Higgs self-coupling analysis with H→WW*

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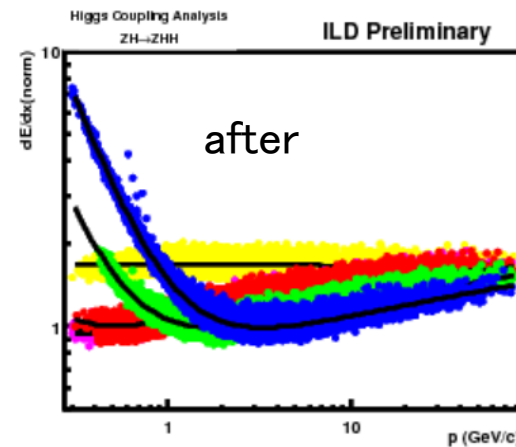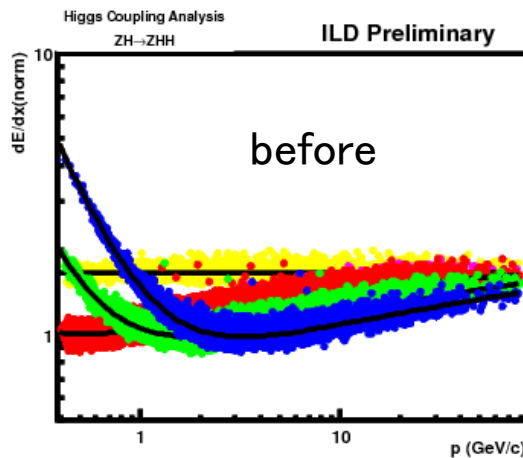05/08/2015

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- Correct dE/dx calculation
  - Fight path calculation is changed
  - dE/dx distribution doesn't change(difference is MC matching method)
    - I corrected MC matching according to a comment on TPC session@ALCW15
  - So, flight path effect on others will be negligible

- Vertex charge study
  - Start to check vertex finding eff. on c jet case
    - 1vertex jet finding eff. and 2 vertex jet mis-finding eff.
    - Study on going
  - Will start vertex charge study again

FOR JET CLUSTERING

- Particle ID can be applied for jet clustering?
  - Quark jets tend to have more Kaons than gluon jets
  - Gluon jets tend to have (neutral and charged) baryons
  - Jet structure will be different
- Try to separate quark and gluon jets
  - Start from 20 jet clustering using Durham(qqHH→qqbbbb sample)
  - Separate candidates of quark core jets and gluon jets
  - Construct the separator(just playing…)
  - Can separate well

  If we can distinguish quark jets from gluon jets
- Question is how we can attach gluon jets
  to quark core jets correctly
- And how are the gluon jets created?
  - q→qg? g→gg? These 2 will have different structure…
- Soft quark jets?
  - g→qq will be different from above 2 too…

TMVA overtraining check for classifier: BDTG_jetclustering

Signal (test sample)   · Signal (training sample)

Background (test sample)   · Background (training sample)

Kolmogorov-Smirnov test: signal (background) probability = 0.21 (0.954)

(1/N) dN / dx

U/O-flow (S,B): (0.0, 0.0)% / (0.0, 0.0)%

BDTG_jetclustering response

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