

H- \rightarrow bb/cc/gg Update With 3 T Magnetic Field

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Efficiency

	H->bb	H->cc	H->gg
v2_1	54.35%	53.92%	50.31%
v3_3	53.24%	52.28%	49.18%
v4	52.47%	51.78%	49.40%

Cutchain:

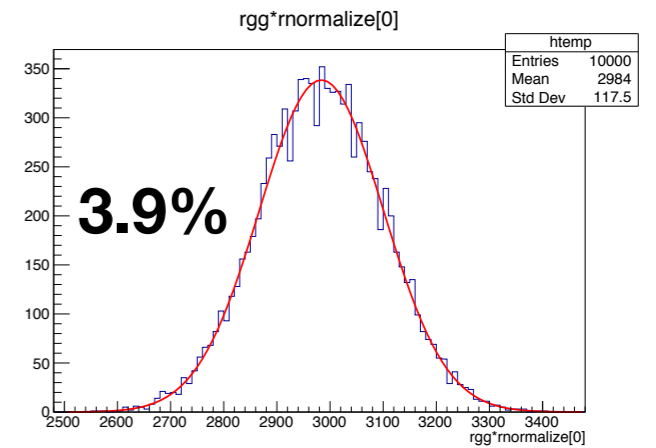
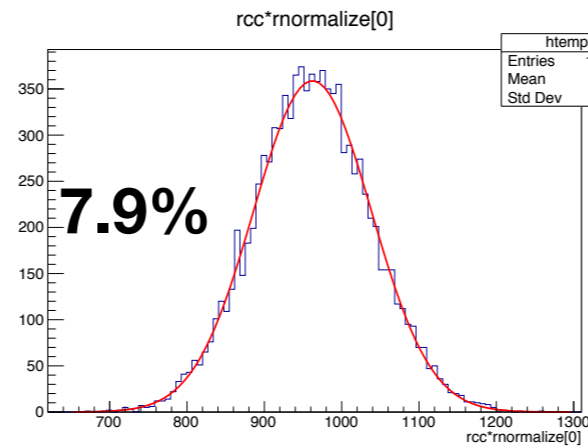
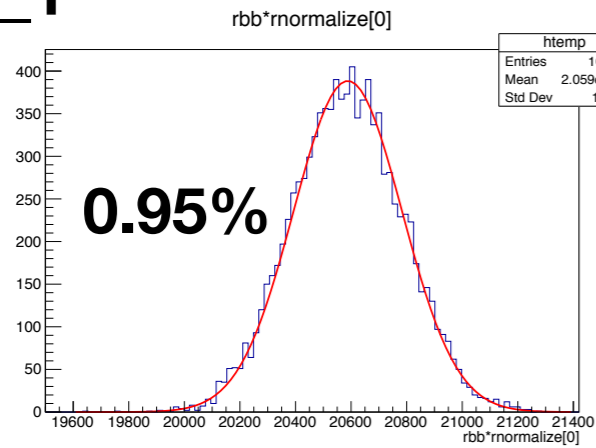
- **2 muons + 2 jet candidates**
- **muon muon system polar angle**
- **angles between muons**
- **muon invariant mass between**
- **Extra lepton veto, jet polar angle, jets pfo multiplicity**
- **jet invariant mass, muon pair recoil mass**

Introduction

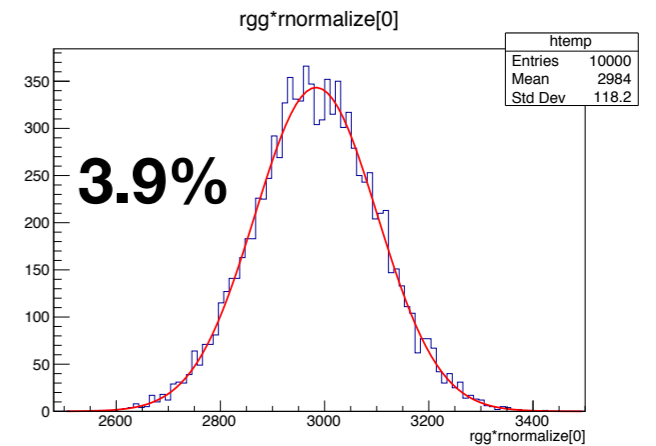
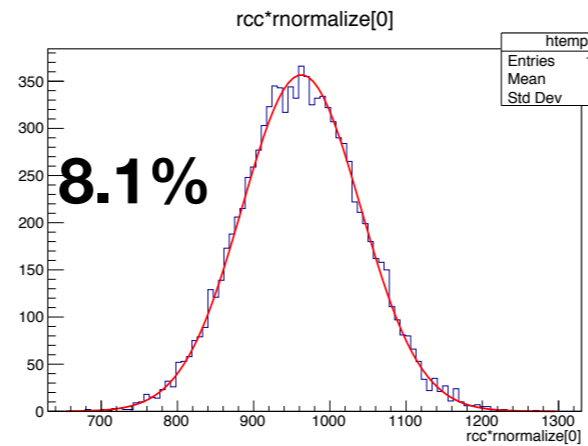
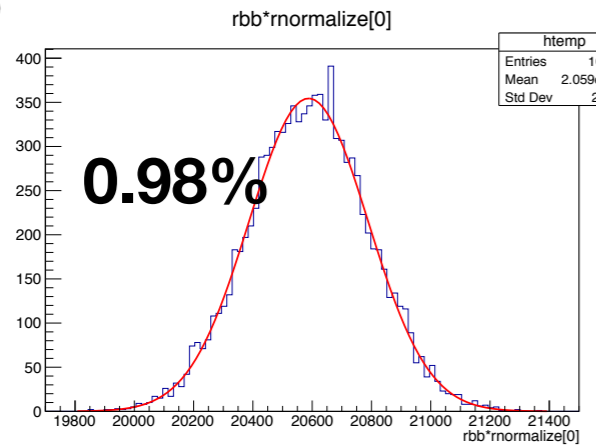
- Study the impact of reduce the magnetic field from 3.5T to 3 T to H->bb/cc/gg Analysis
 - 3.5 T(v2_1 and v3_3) and 3 T(v4)
- Only Higgs events are available, we looked at mumuH sample
- Things studied:
 - Selection Efficiency
 - Flavor tagging (the output of template fit toyMC test)
 - Recoil mass fit

Template Fit Results

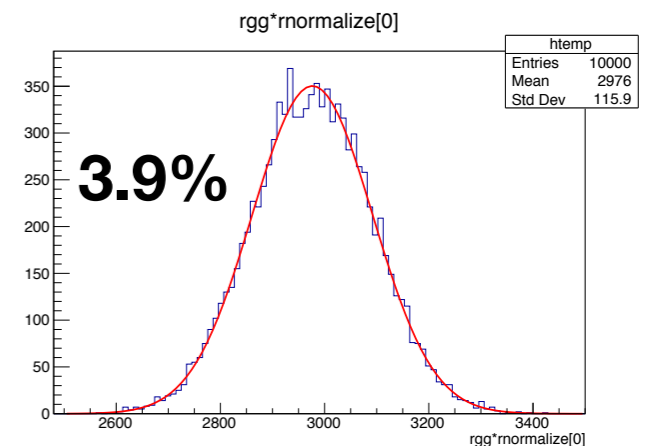
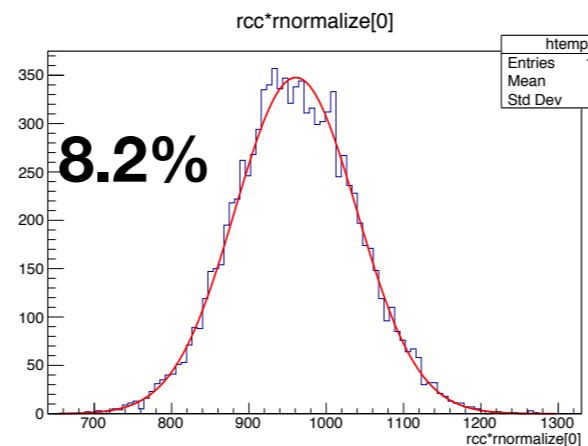
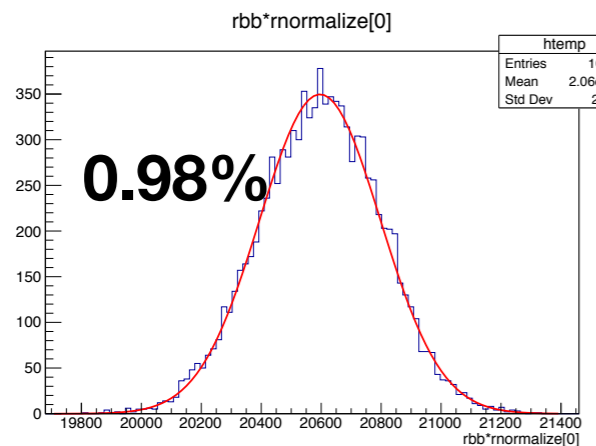
V2_1



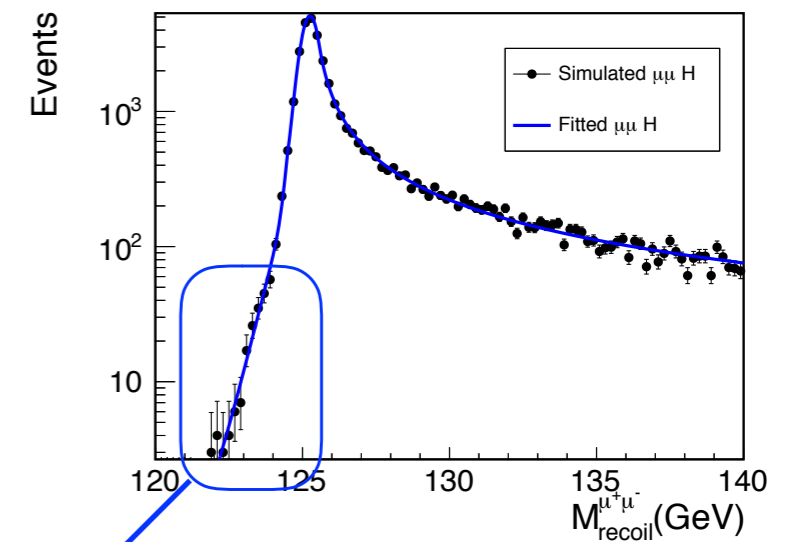
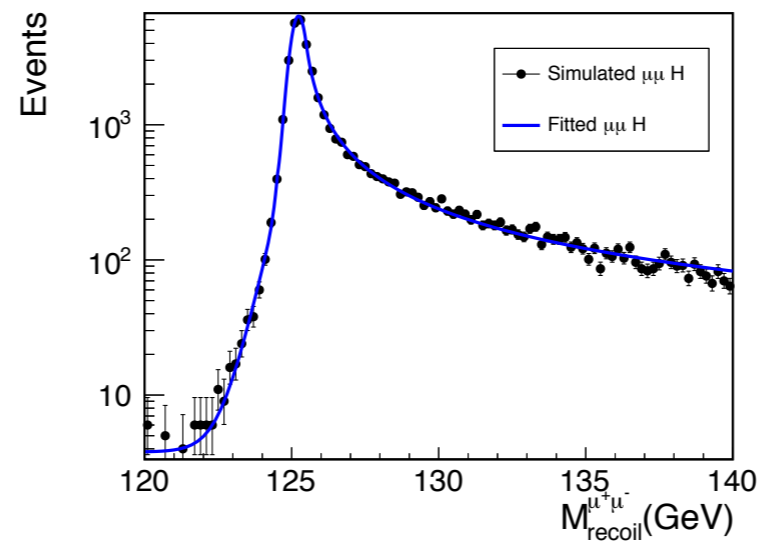
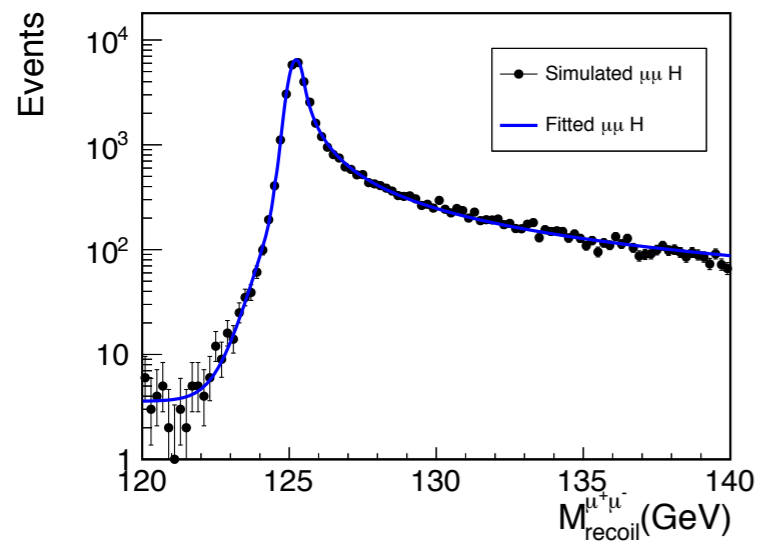
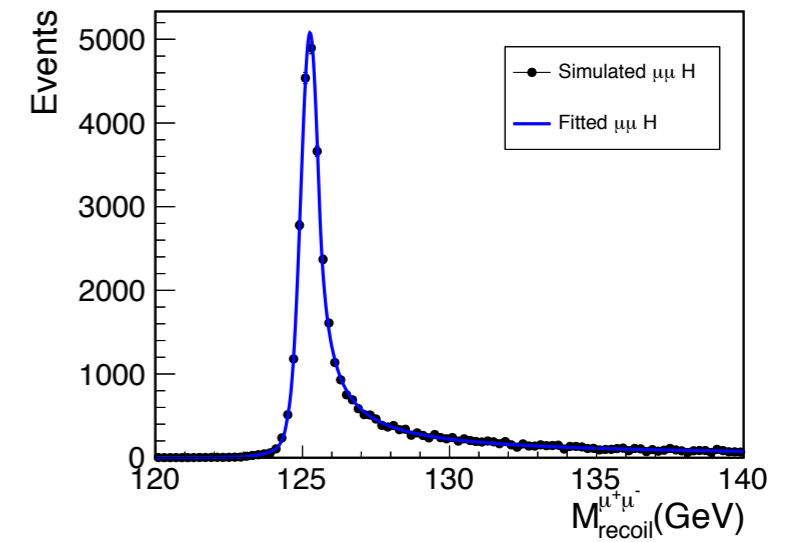
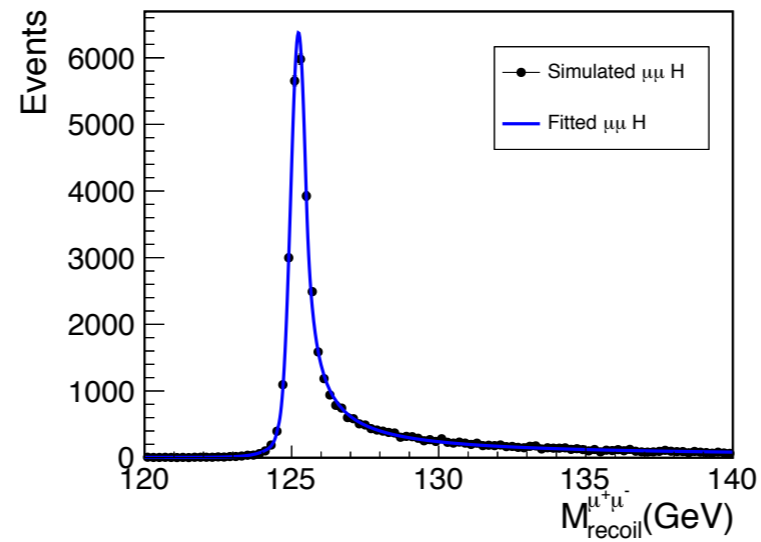
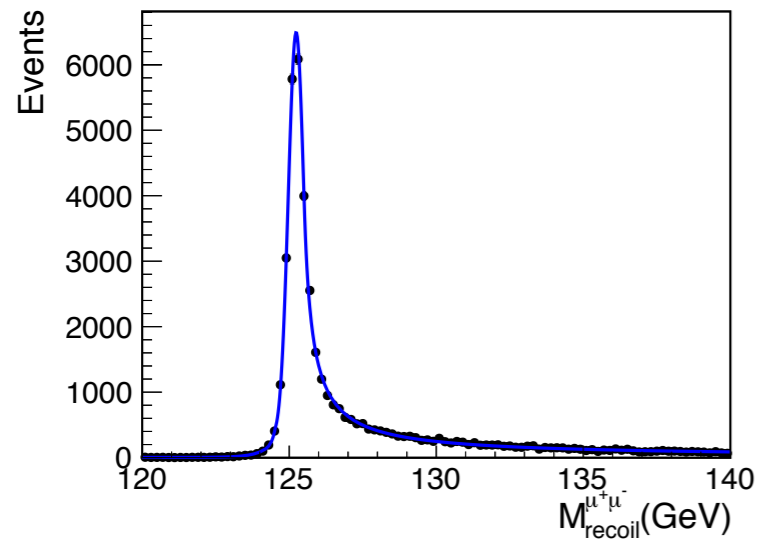
V3



V4



MuMu Recoil Mass Fit



Looks different from 3 T

Summary

- No obvious degeneration on performance of analysis, in terms of template fit toyMC results
 - We haven't re-train the flavor tagging for 3 T yet.
- The tail in $m_{\mu\mu}$ -recoil mass between 120-124 GeV seems reduced, why?
- We can add zz_{sl} background to further study the impact