

Signal at $\sqrt{s} = 10 \text{ TeV}$



- Signal:

- $\mu^+ \mu^- \rightarrow \nu \bar{\nu} H H$, $H \rightarrow b \bar{b}$, $H \rightarrow \gamma \gamma$
- $\sigma = 1.69 \times 10^{-5} \text{ pb}$
- 100,000 events generated
- Model: heft

- Backgrounds:

- $\mu^+ \mu^- \rightarrow \nu \bar{\nu} q \bar{q} H$, $H \rightarrow \gamma \gamma$
- $\mu^+ \mu^- \rightarrow \nu \bar{\nu} Z H$, $H \rightarrow \gamma \gamma$
- 100,000 events generated

$$\mu^+ \mu^- \rightarrow \nu \bar{\nu} H H, H \rightarrow b \bar{b}, H \rightarrow \gamma \gamma$$

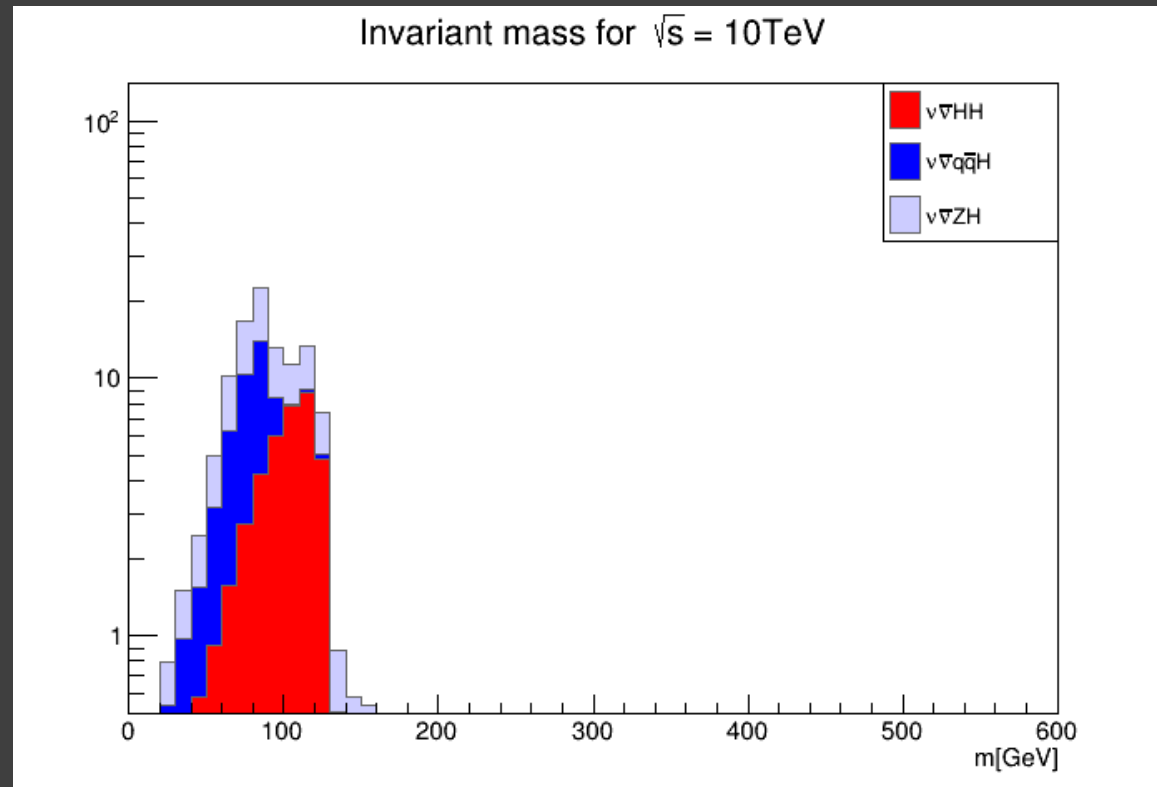


- H reconstruction from $b \bar{b}$
- Two b-tagged jets with the highest pt were used
- Number of entries:
 - All jets: 29,308
 - Loose b-jet: 23,672

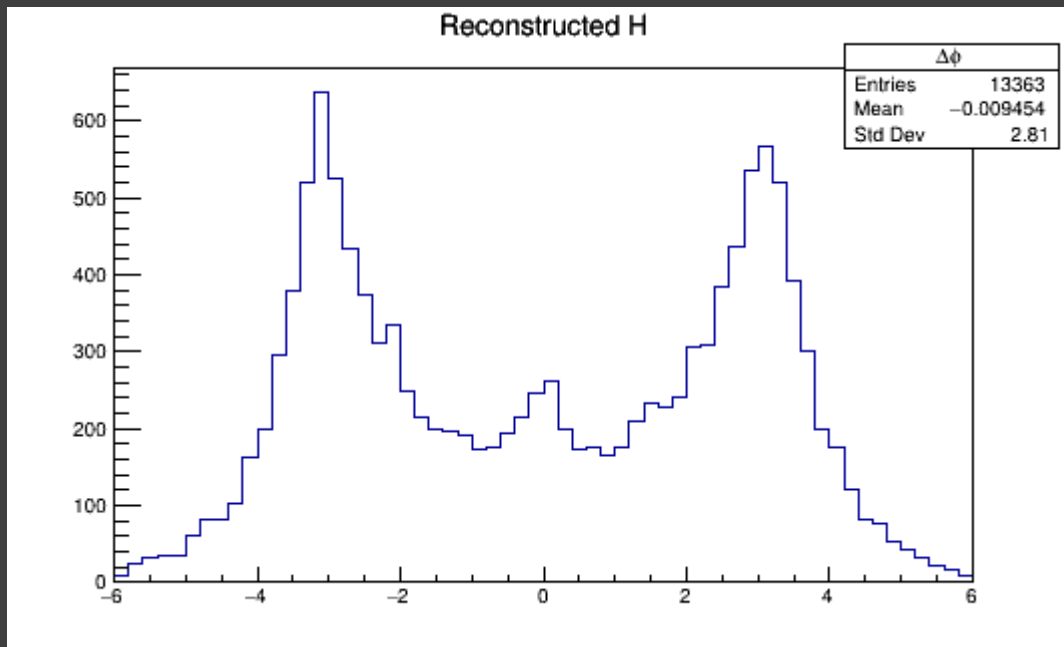
Signal & Background



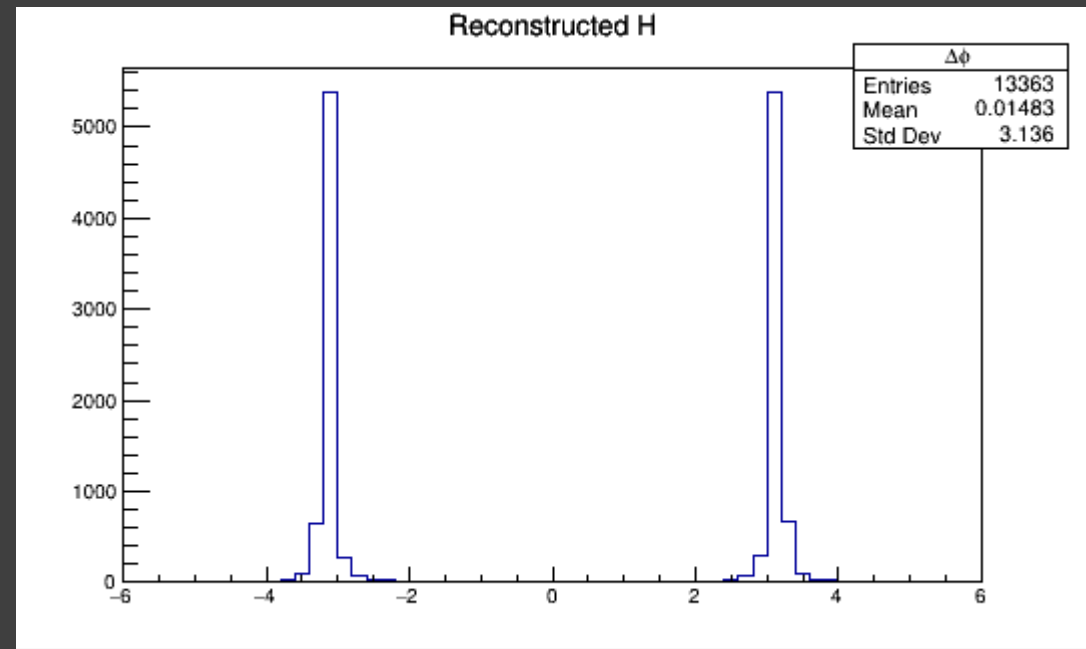
- Loose b-tagged jets were used
- Normalized with $L = 10 \text{ ab}^{-1}$
- Selection: Photon reconstructed Higgs mass between 120 and 130



Reconstructed H from bb

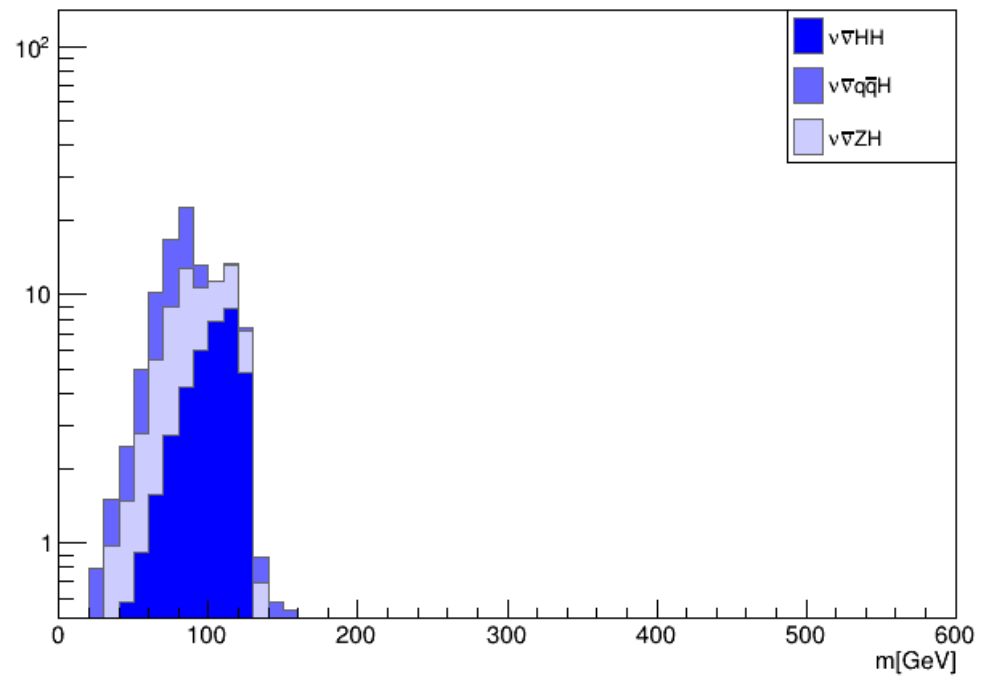


$\Delta\phi$ between two Higgs



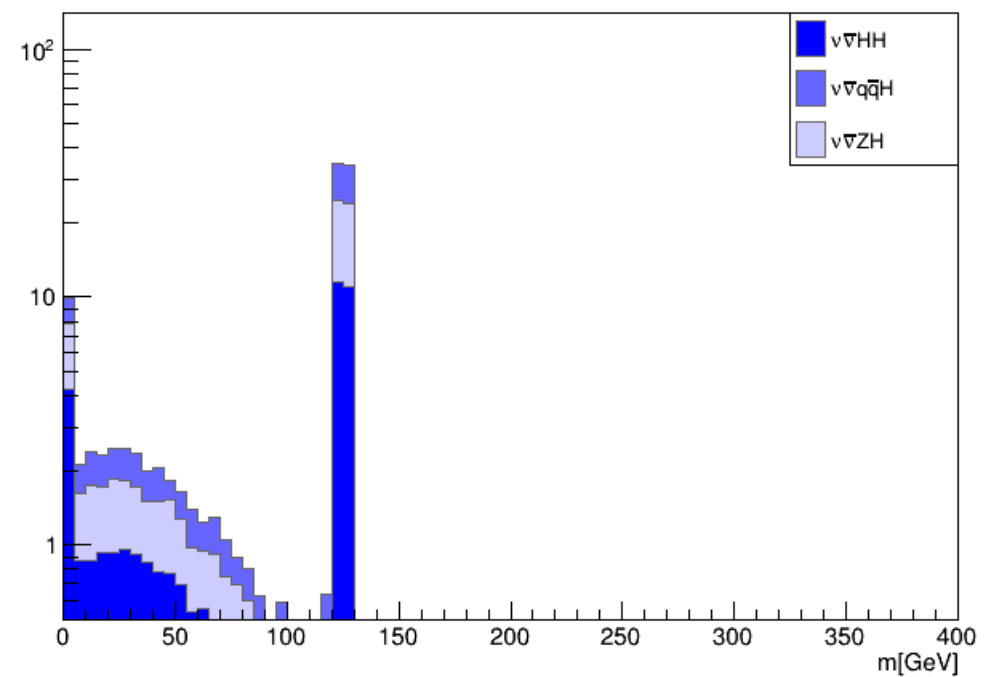
$\Delta\phi$ between two Higgs and MET

Invariant mass for $\sqrt{s} = 10\text{TeV}$



Reconstructed H from bb

Invariant mass for $\sqrt{s} = 10\text{TeV}$



Reconstructed H from $\gamma\gamma$