# Higgs self-coupling analysis with H→WW*

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09/26/2014

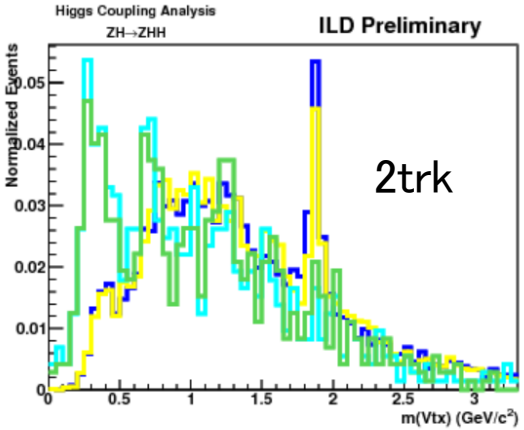
# Status

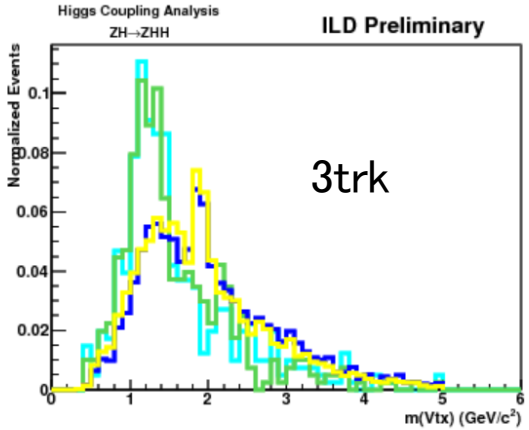
- For flavor tagging improvement
  - Start to make b/c/l jet samples
  - Re-compare bjet/ljet case
  - I'd like to move to flavor tagger training – by LCWS14!
  - Try to catch a hint in 0vtx case

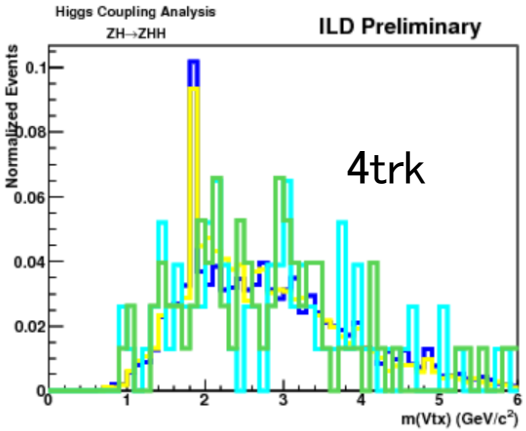
- Start to construct kinematic fitter
  - ZHH→(bb)(bb)(WW*)→(bb)(bb)(l $\nu$ jj)
  - Just start the study

# Comparison between bjet/ljet

- Using classifier trained with bjet vertices – 1vtx in jets
  - Light flavor jet selection was insufficient →correct that!
    - Check mothers appropriately
    - Suppress the effect from b/c quarks
  - Ljet mass recovery is reasonable too
- I don't know how much does it affect on flavor tagging so far



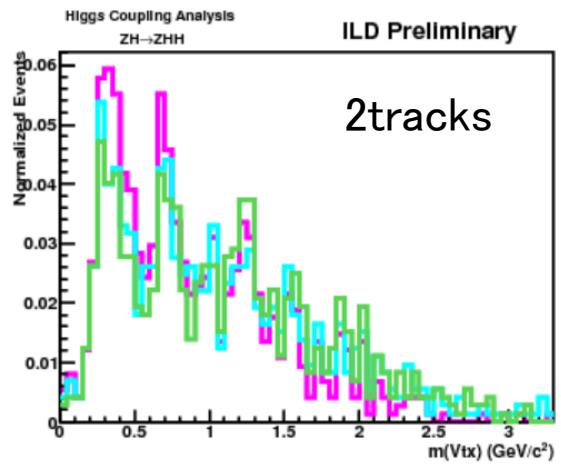



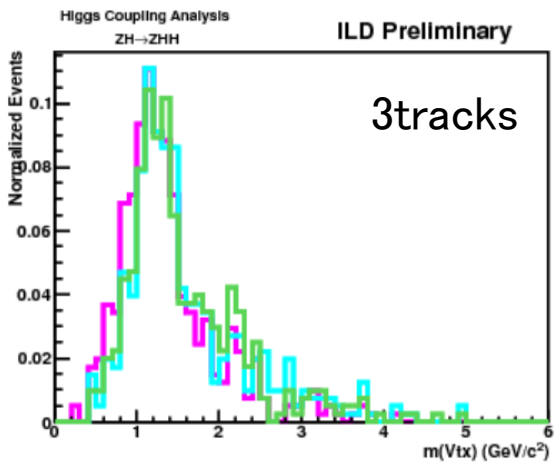

bjet perfect
bjet Pi0 finder
ljet perfect
ljet Pi0 finder

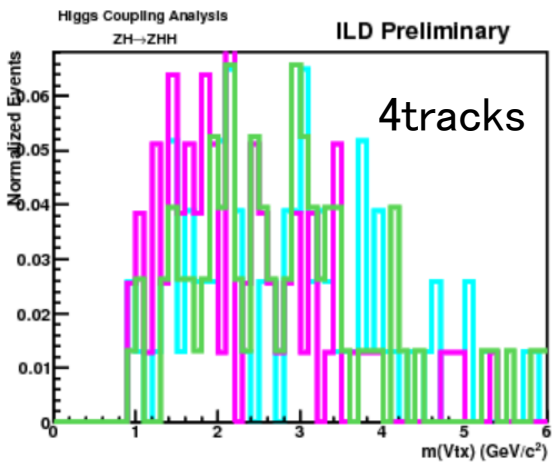
# Mass shift in l jet case

- How much is vtxmass shifted by attaching pi0s
  - The effect looks small
  - Contribution of pi0s to vtxmass is good variable for flavor tagger?

reconstruction
ljet perfect
ljet Pi0 finder



# TODO

- Continue to check vtxmass recovery
  - So far, looks ok, but need to precise check
- Its time to apply it to flavor tagging!
- Checking vertex charge on vertex with each particle type
- Construct the kinematic fitter
  - Try to apply it to signal events
  - Comparison with backgrounds, especially ttbar+X & ZZH
- Target is LCWS14
- After LCWS14, stepping into LCFIPlus