# Software Review: Update

3 June 2022

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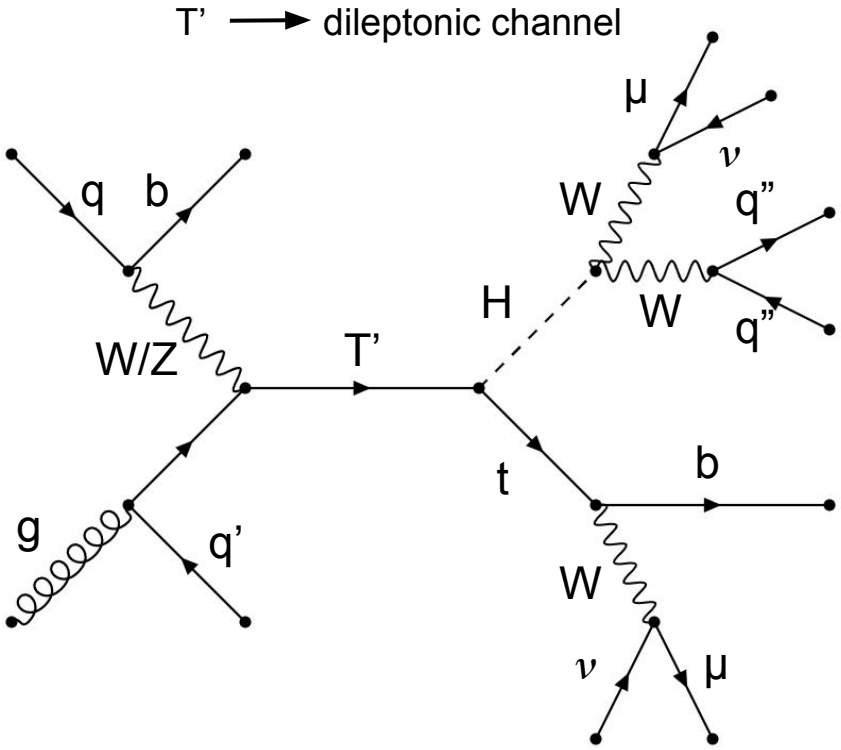



Basic selection: 2 tight SS Muons with Pt > 20 GeV, |η| < 2.4 and tight isolation.

Complete matching to the Gen information (signal only!):

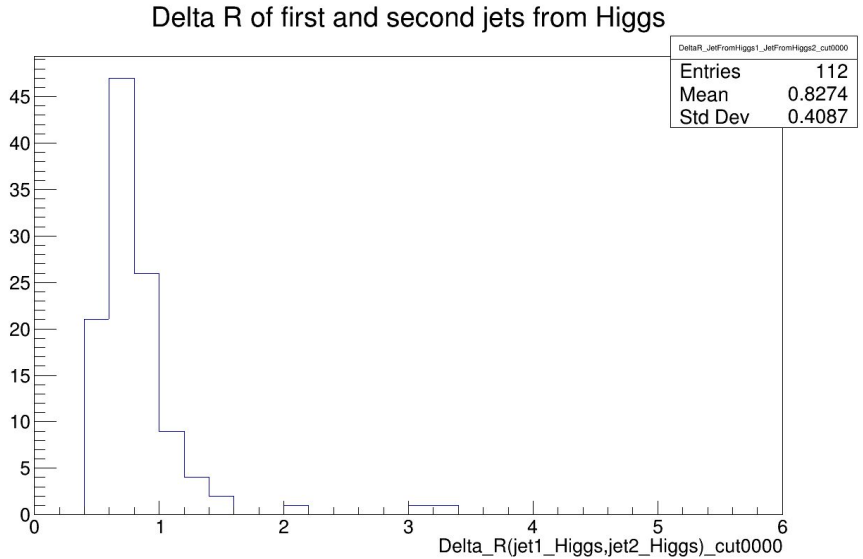
1 muon coming from W $\longrightarrow$ Higgs.

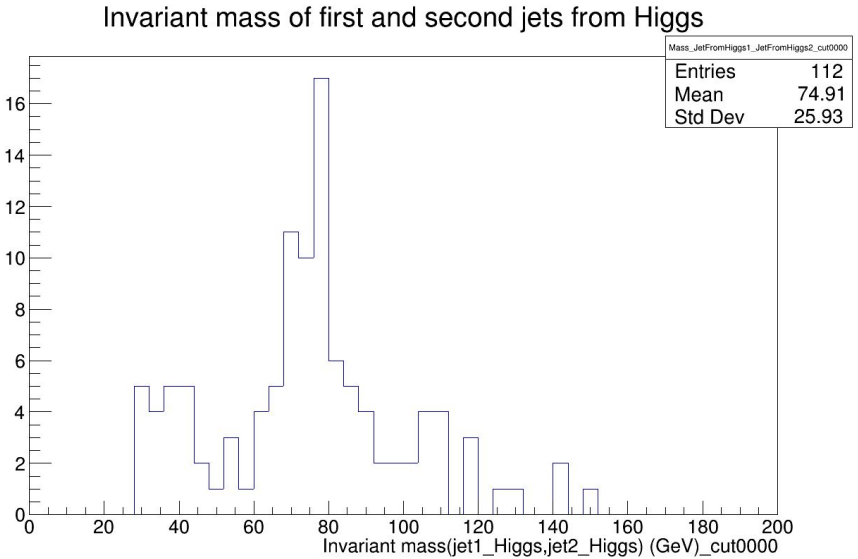
1 muon coming from W $\longrightarrow$ top.

>= 2 jets coming from Higgs with a min$\Delta R(jet_1, jet_2)$ to choose the two jets coming from the W.

>= 1 bjet coming from the top with a max$\Delta R(jet, Muon_t)$ to choose the jet coming from the b.

# Jets coming from Higgs



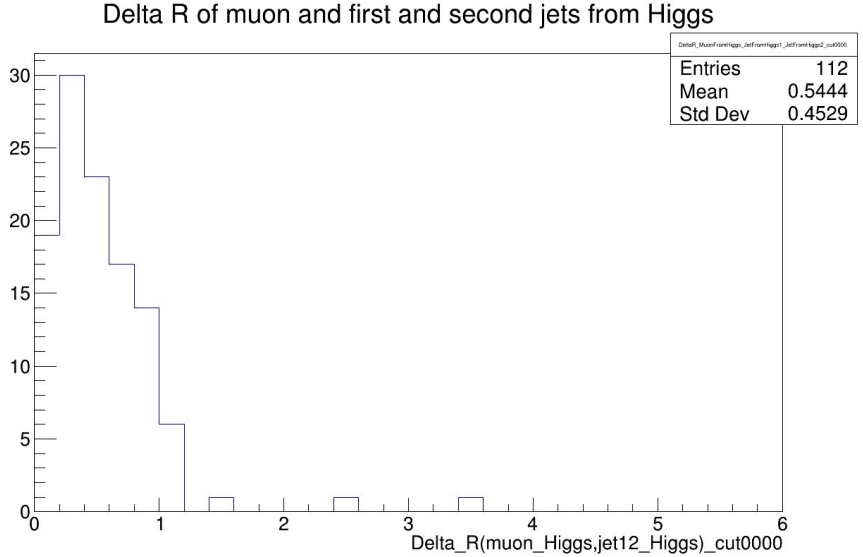



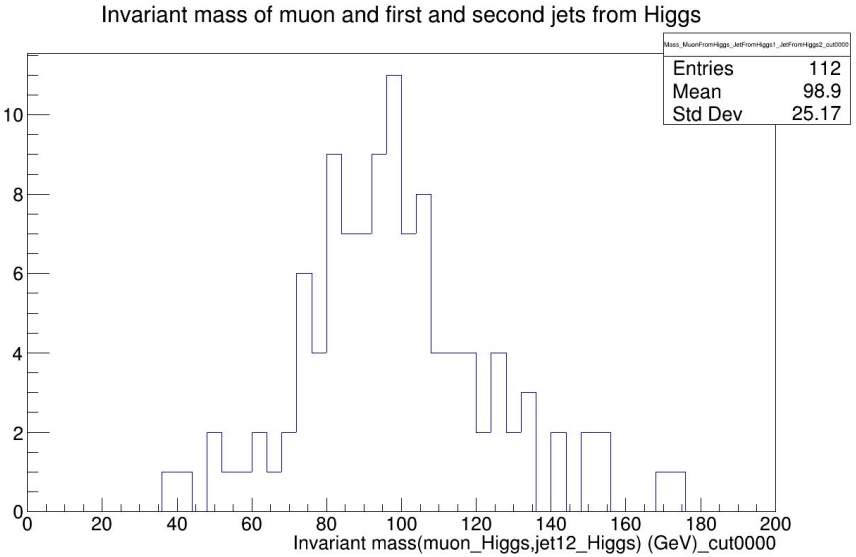

ΔR

Invariant mass

The ΔR is small and the invariant mass has a peak around 80 GeV as expected for an on shell W boson. ⟶ Good!

# Muon and jets coming from Higgs



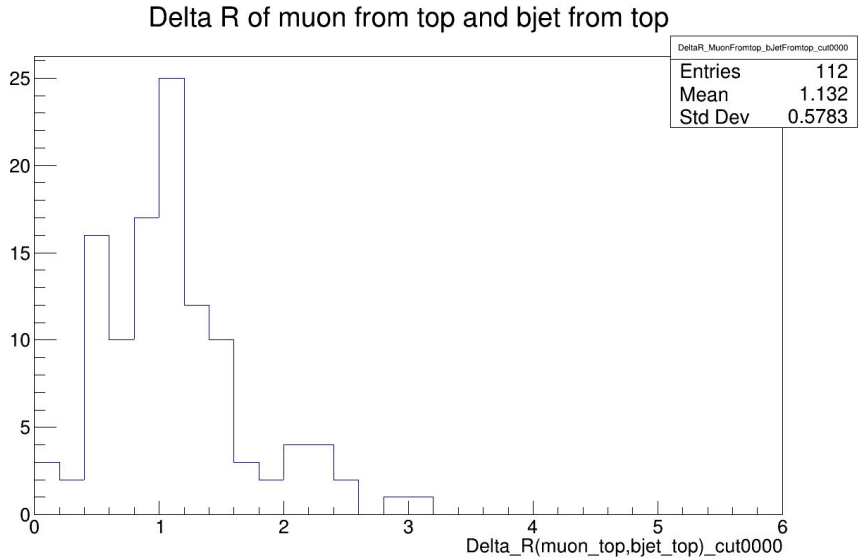

ΔR

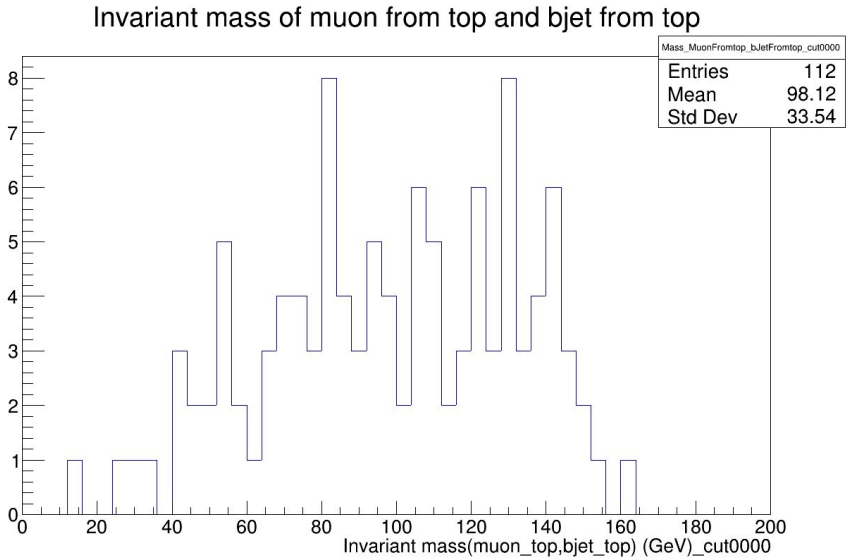
Invariant mass

The ΔR is small and the invariant mass has a peak around 100 GeV.

⟶ Pretty normal as the neutrino is missing.

# Muon and bjet coming from top




ΔR

Invariant mass

The ΔR is small and the invariant mass has no specific peak. ⟶ The neutrino is definitely missing (Missing energy in the jet?).