

Status of $h \rightarrow \mu^+ \mu^-$ Analysis

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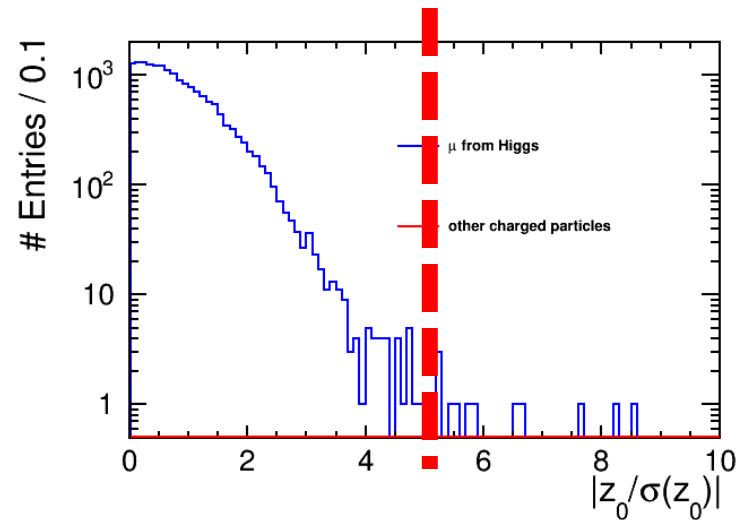
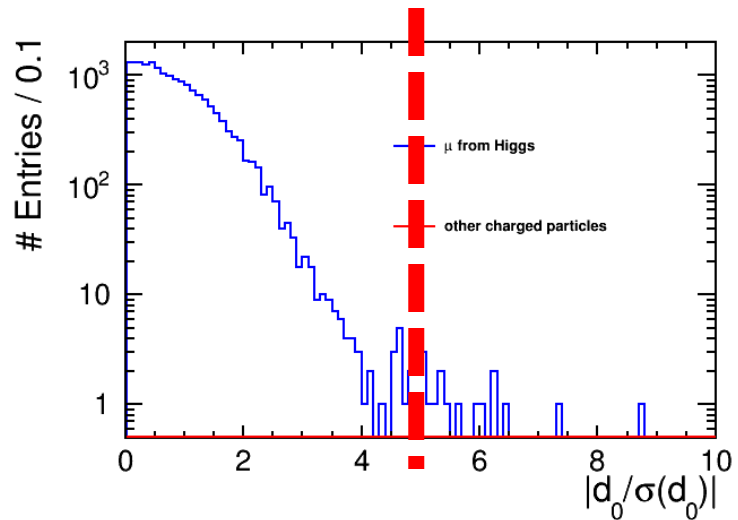
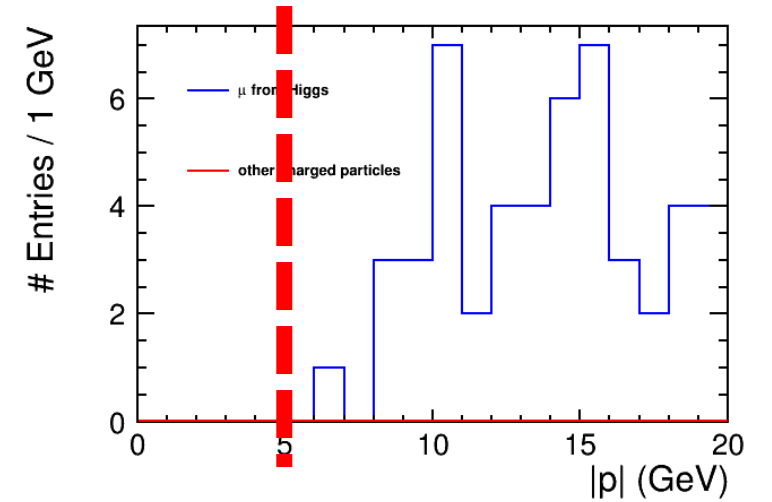
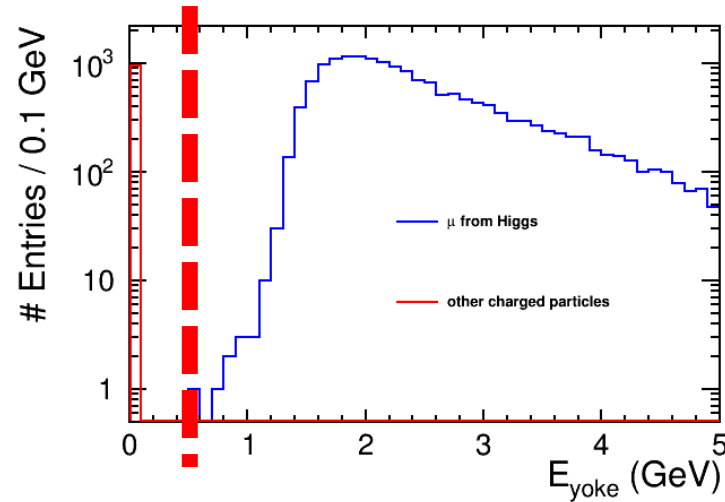
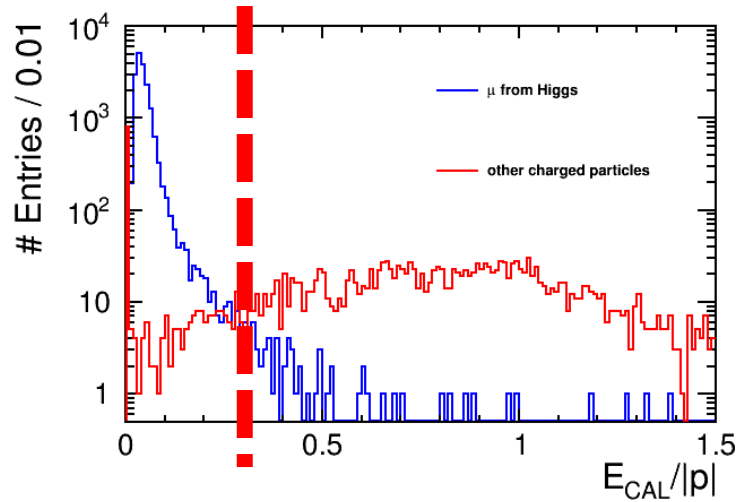
2017/October/13



Reminder & Progress

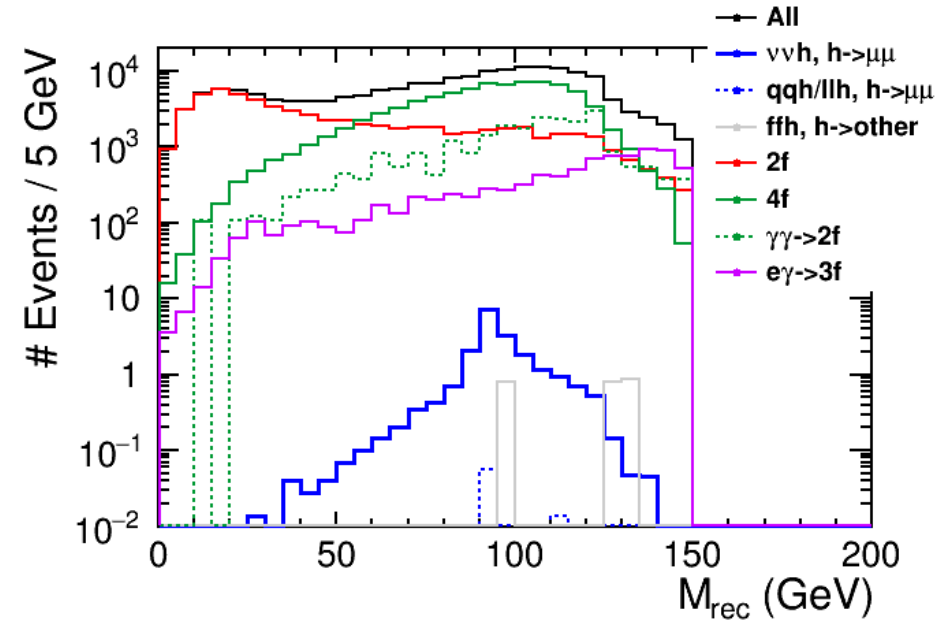
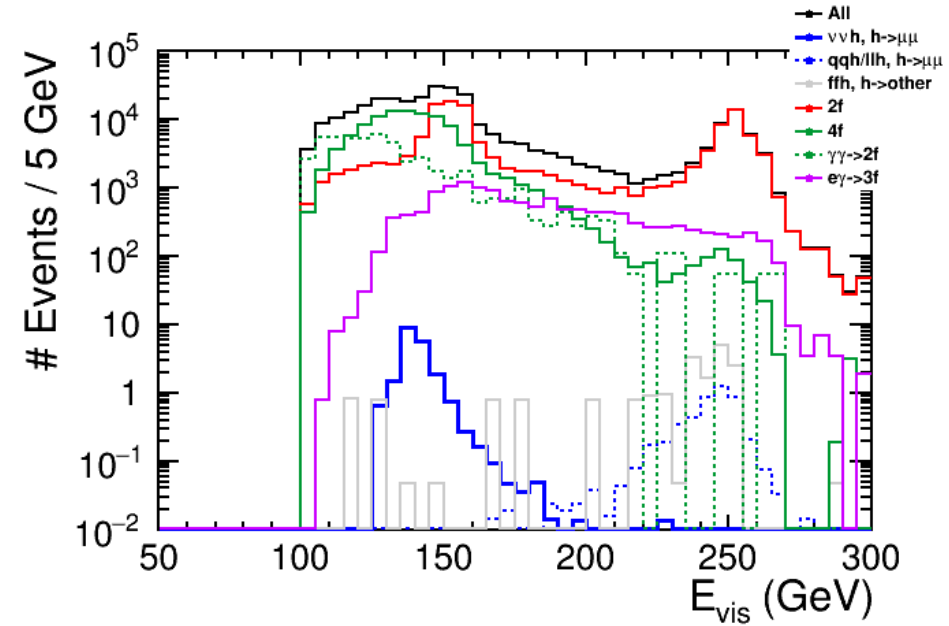
- New analysis results: nnh250

Event Reconstruction (IsolatedLeptonTagger)

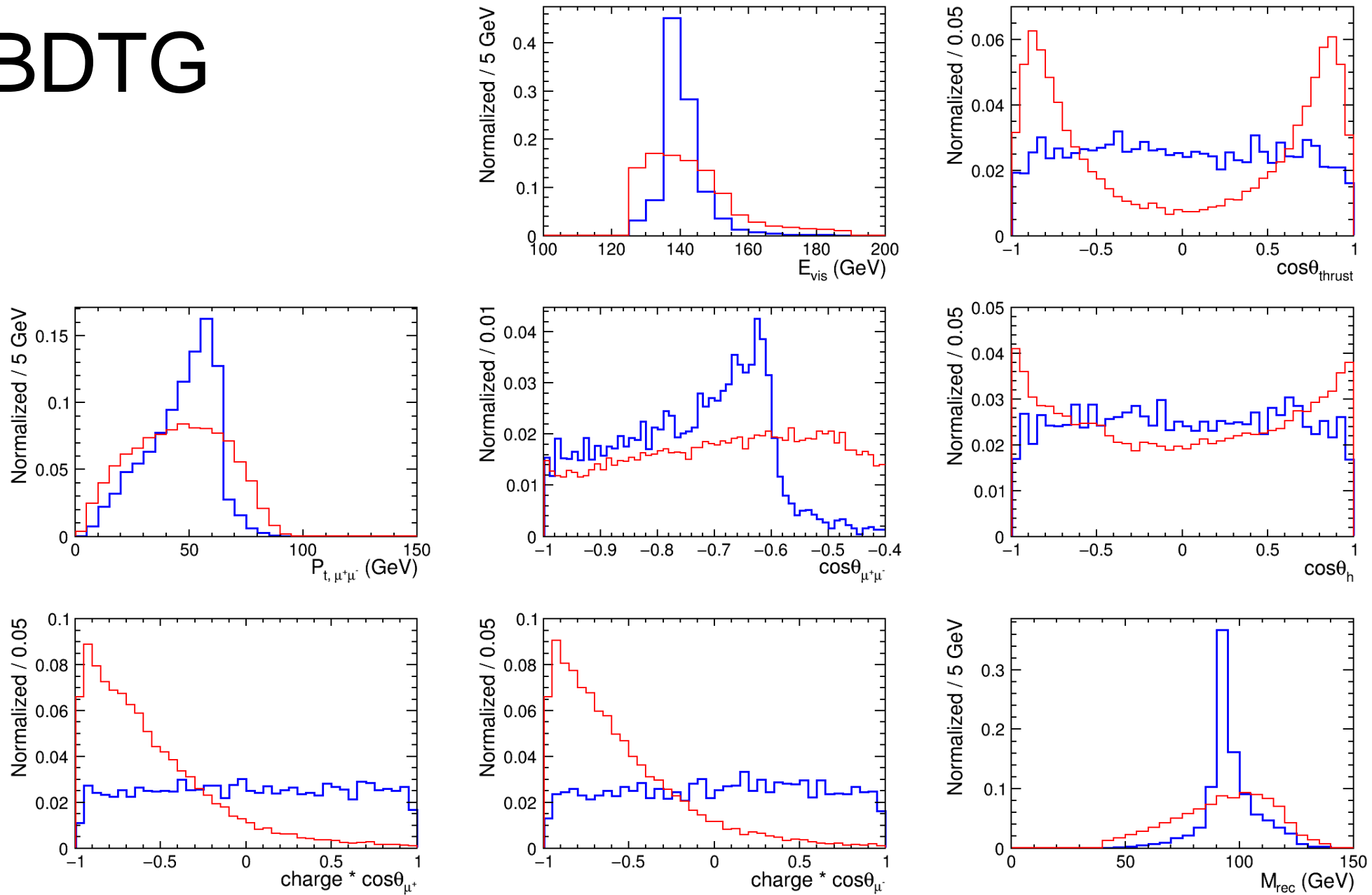


Precuts

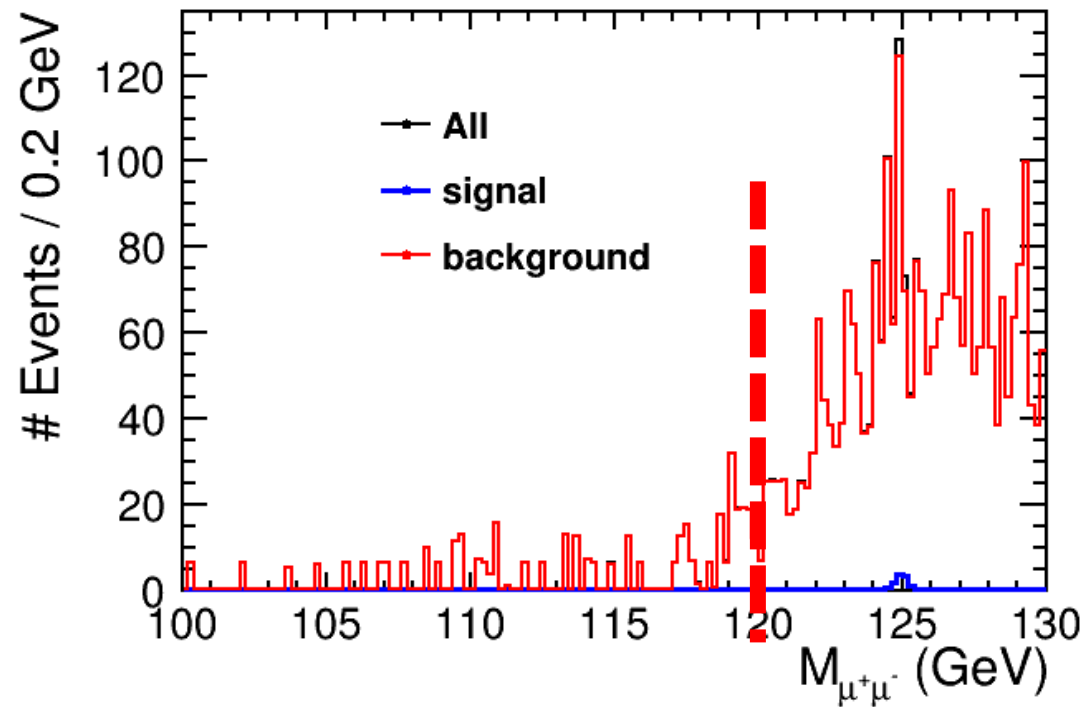
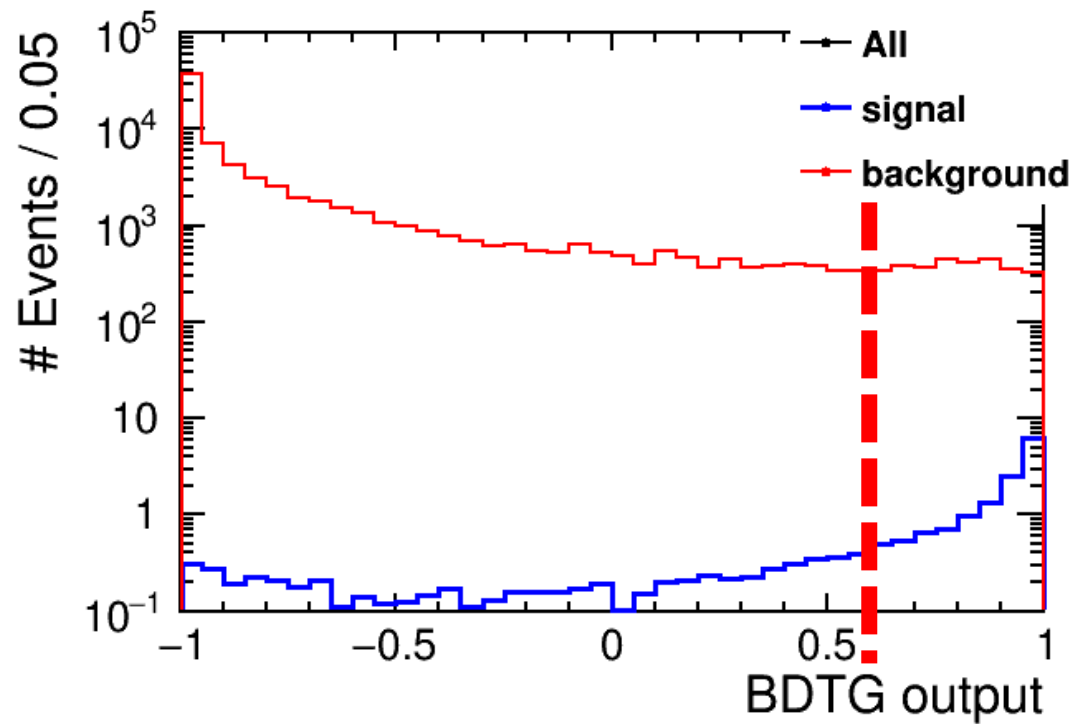
- μ^+ ちょうど1本、 μ^- ちょうど1本
- $0.5 < \chi^2/Ndf(\mu^\pm) < 1.5$
- $|d_0(\mu^\pm)| < 0.02$ mm、 $|d_0(\mu^-) - d_0(\mu^+)| < 0.02$ mm
- $|z_0(\mu^\pm)| < 0.5$ mm、 $|z_0(\mu^-) - z_0(\mu^+)| < 0.5$ mm
- $\sigma(M_{\mu^+\mu^-}) < 0.5$ GeV
- $100 < M_{\mu^+\mu^-} < 130$ GeV
- $\cos\theta_{\mu^+\mu^-} < -0.4$
- $N_{P_t > 5\text{GeV}} = 0$ (charged only)
- $125 < E_{\text{vis}} < 190$ GeV
- $40 < M_{\text{rec}} < 140$ GeV
- missing $P_t > 5$ GeV
- $|\cos\theta_{\text{miss}}| < 0.99$



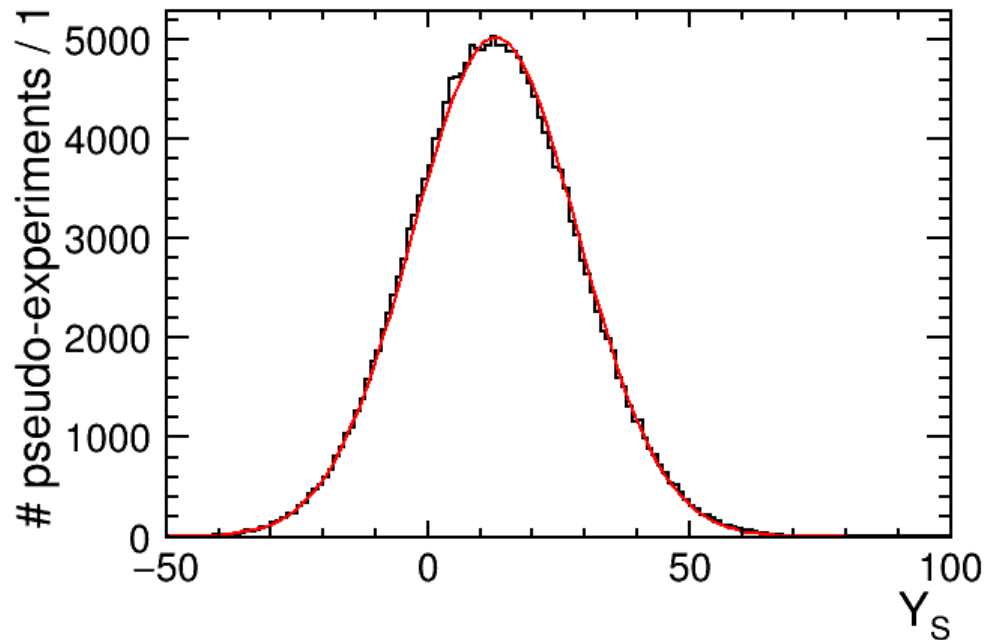
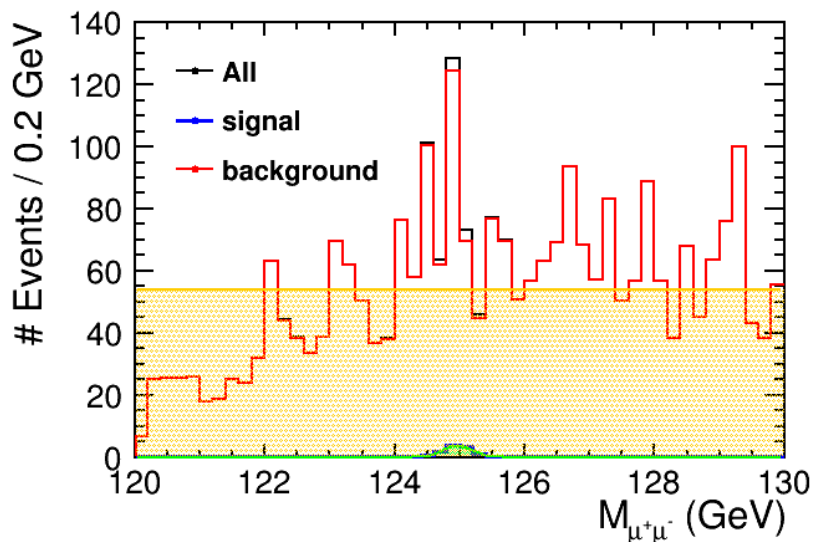
BDTG



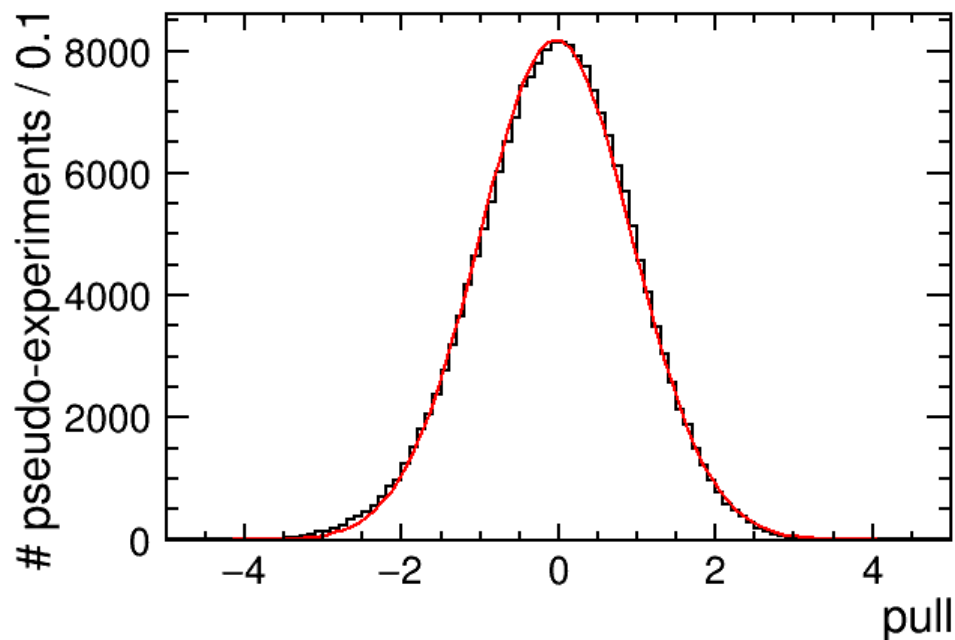
BDTG



Toy MC



mean
12.851 \pm 0.036
sigma
15.868 \pm 0.025
precision = 123.5%



mean
-0.0414 \pm 0.0022
sigma
0.9711 \pm 0.0015

Current Results

500 GeV	$q\bar{q}h$	$\nu\bar{\nu}h$
left-handed	47.8% (1600 fb ⁻¹)	39.2% (1600 fb ⁻¹)
right-handed	52.1% (1600 fb ⁻¹)	71.5% (1600 fb ⁻¹)
250 GeV	$q\bar{q}h$	$\nu\bar{\nu}h$
left-handed	30.0% (1350 fb ⁻¹)	123.5% (1350 fb ⁻¹)
right-handed	52.5% (450 fb ⁻¹)	125.4% (450 fb ⁻¹)

Asymmetric Y_S /pull distribution

- low number of events
- normalized Gaussian fit is not so suitable?

Combined precision = **17.5%** (17.9% w/o nnh250)