Study of H→WW*

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Introduction

Previous meeting

- b-tag was used for the selection cut instead of bc-tag.
  - b-tag had the same meaning as bc-tag.
- The analysis result was statistically consistent with ACFA report

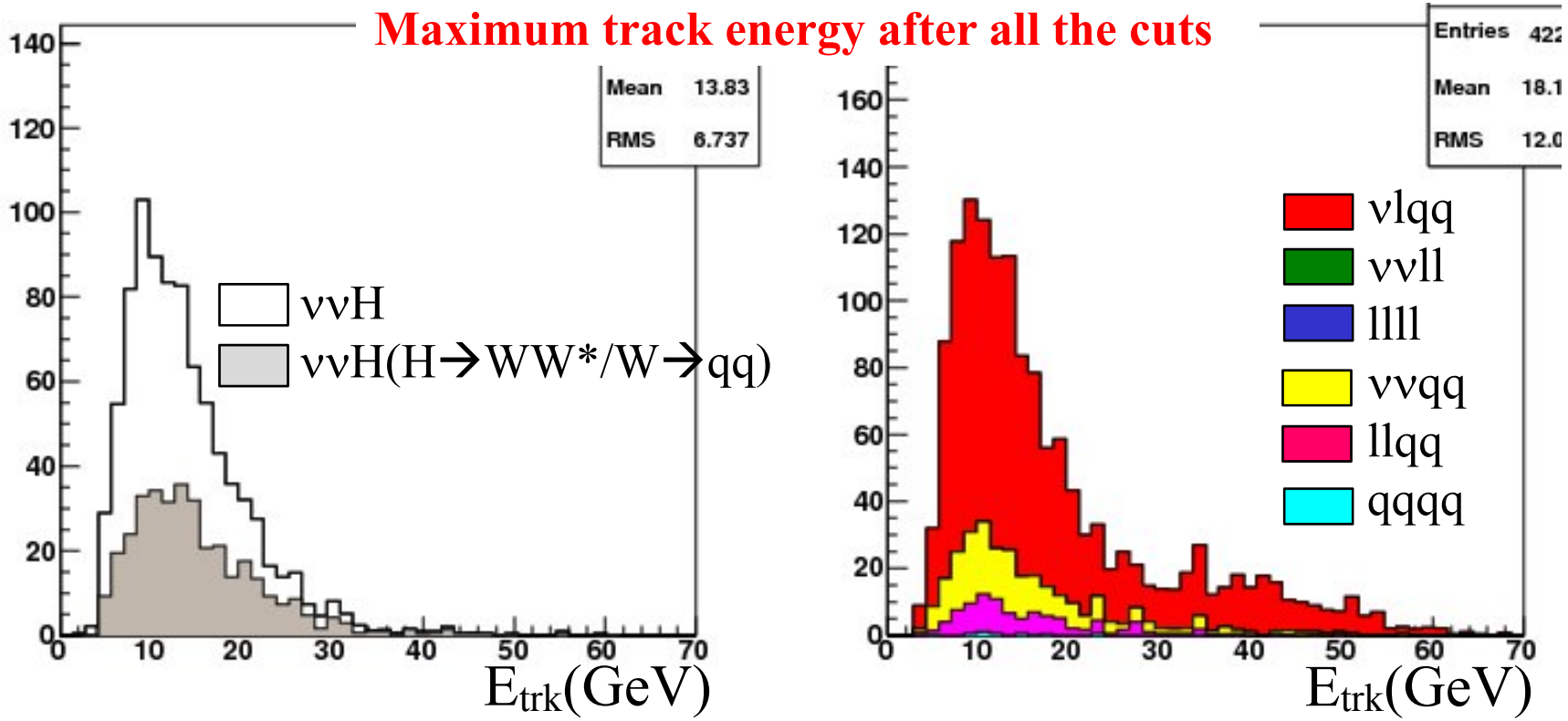
Today's topic

- Investigation of the maximum track energy to reject vlqq events
- Check of the jet angle in W rest-frame

Maximum track energy

The maximum track energy (E_{trk}) was studied after the selection and likelihood cut.

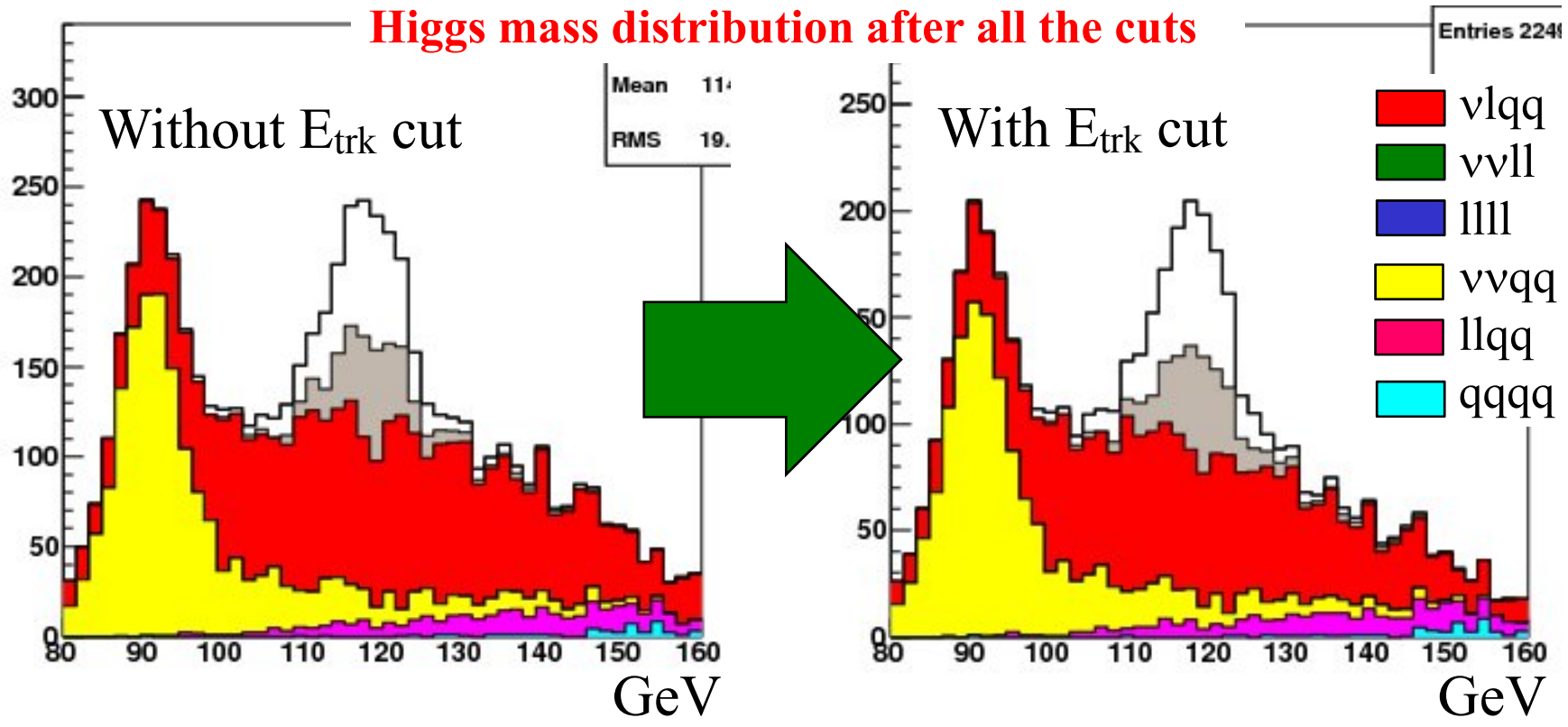
- BG has a tail in the high energy region.
- E_{trk}<30GeV was required in the selection cut.



Signal significance

- The signal significance was checked with E_{trk} cut.
- The signal significance becomes 7.5 (previous result: 7.4).

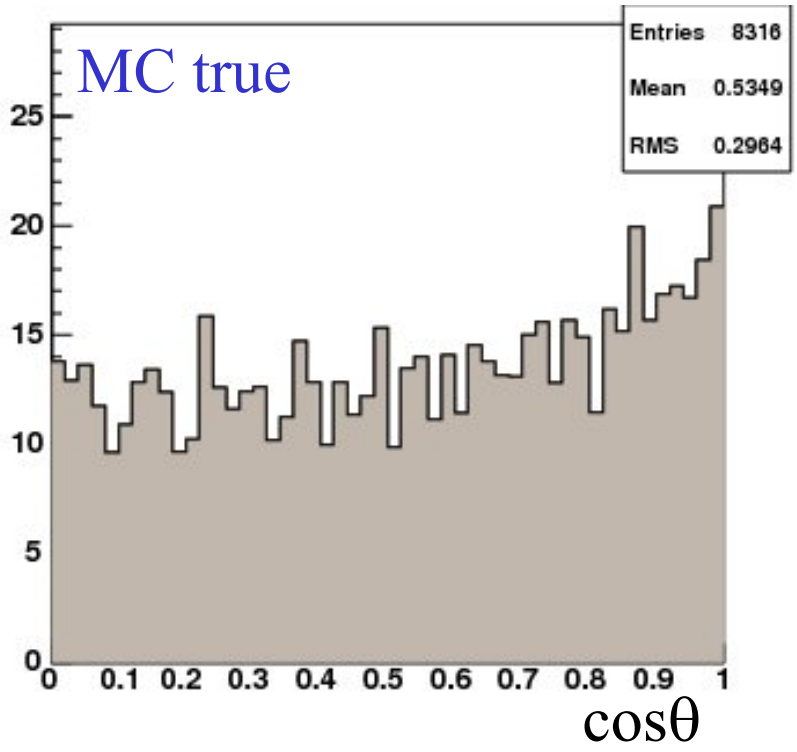
→ The significance becomes slightly better.

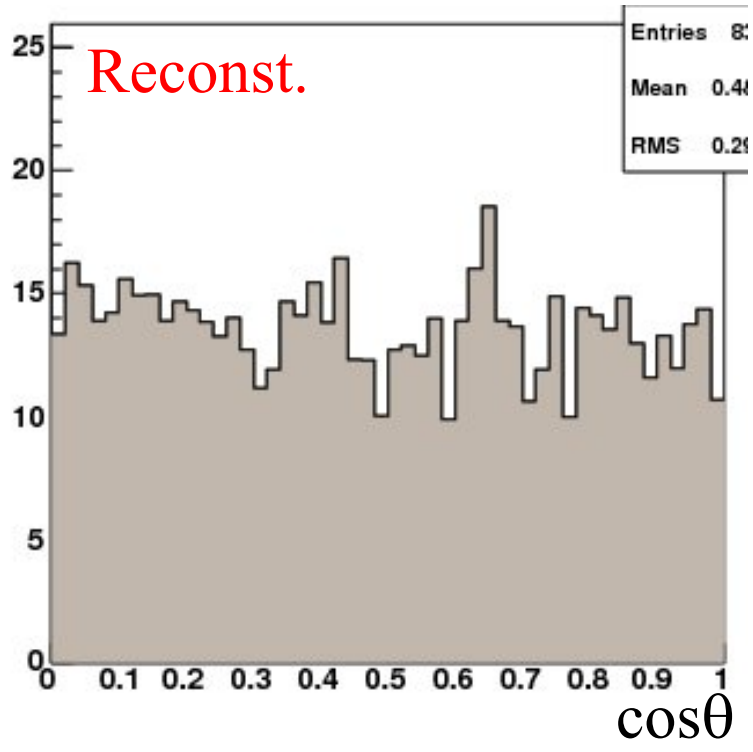


Jet angle in W rest-frame (on-shell W)

The jet angle in on-shell W rest-frame was checked before selection cut.

- The distribution is almost flat even for MC true information.
- There should be a peak at cosθ=0 due to the longitudinal coupling of a W to Higgs.



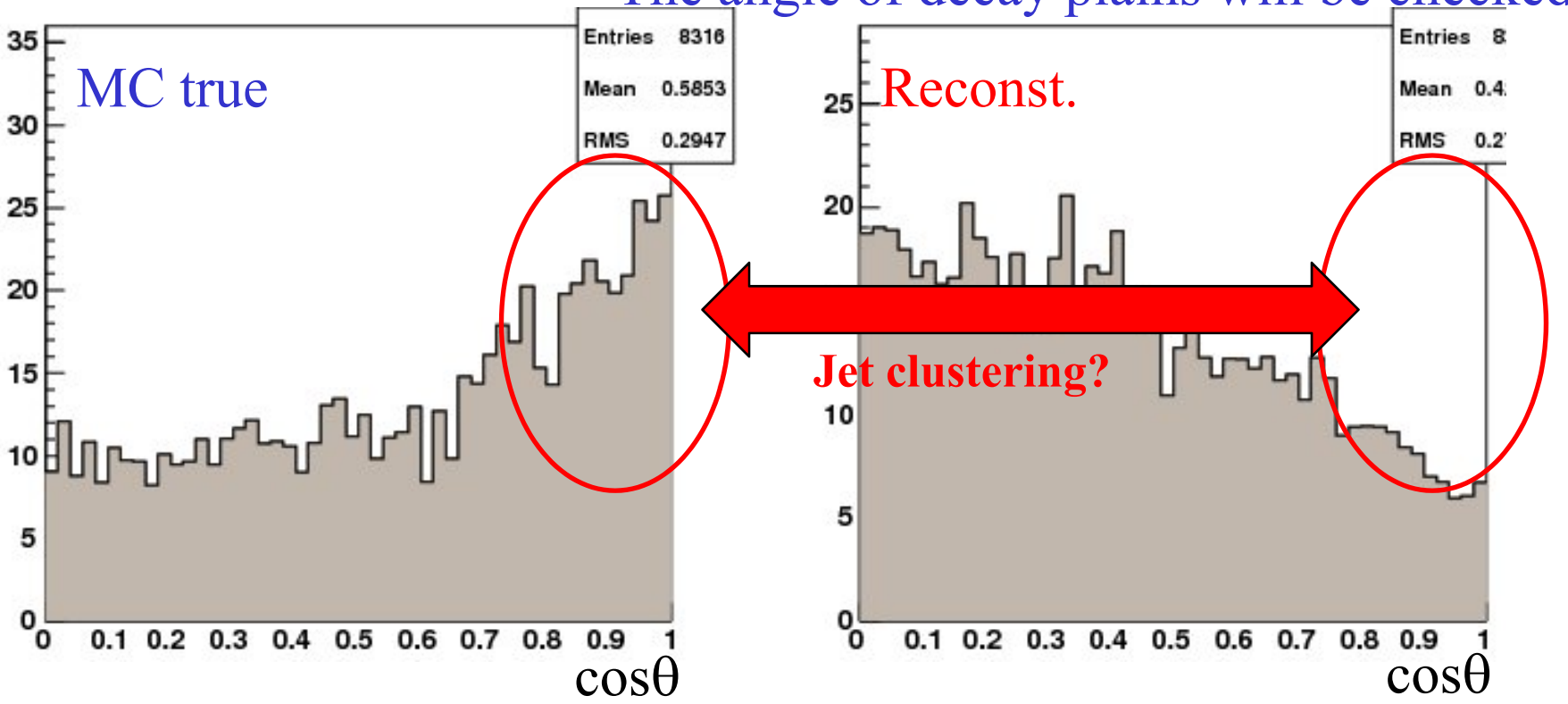


Jet angle in W rest-frame (off-shell W)

The jet angle in off-shell W rest-frame was checked before selection cut.

- MC true distribution has a peak at cosθ=1. → Why?
- The reconstructed distribution has a peak at cosθ=0.
  - Due to detector acceptance?

The angle of decay plains will be checked.



Summary

- The maximum track energy was used for the selection cut.
  - The signal significance becomes 7.5.
- The jet angle in W rest-frame was checked for MC true and reconstructed information.
  - The characteristics of longitudinal coupling was not observed in MC true and reconstructed distributions.