

mht40_pt_nJet40_ge_5_ht40_ge_250.0_ht40_lt_300.0_0 ge5j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
MHT (GeV)


mht40_pt_nJet40_ge_5_ht40_ge_250.0_ht40_lt_300.0_Asym_0 ge5a
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
MHT (GeV)


mht40_pt_nJet40_ge_5_ht40_ge_300.0_ht40_lt_350.0_0 ge5j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400
MHT (GeV)


mht40_pt_nJet40_ge_5_ht40_ge_300.0_ht40_lt_350.0_Asym_0 ge5a
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400


mht40_pt_nJet40_ge_5_ht40_ge_350.0_ht40_lt_400.0_0 ge5j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400
MHT (GeV)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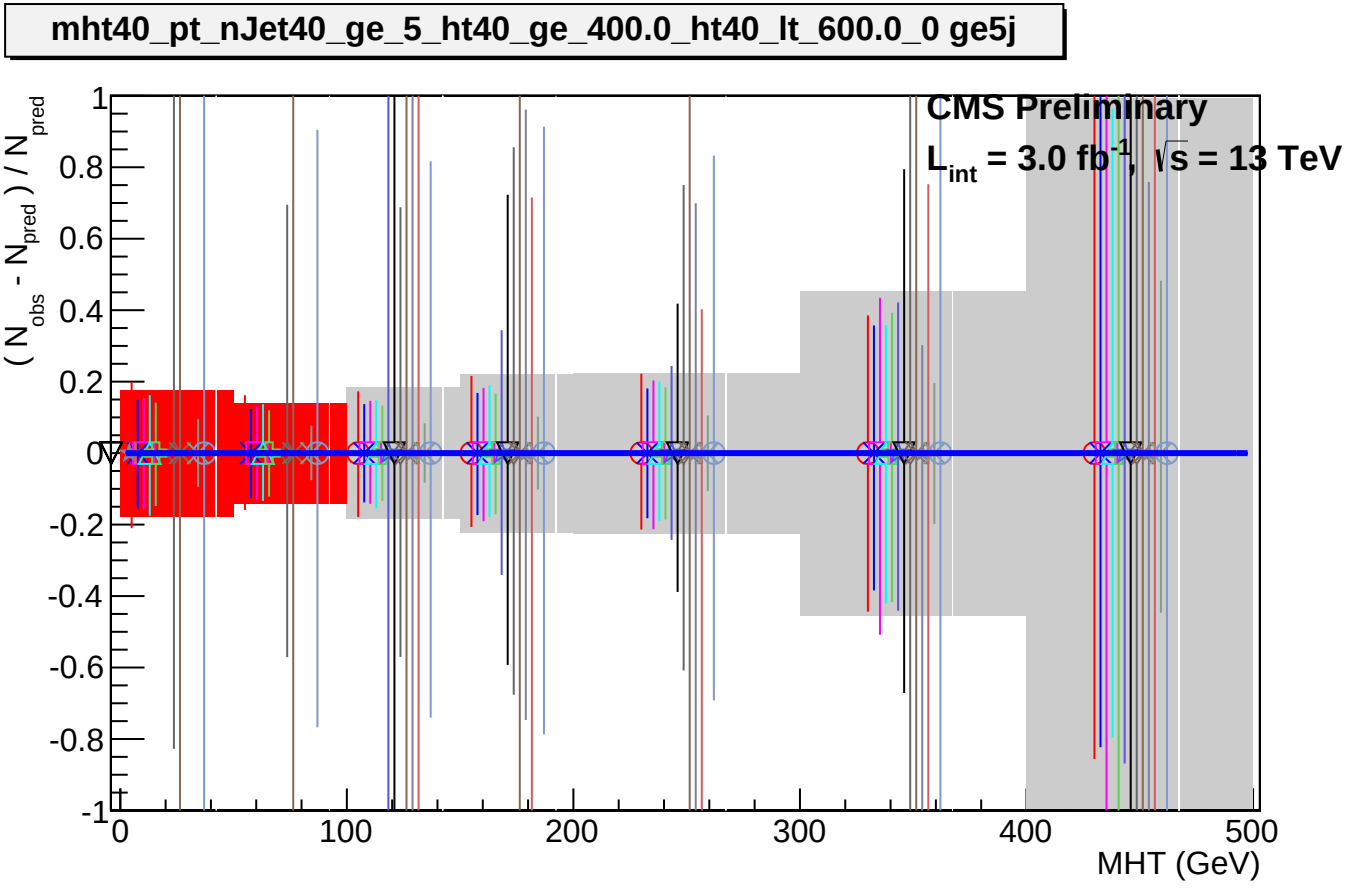
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400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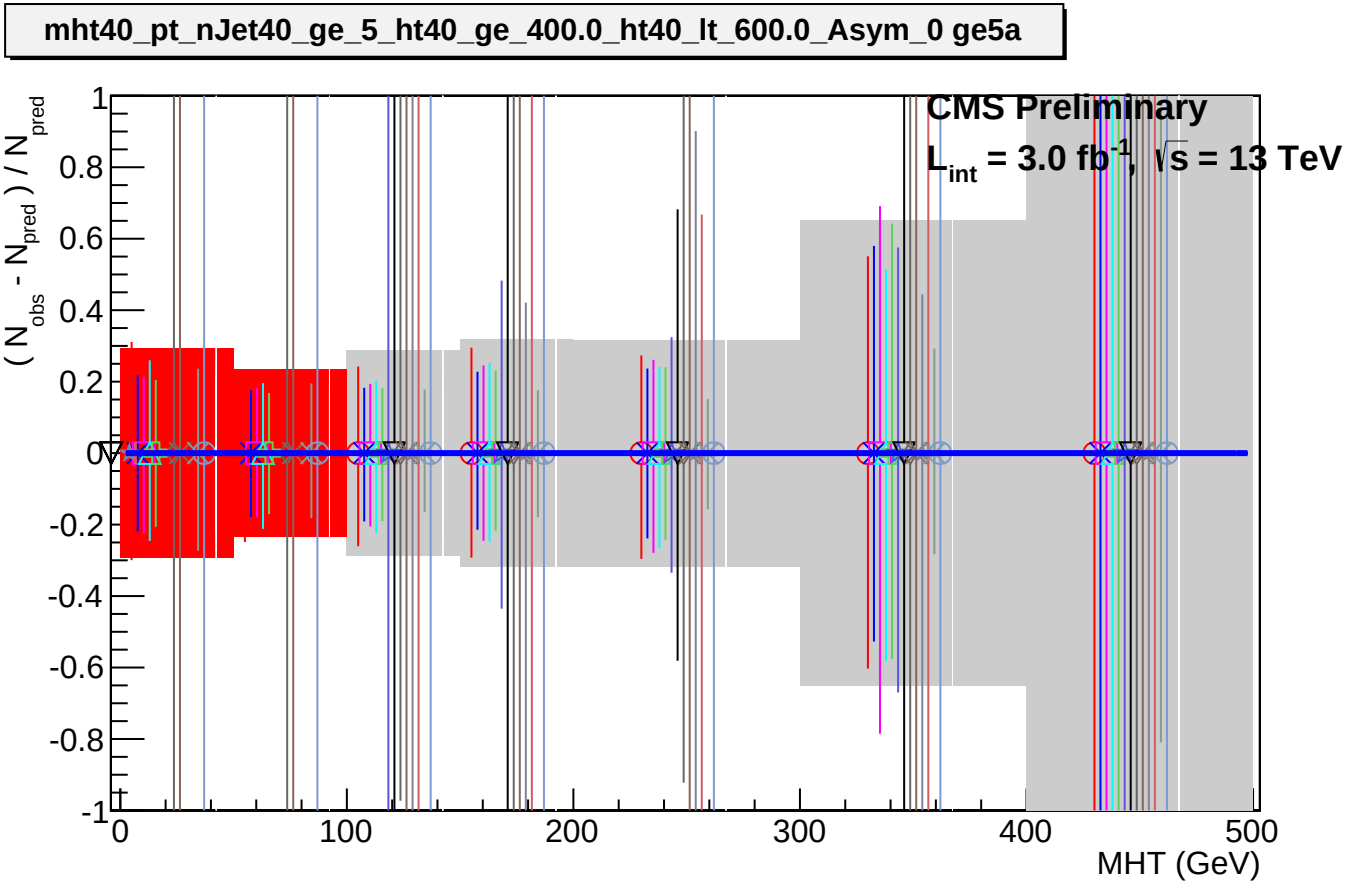
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
MHT (GeV)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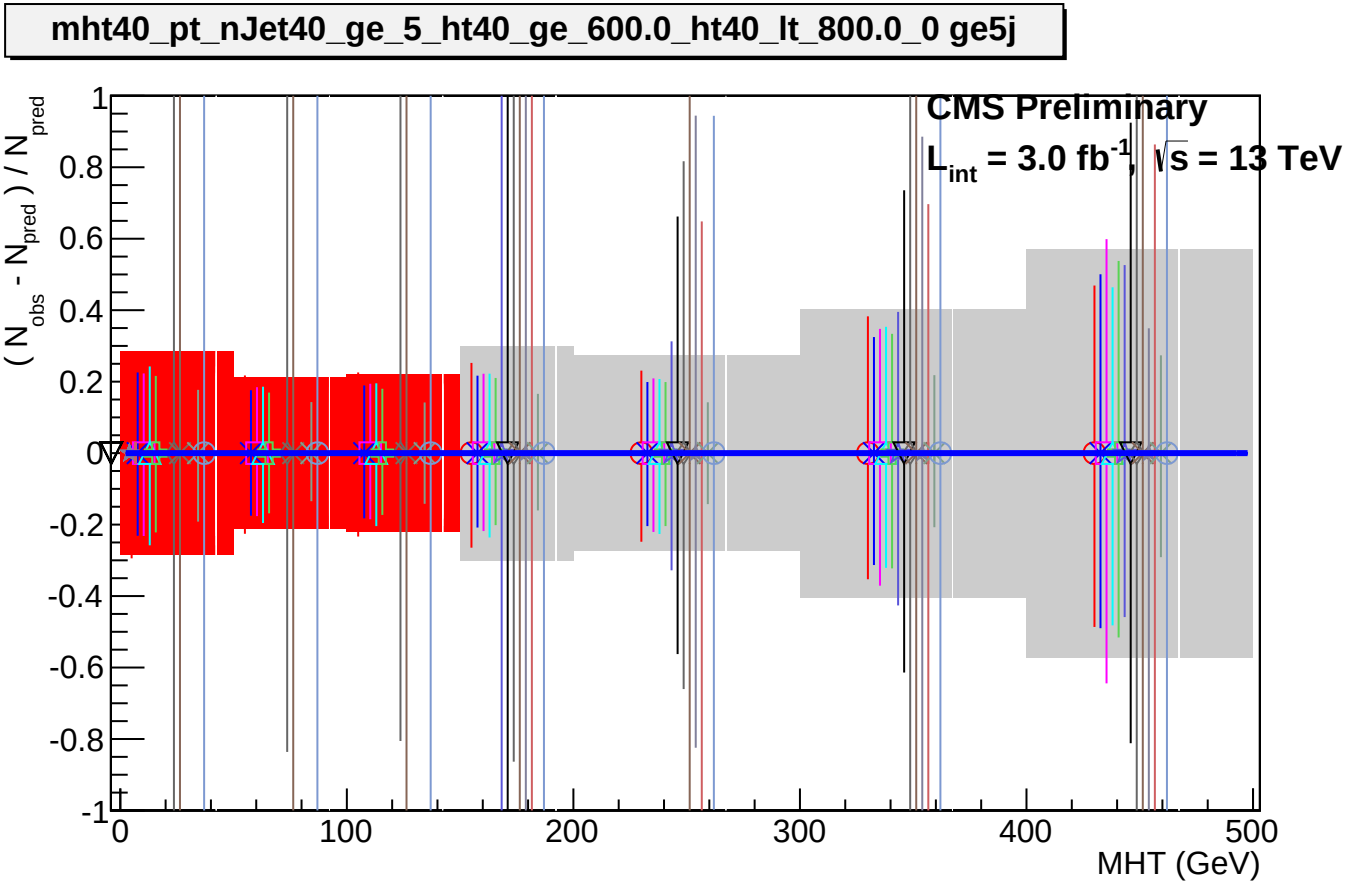
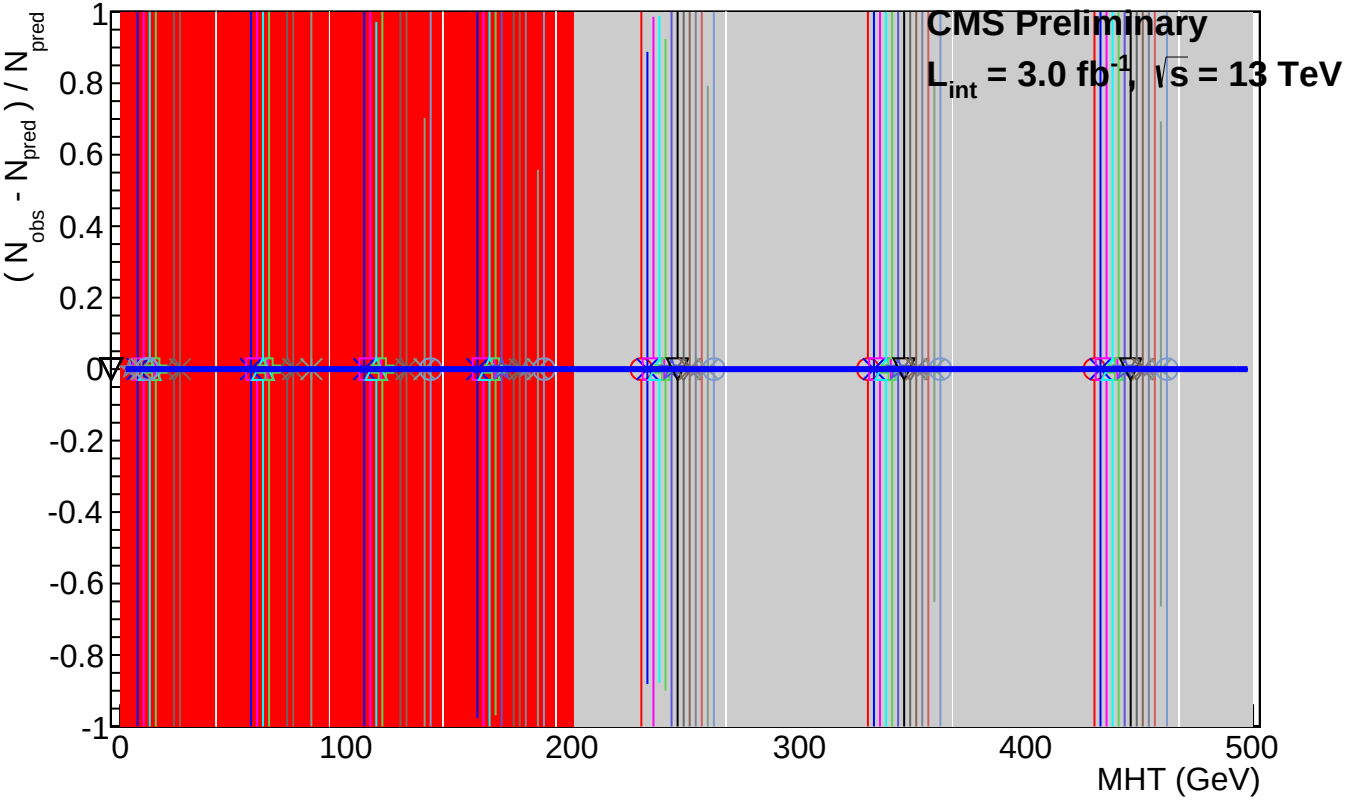
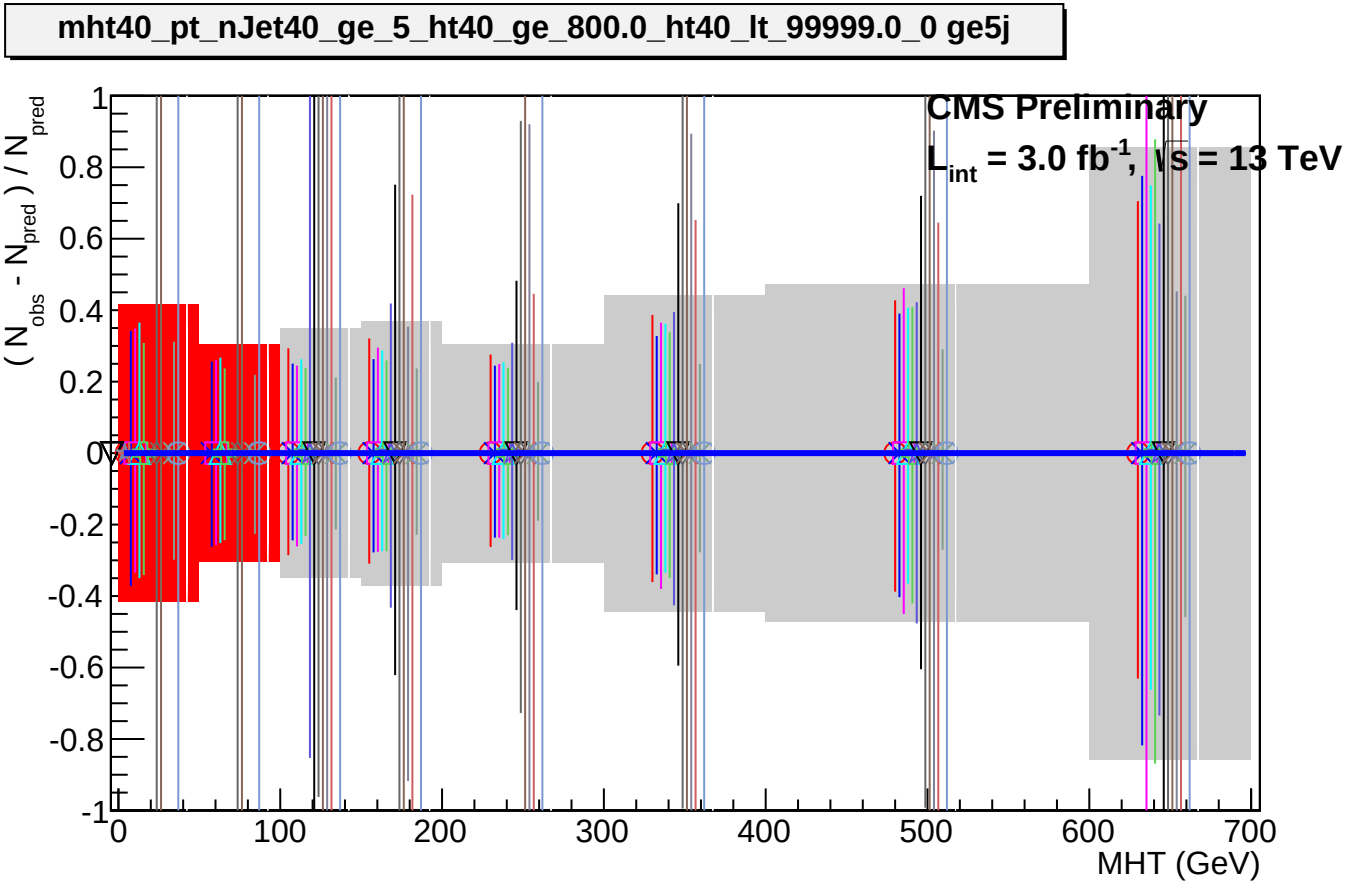
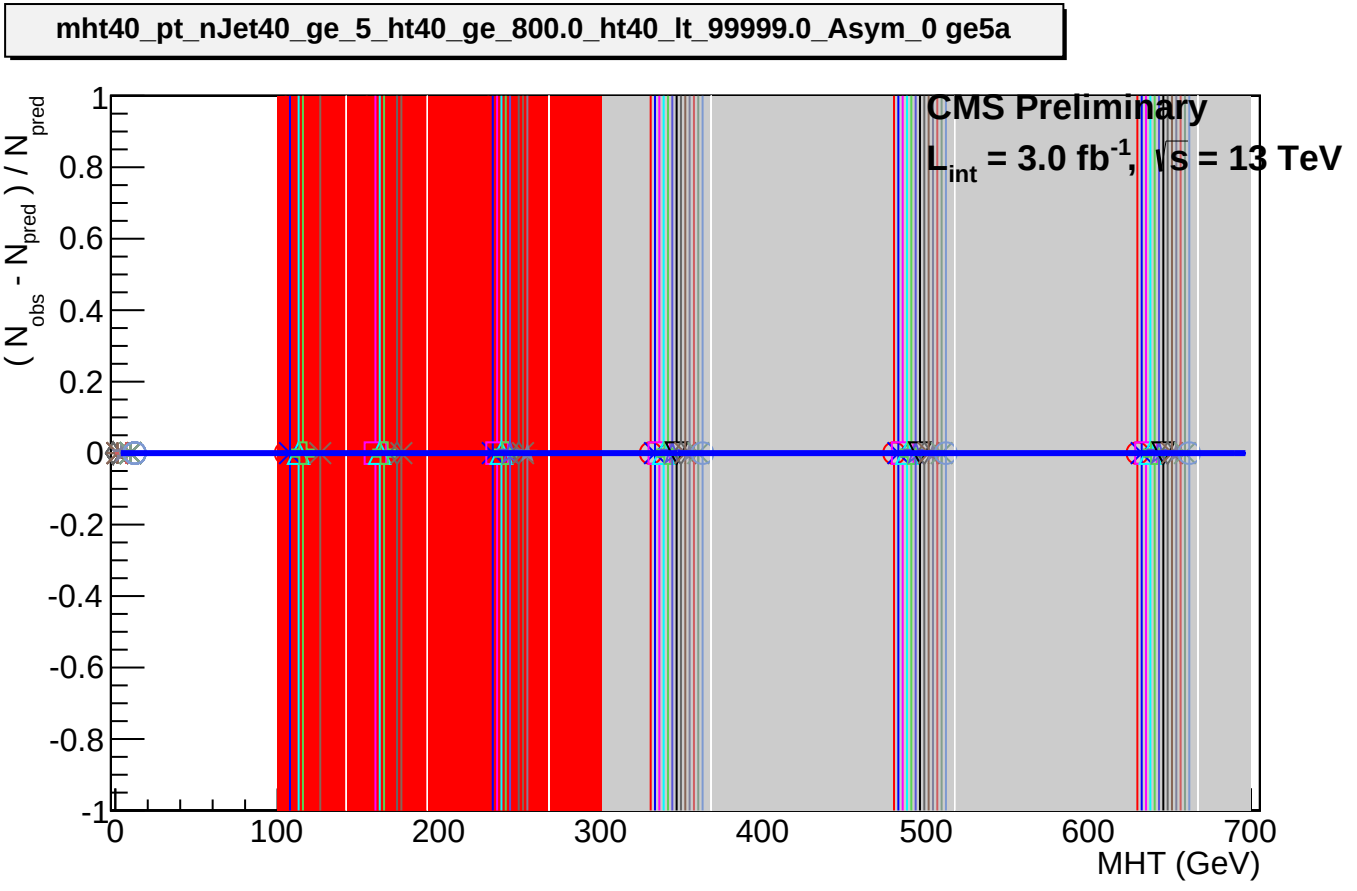
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
MHT (GeV)


mht40_pt_nJet40_ge_5_ht40_ge_600.0_ht40_lt_800.0_0 ge5j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
MHT (GeV)

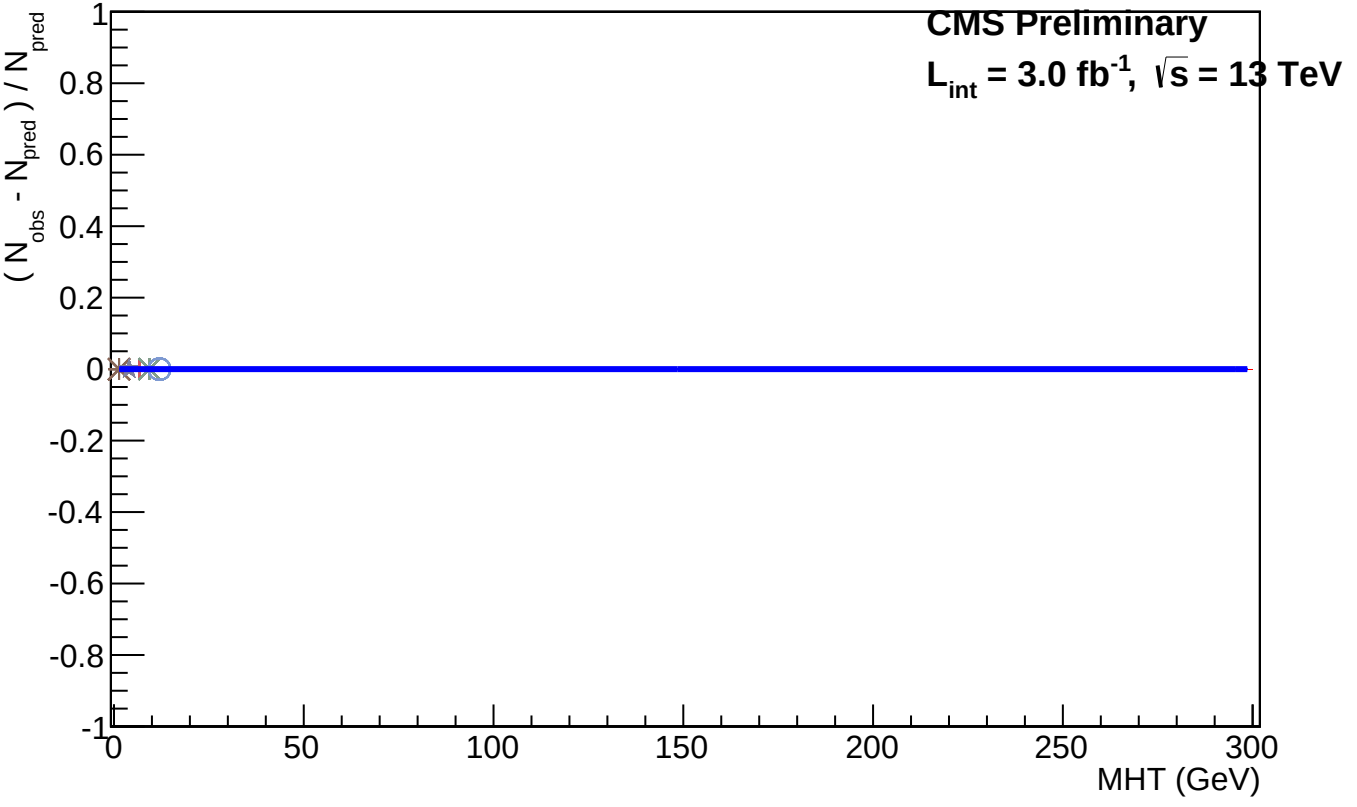
mht40_pt_nJet40_ge_5_ht40_ge_600.0_ht40_lt_800.0_Asym_0 ge5a




mht40_pt_nJet40_ge_5_ht40_ge_800.0_ht40_lt_99999.0_0 ge5j
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
600
700


mht40_pt_nJet40_ge_5_ht40_ge_800.0_ht40_lt_99999.0_Asym_0 ge5a
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
600
700
MHT (GeV)

mht40_pt_nJet40_ge_5_ht40_ge_200.0_ht40_lt_250.0_0_Integrated ge5j_Integrated



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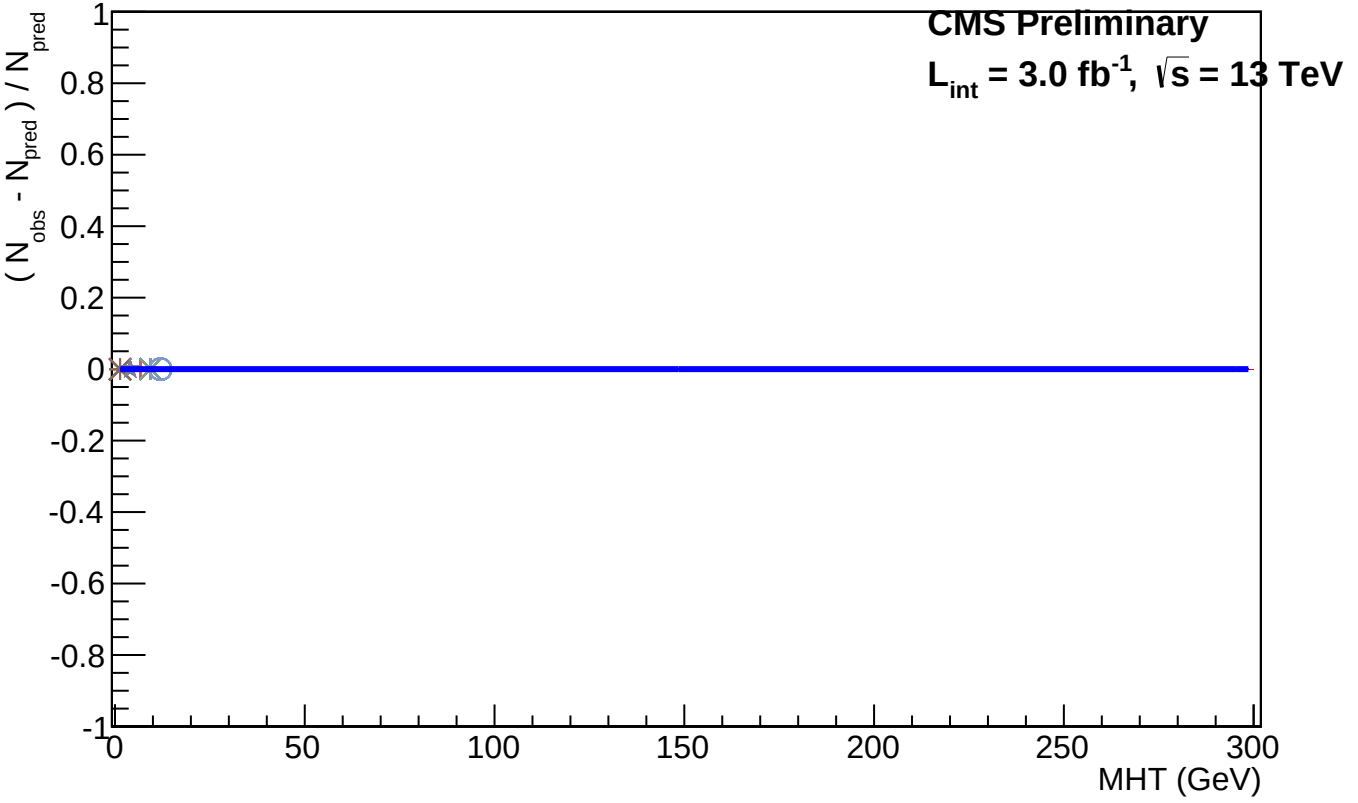

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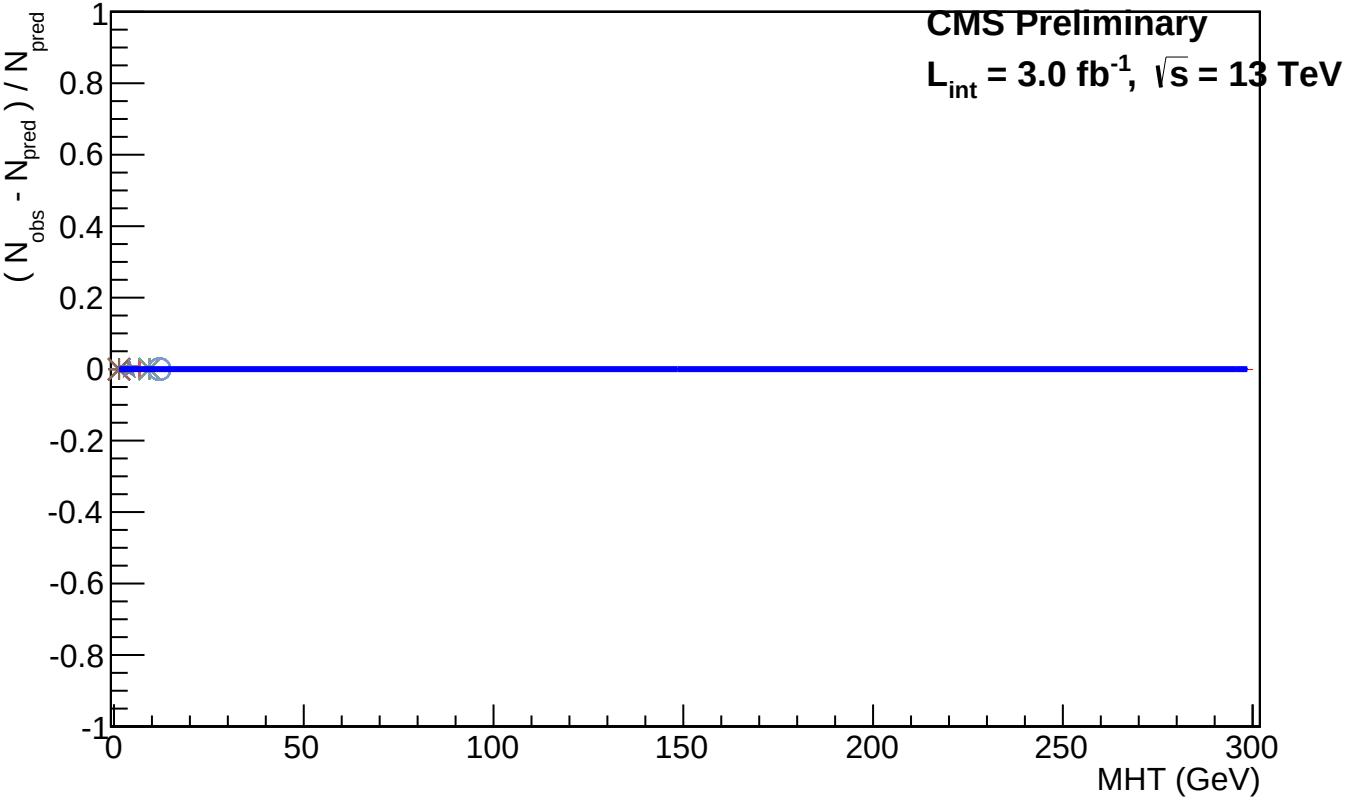

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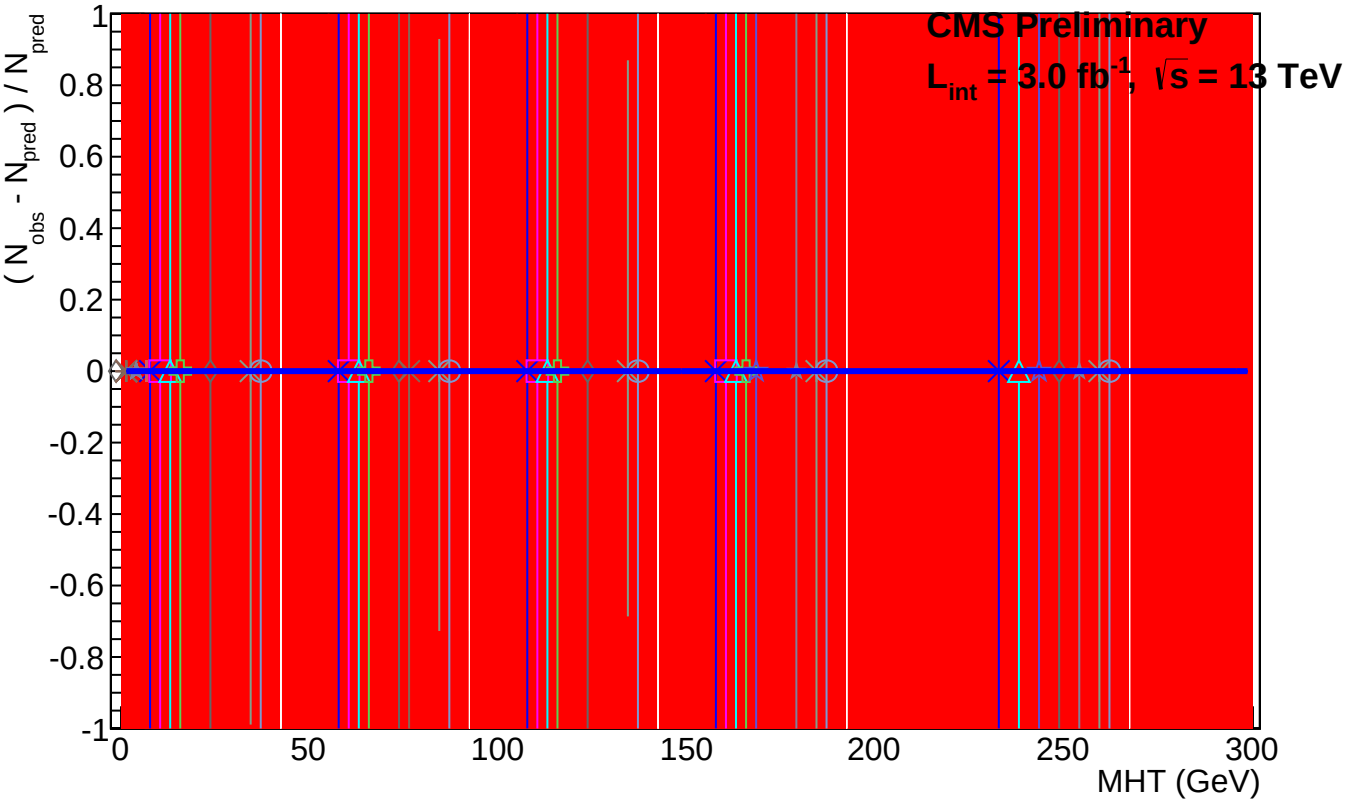

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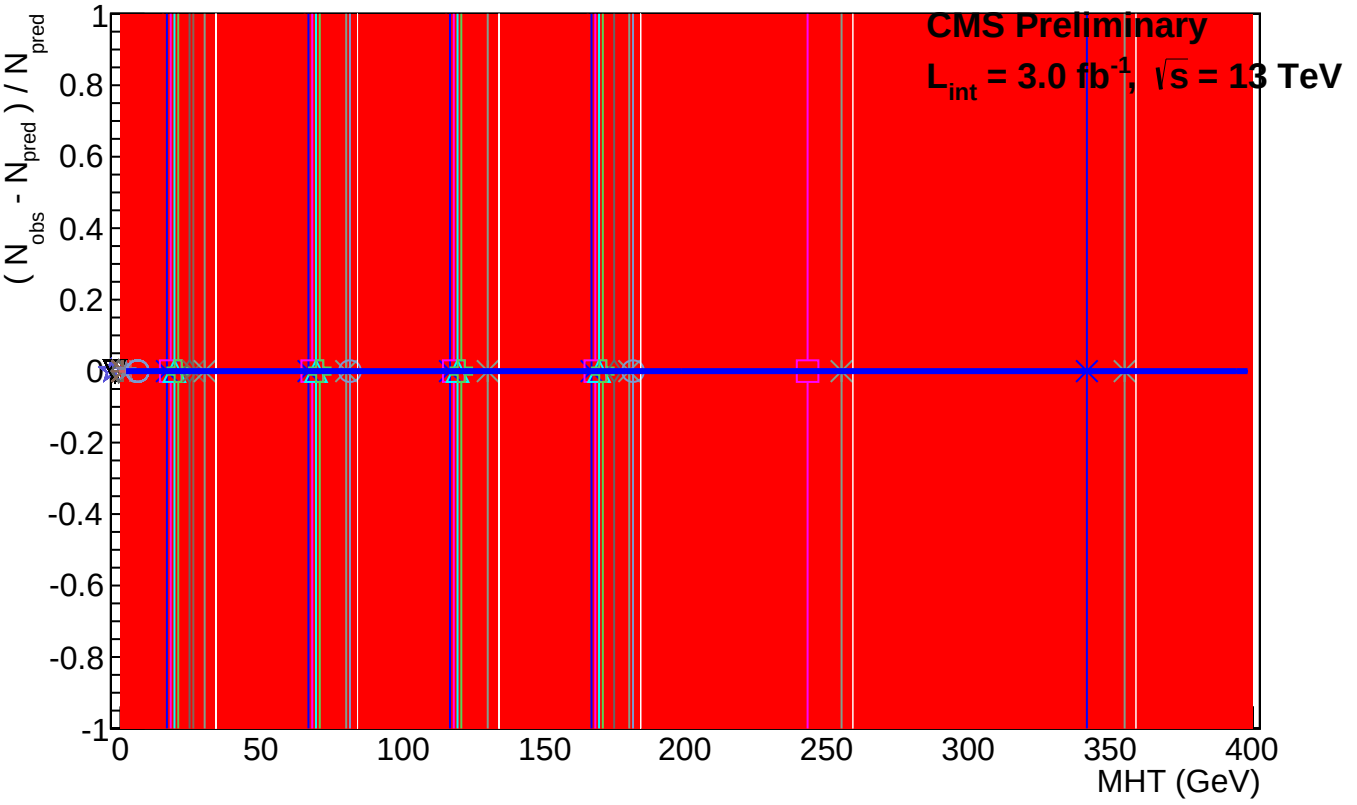
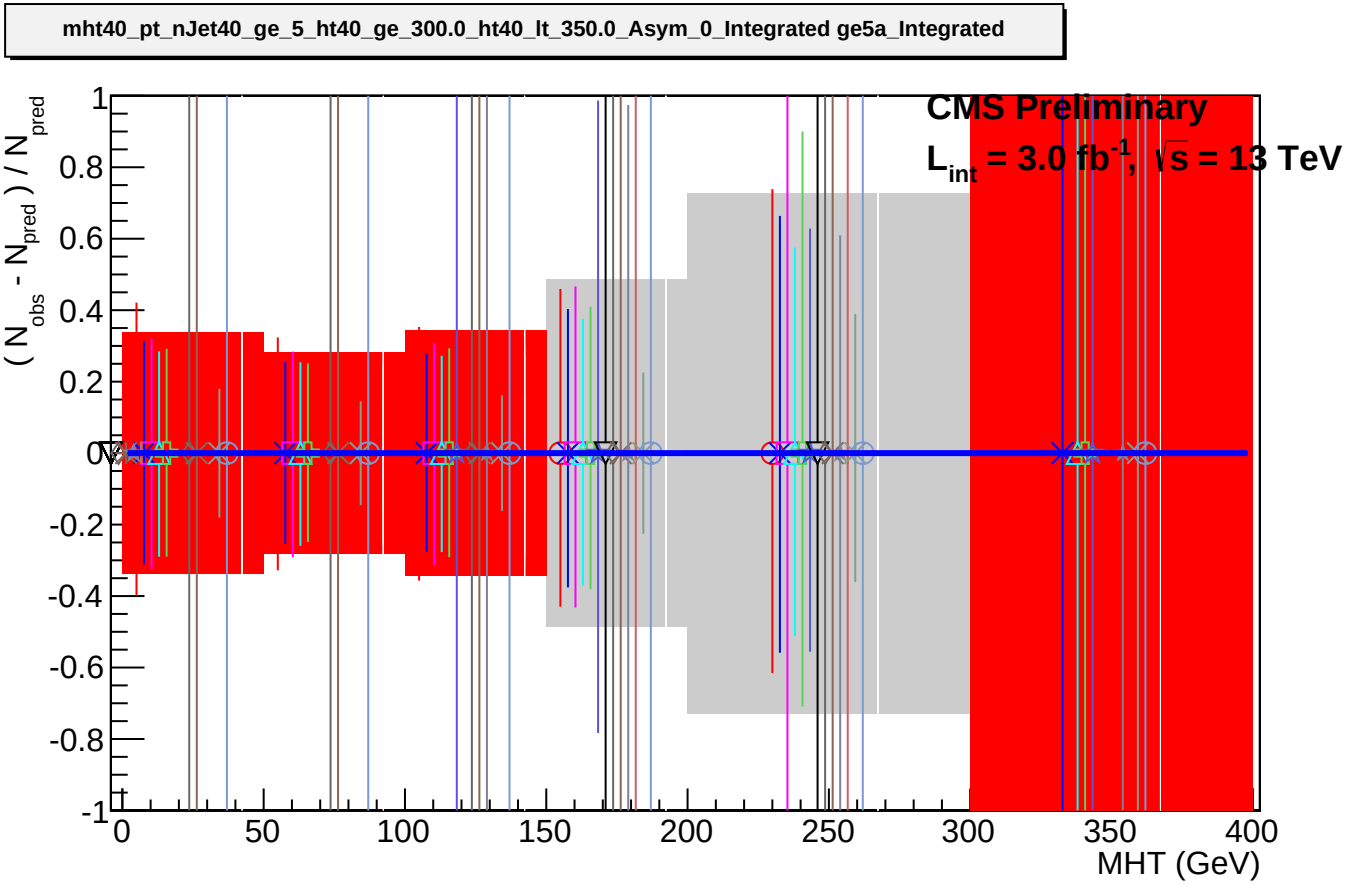
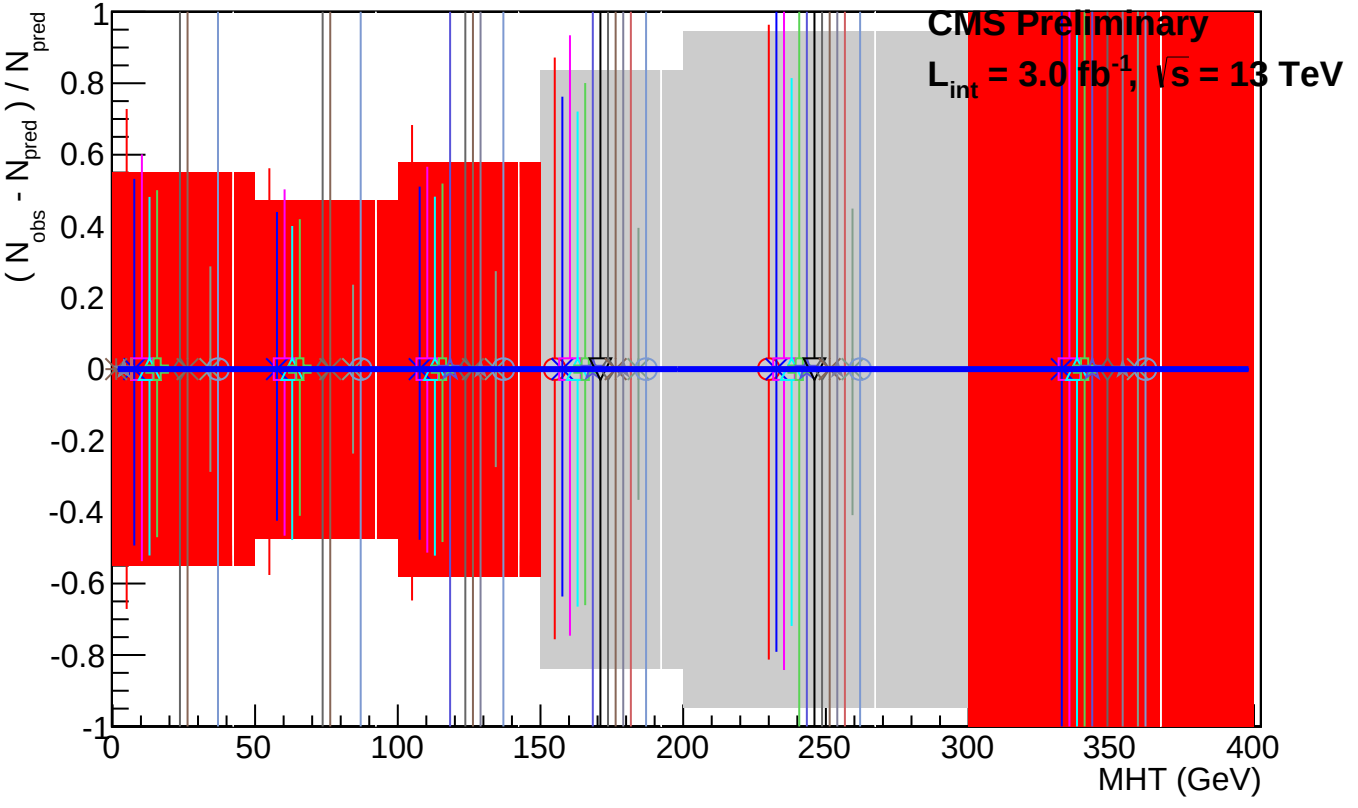
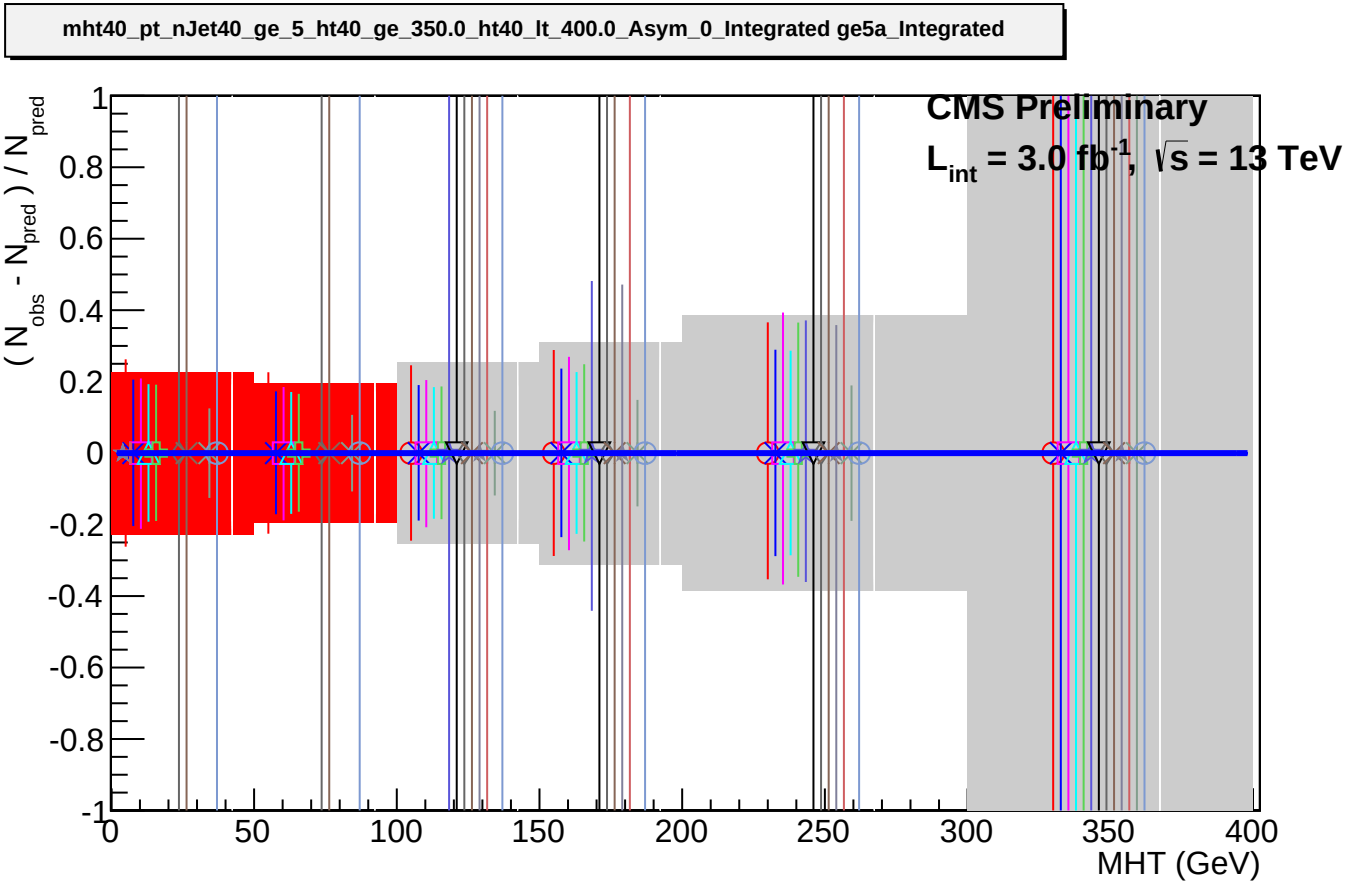
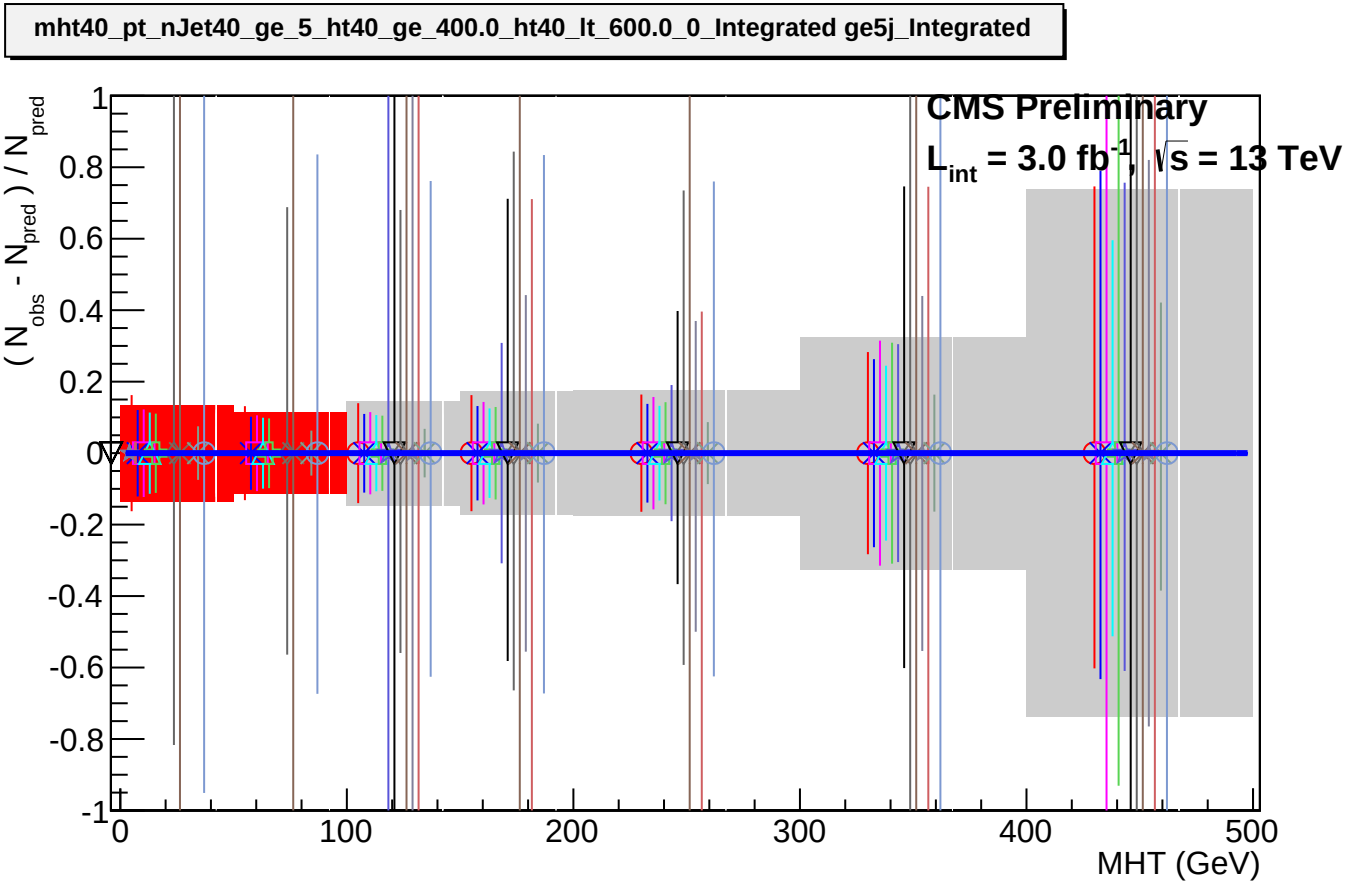



mht40_pt_nJet40_ge_5_ht40_ge_300.0_ht40_lt_350.0_Asym_0_Integrated ge5a_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400
MHT (GeV)

mht40_pt_nJet40_ge_5_ht40_ge_350.0_ht40_lt_400.0_0_Integrated ge5j_Integrated




mht40_pt_nJet40_ge_5_ht40_ge_350.0_ht40_lt_400.0_Asym_0_Integrated ge5a_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
50
100
150
200
250
300
350
400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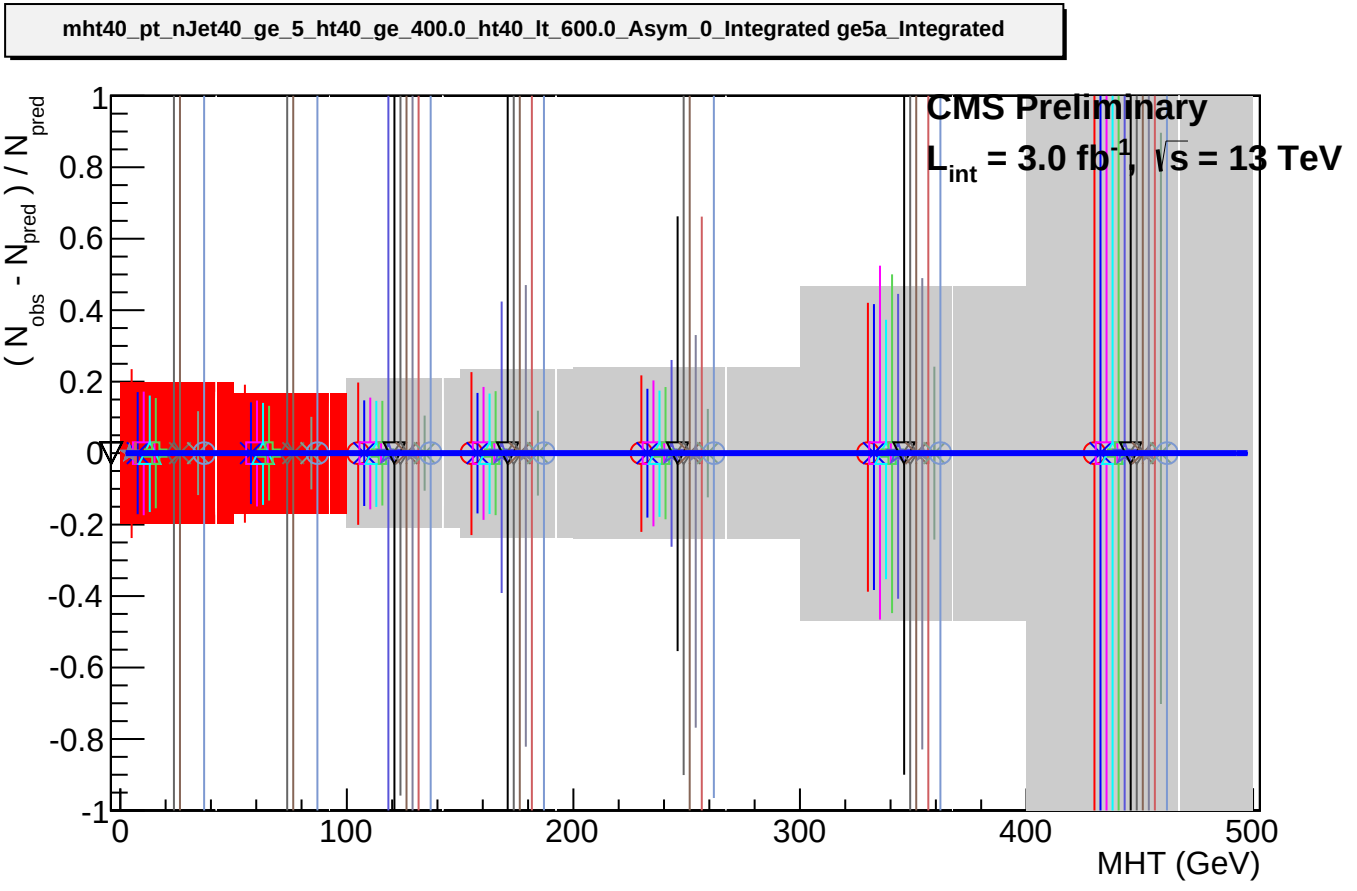
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
MHT (GeV)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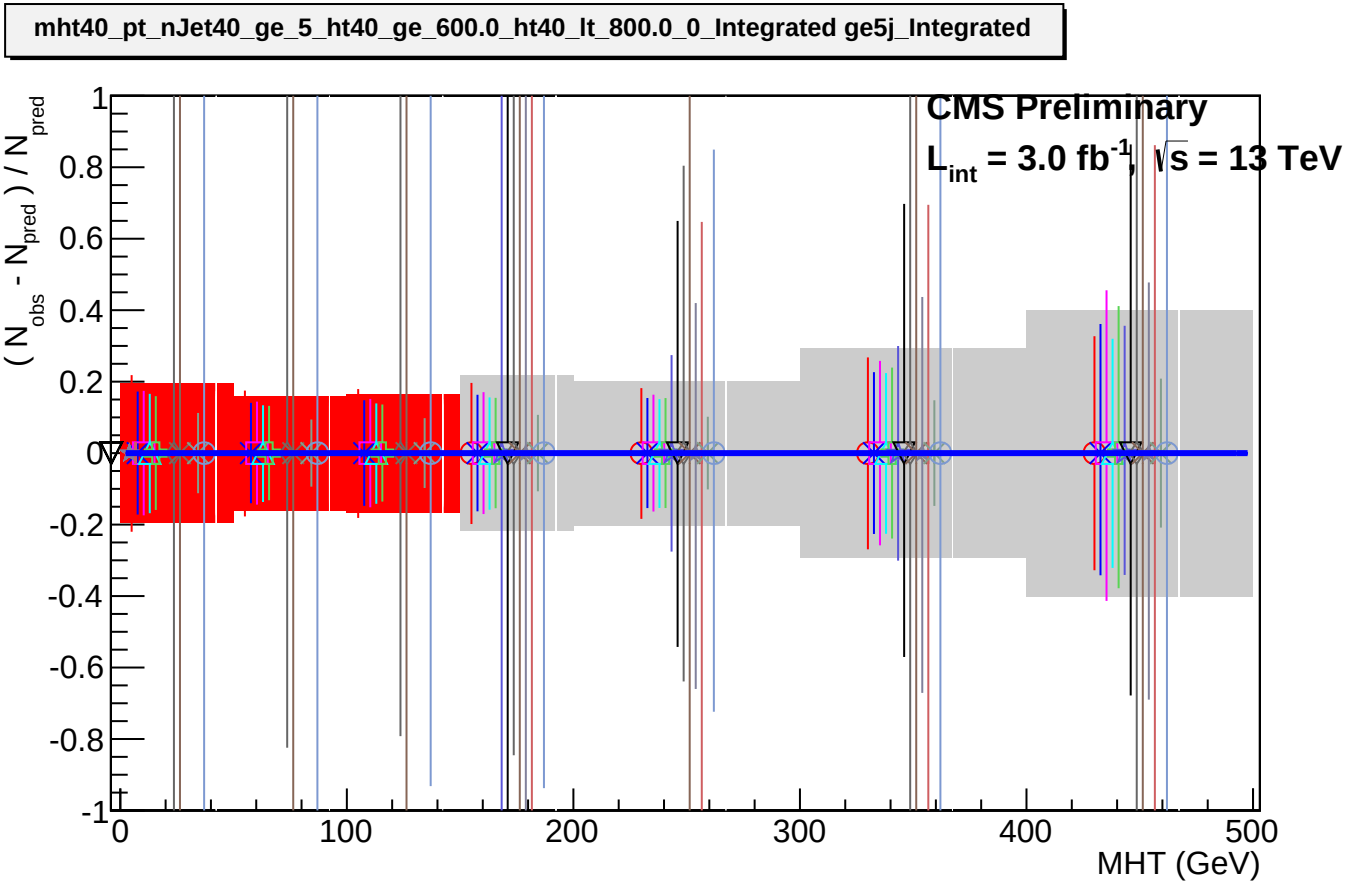
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
MHT (GeV)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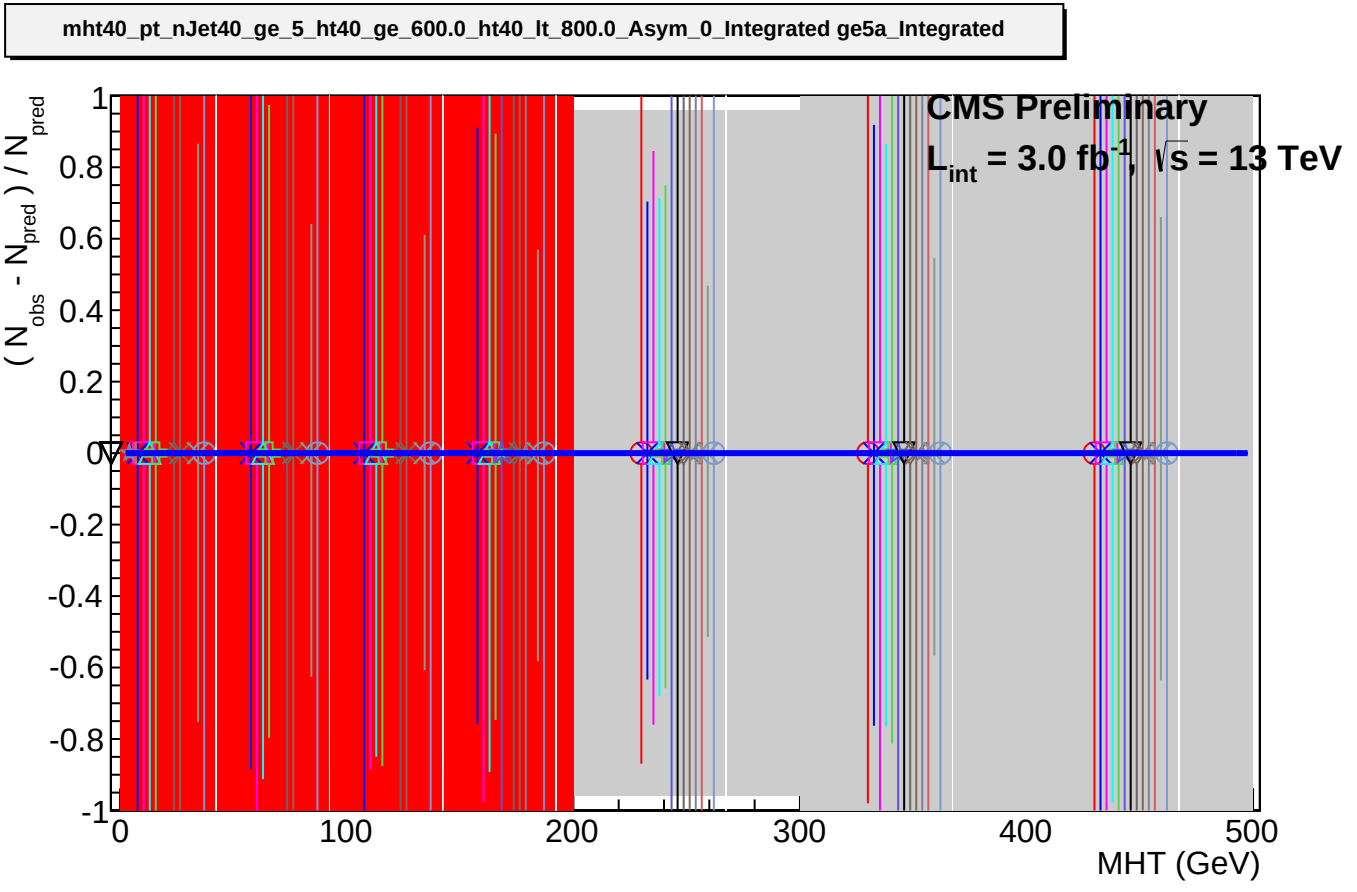
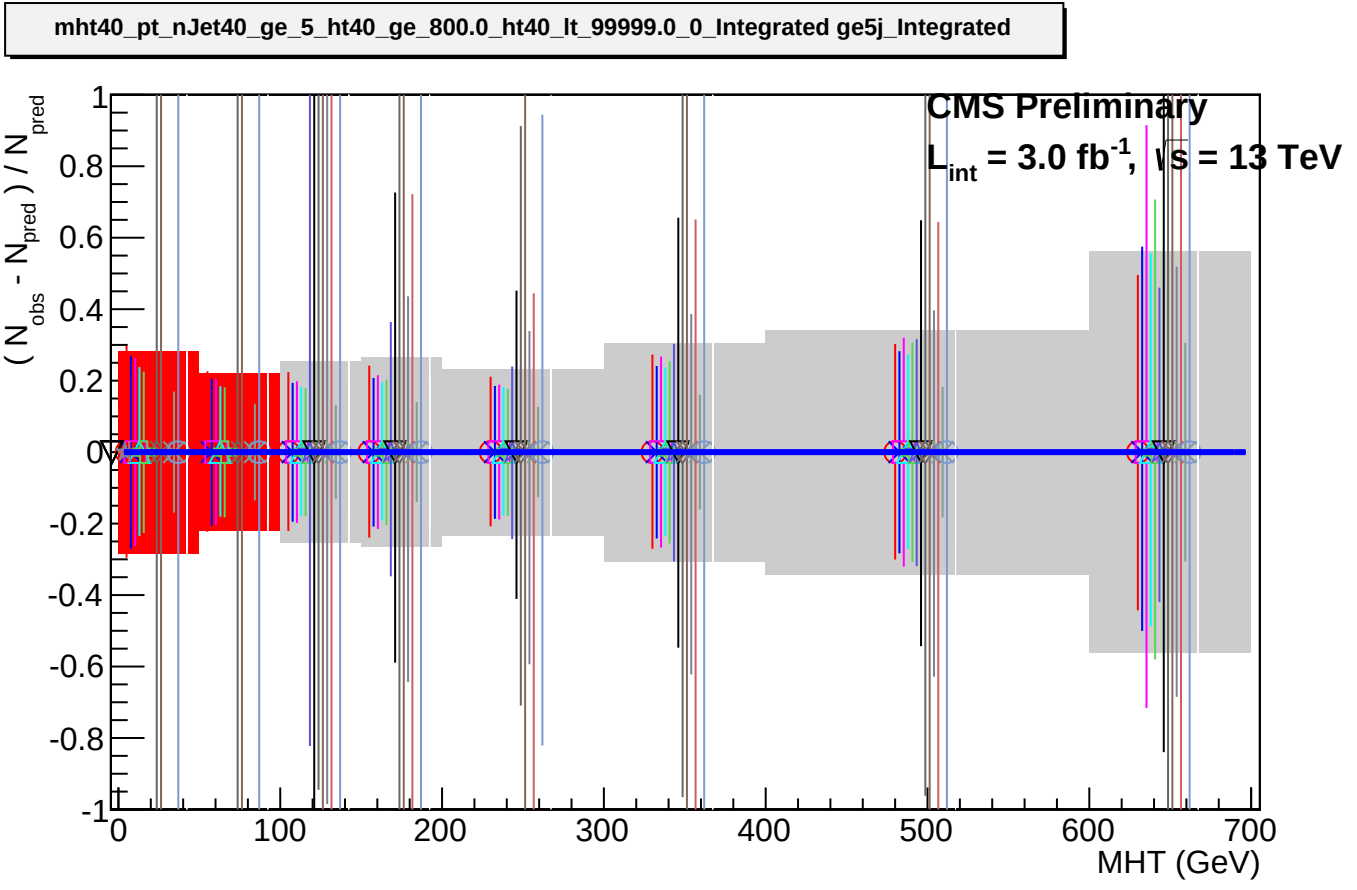
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
MHT (GeV)


mht40_pt_nJet40_ge_5_ht40_ge_600.0_ht40_lt_800.0_Asym_0_Integrated ge5a_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
MHT (GeV)


mht40_pt_nJet40_ge_5_ht40_ge_800.0_ht40_lt_99999.0_0_Integrated ge5j_Integrated
CMS Preliminary
L_int = 3.0 fb^-1, √s = 13 TeV
(N_obs - N_pred) / N_pred
MHT (GeV)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0
100
200
300
400
500
600
700

mht40_pt_nJet40_ge_5_ht40_ge_800.0_ht40_lt_99999.0_Asym_0_Integrated ge5a_Integrated