

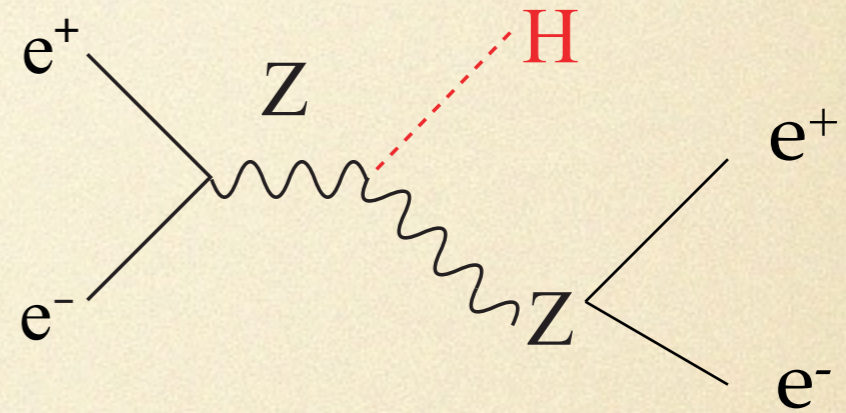
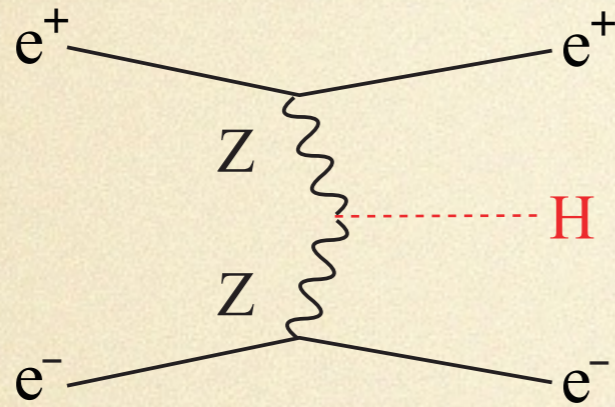
Matrix Element Method for ILC Physics Analysis

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Apr. 11 @ Asian Physics and Software Meeting

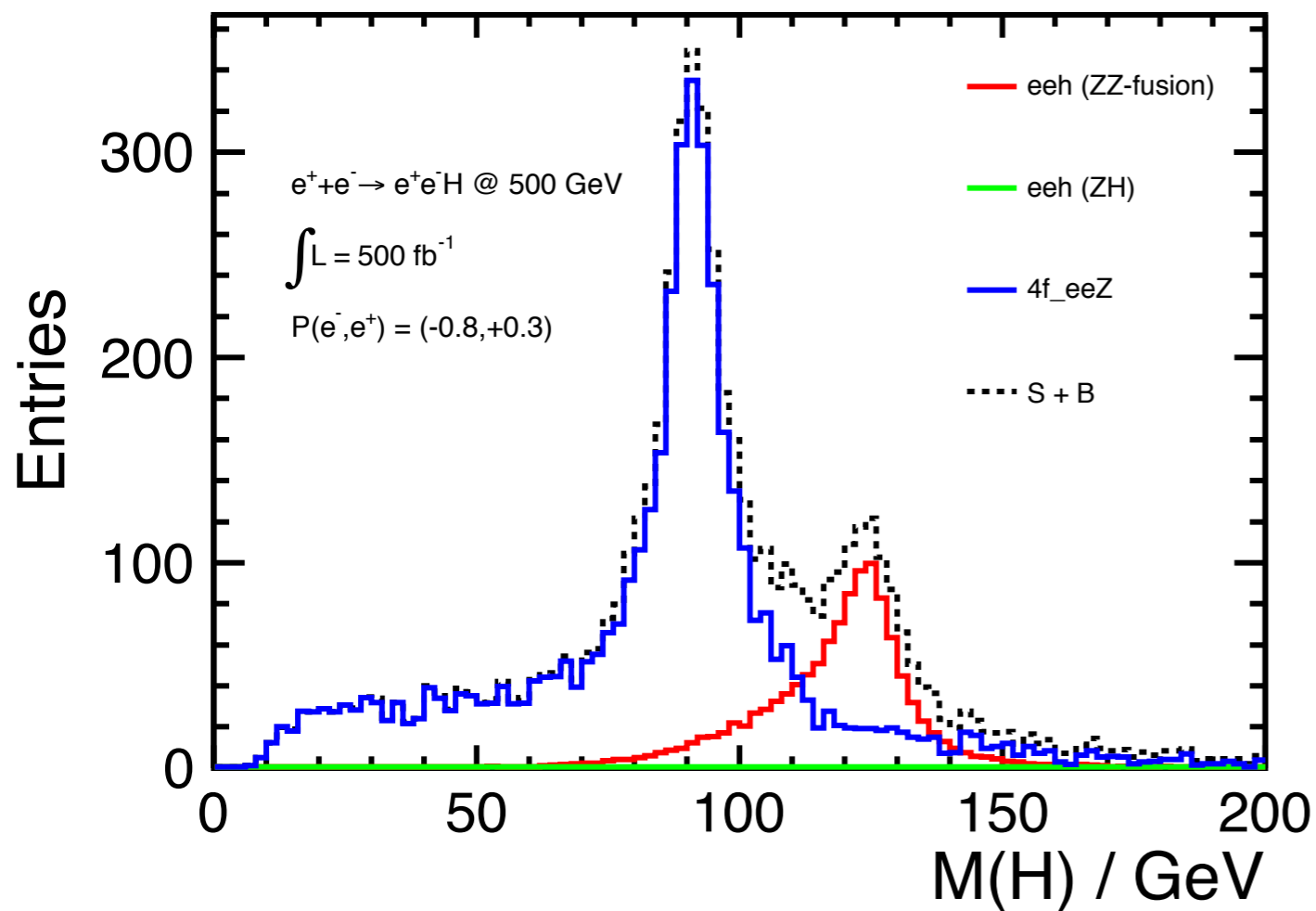
<http://ilcphys.kek.jp/meeting/physics/archives/2009-05-19/GGGuide.pdf>

status: $e^+e^- \rightarrow e^+e^-H$

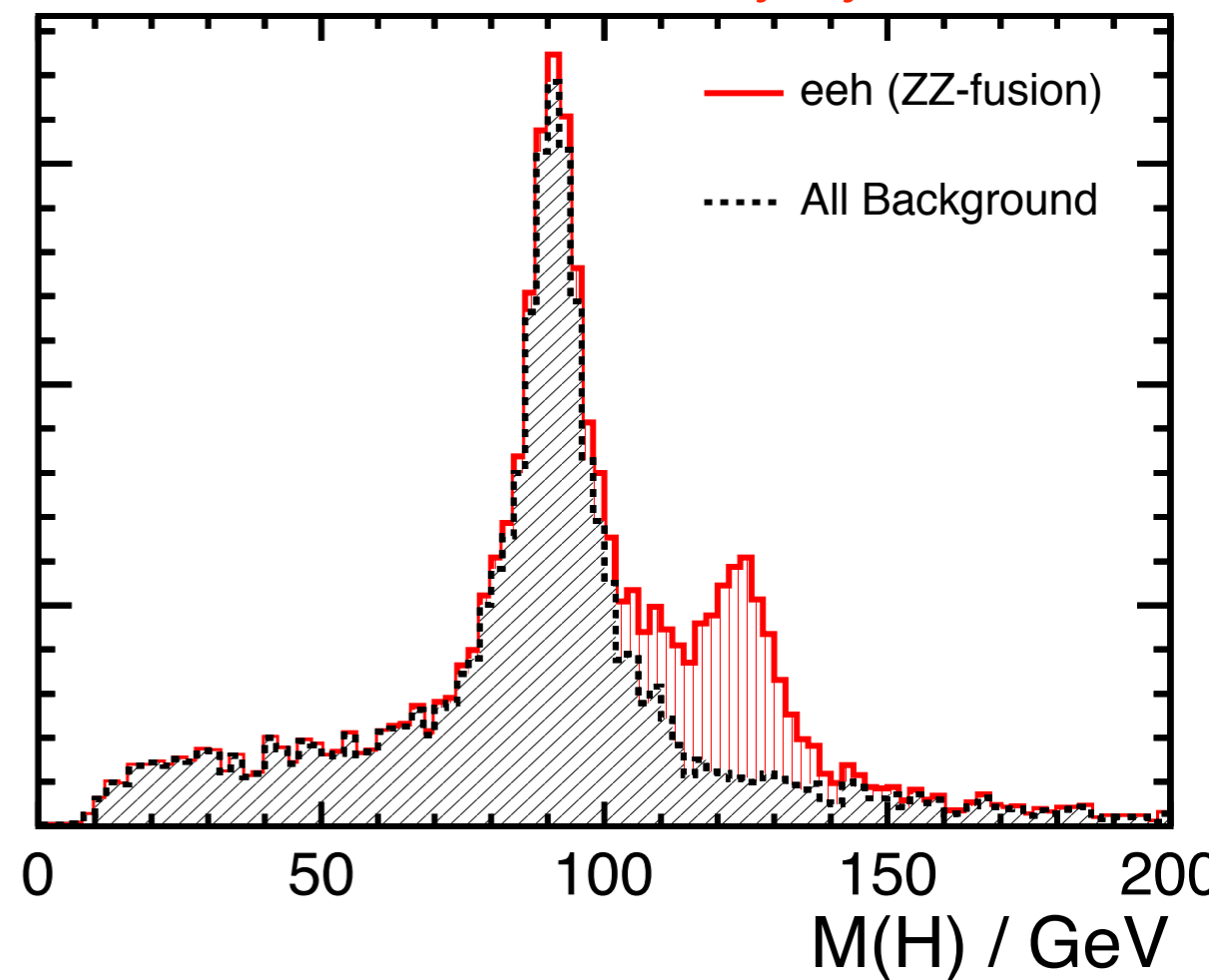


- LCMEEEZ has been implemented, either with Z decay or not (Thanks to Fujii-san).
- LCMEEEH with Higgs decay not implemented yet, ongoing, should not be difficult.
- some comparison between reconstructed matrix element and truth; try to include detector transfer function.

Higgs Mass

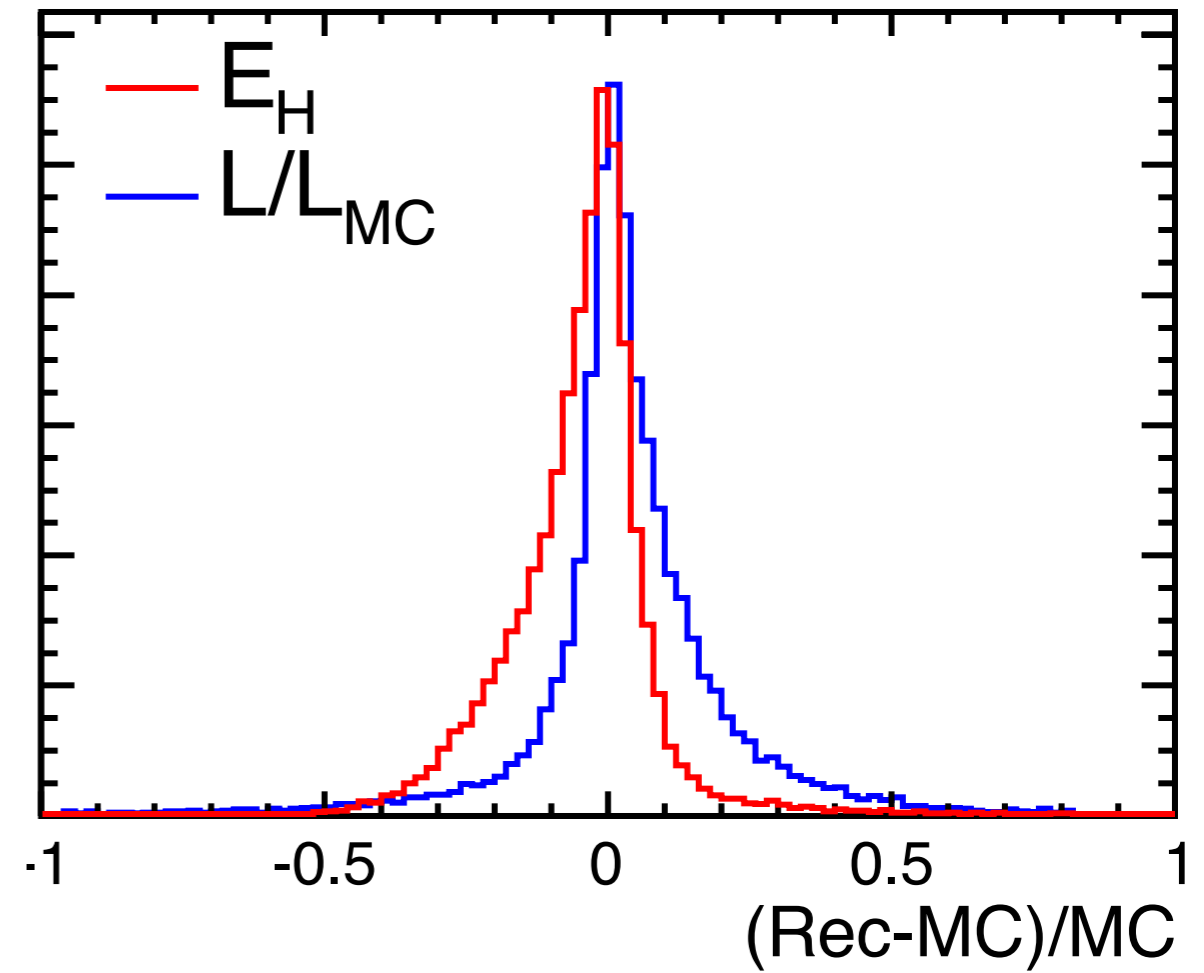
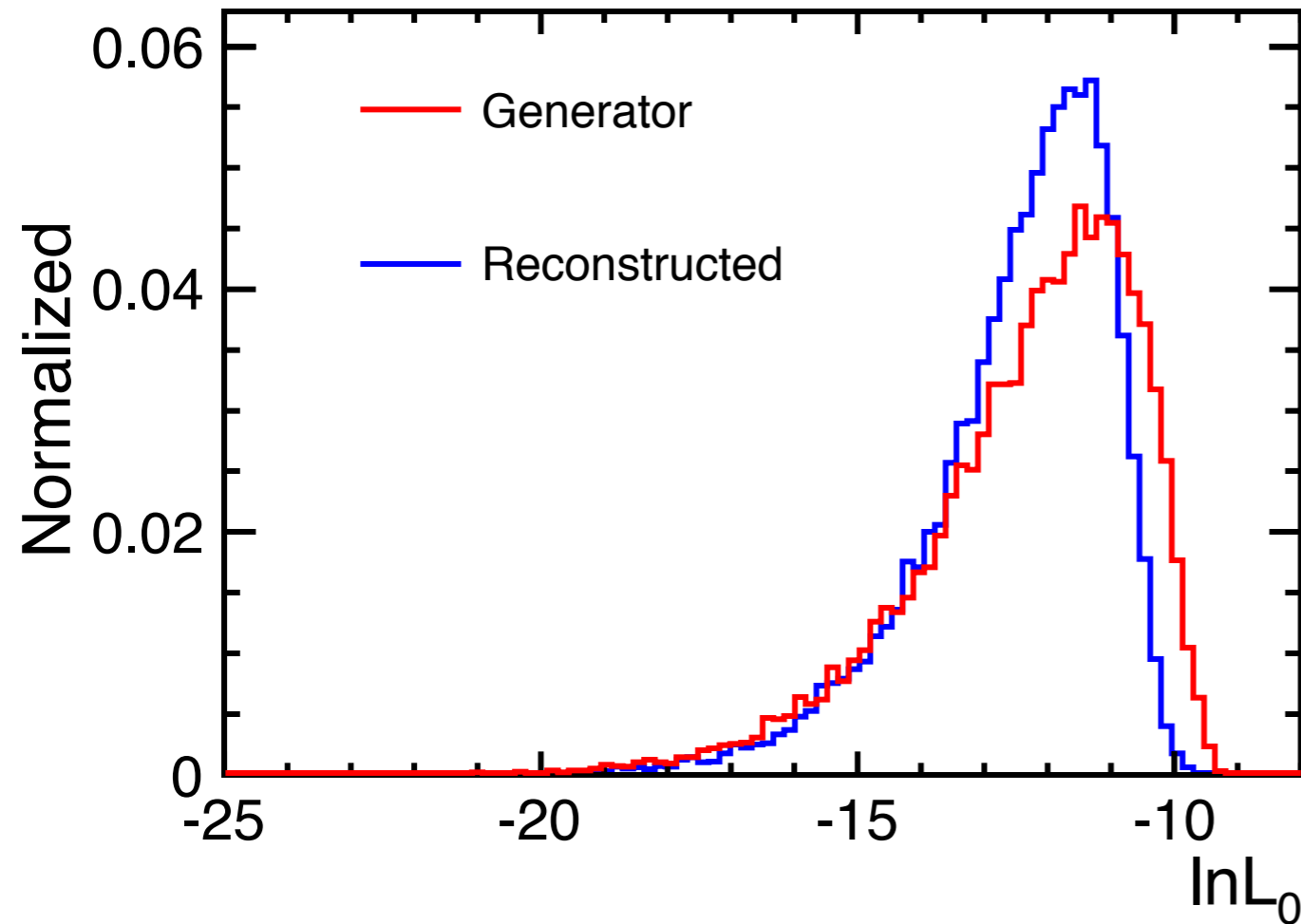


excess from BG (discovery by ZZ-fusion)



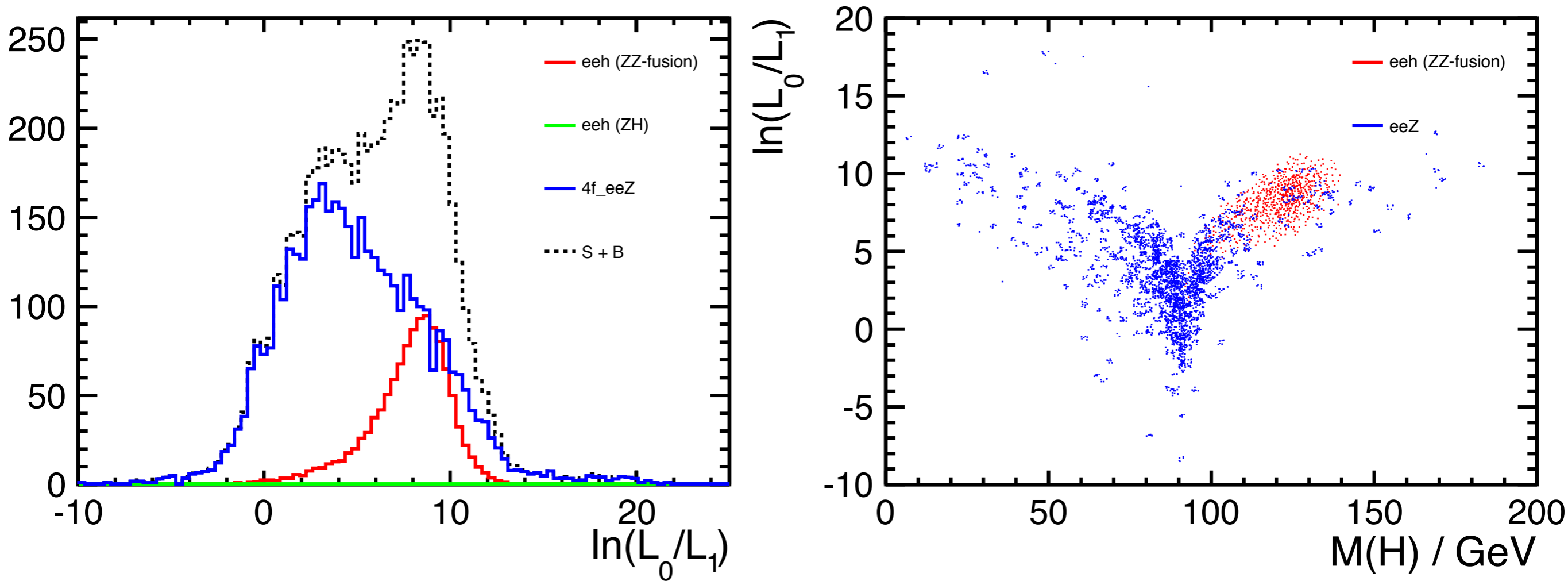
statistics of BG after all cuts is not enough, plots are scaled from those before flavor-tagging cuts.

Matrix Element comparison with MC truth



not so bad, thanks to our state-of-art detector!

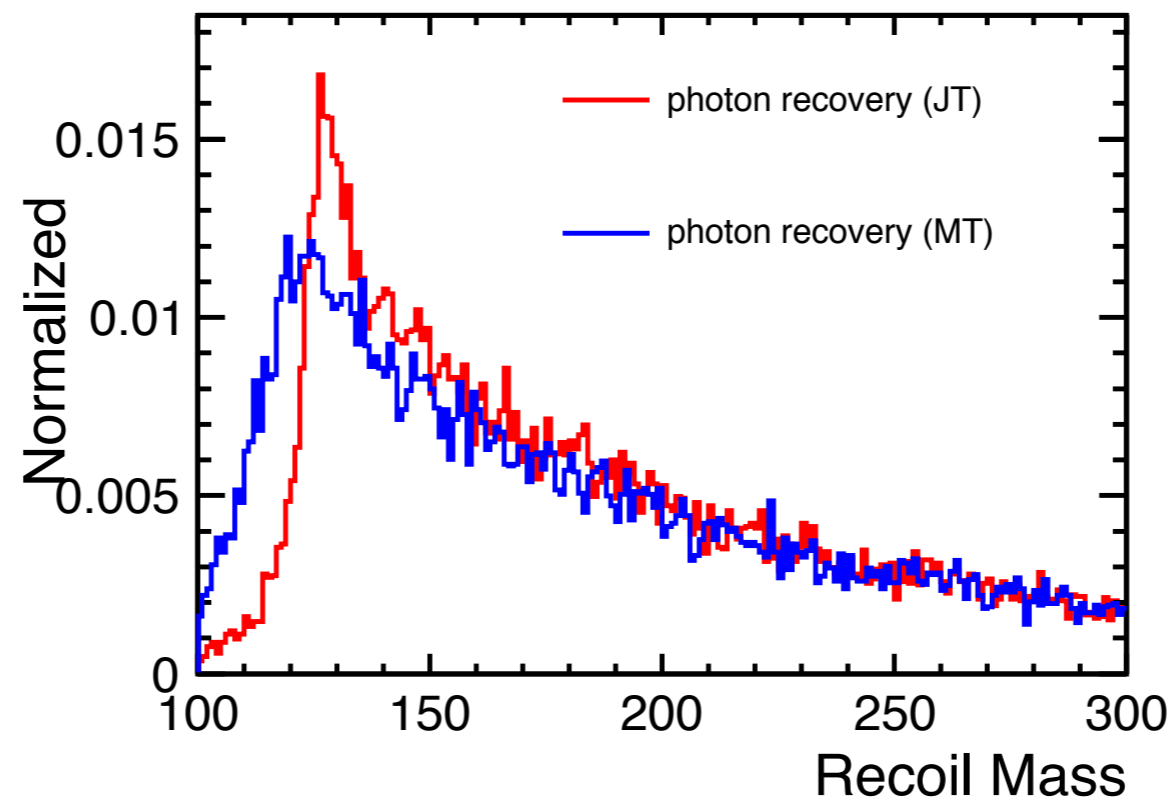
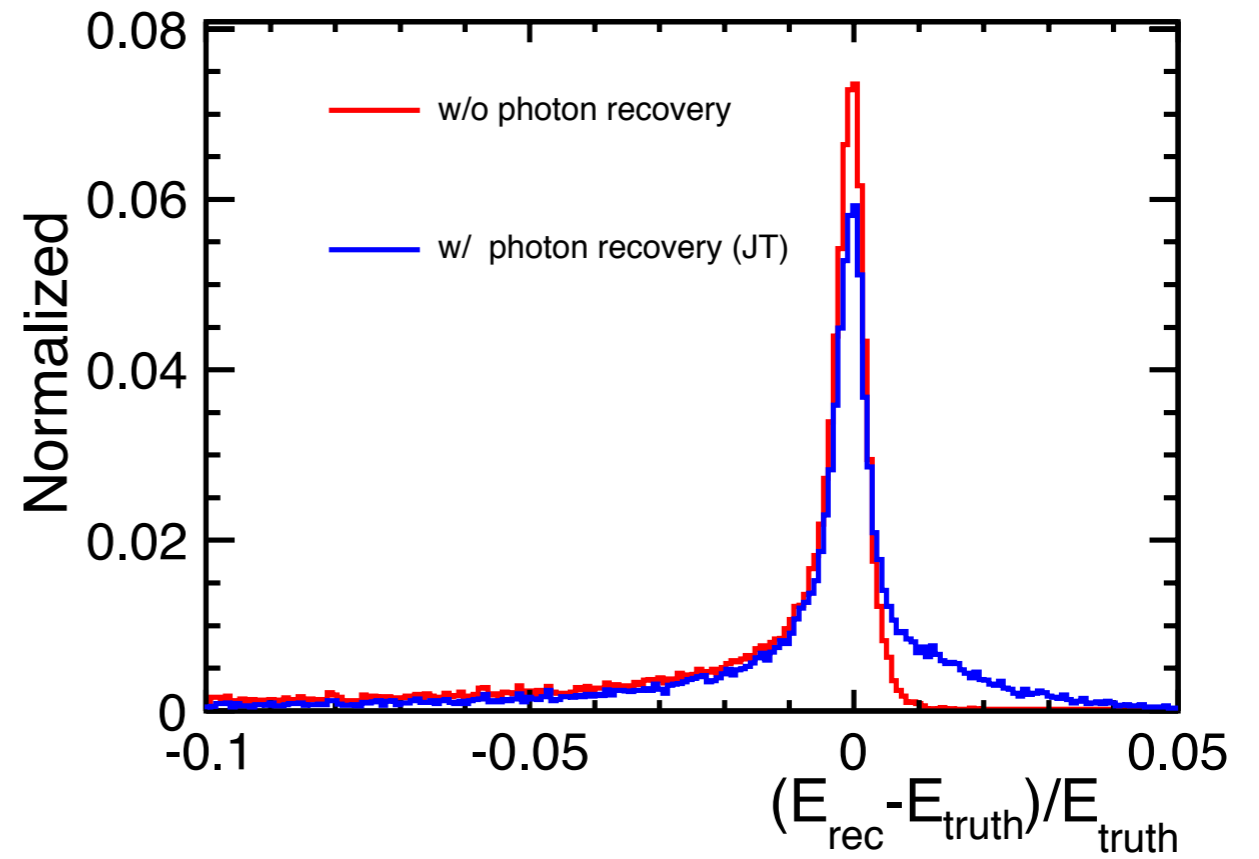
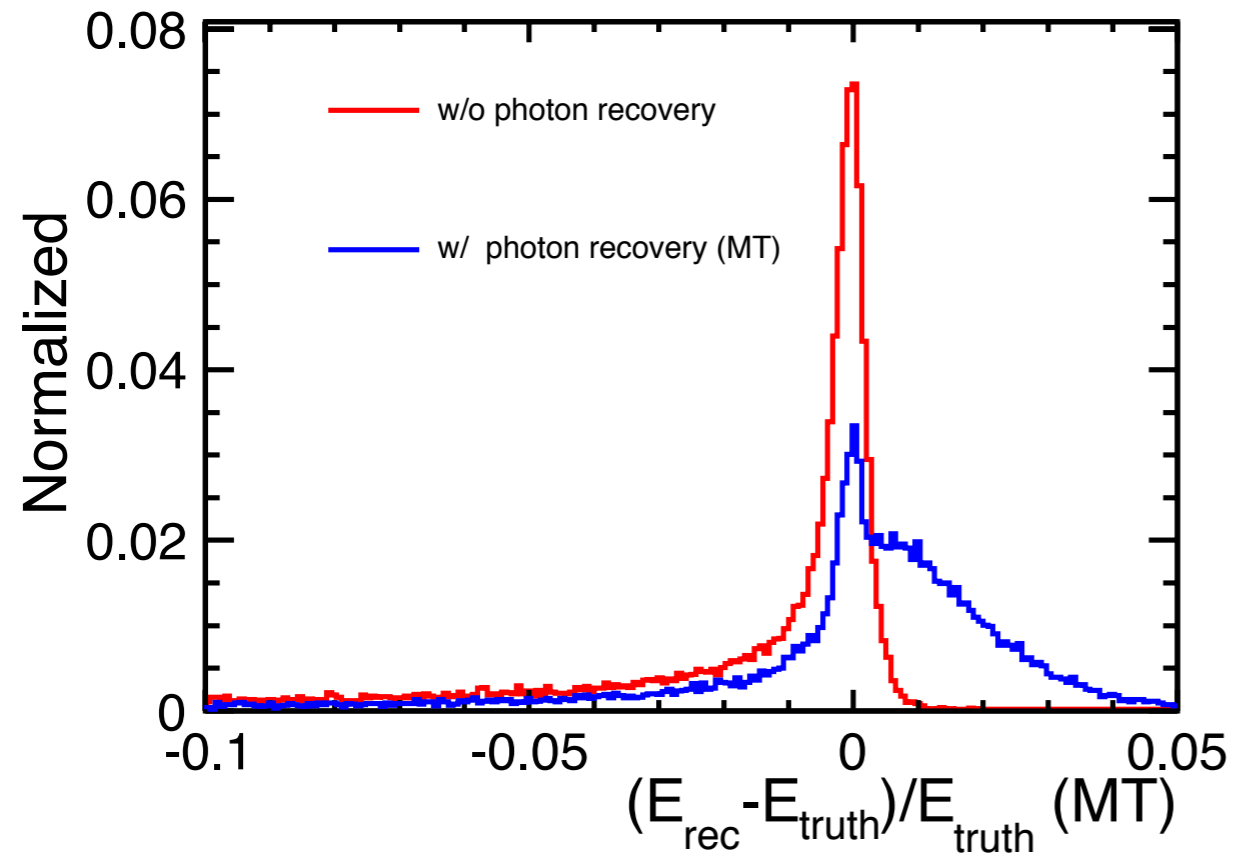
Matrix Element with BG eeZ



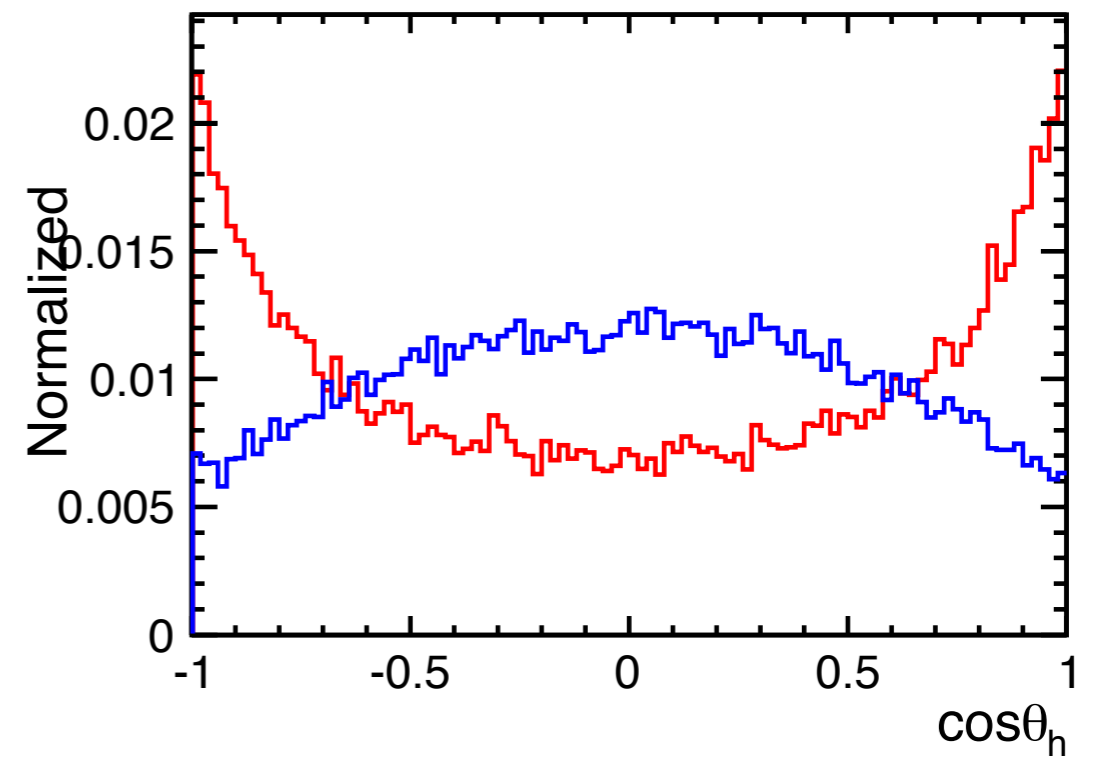
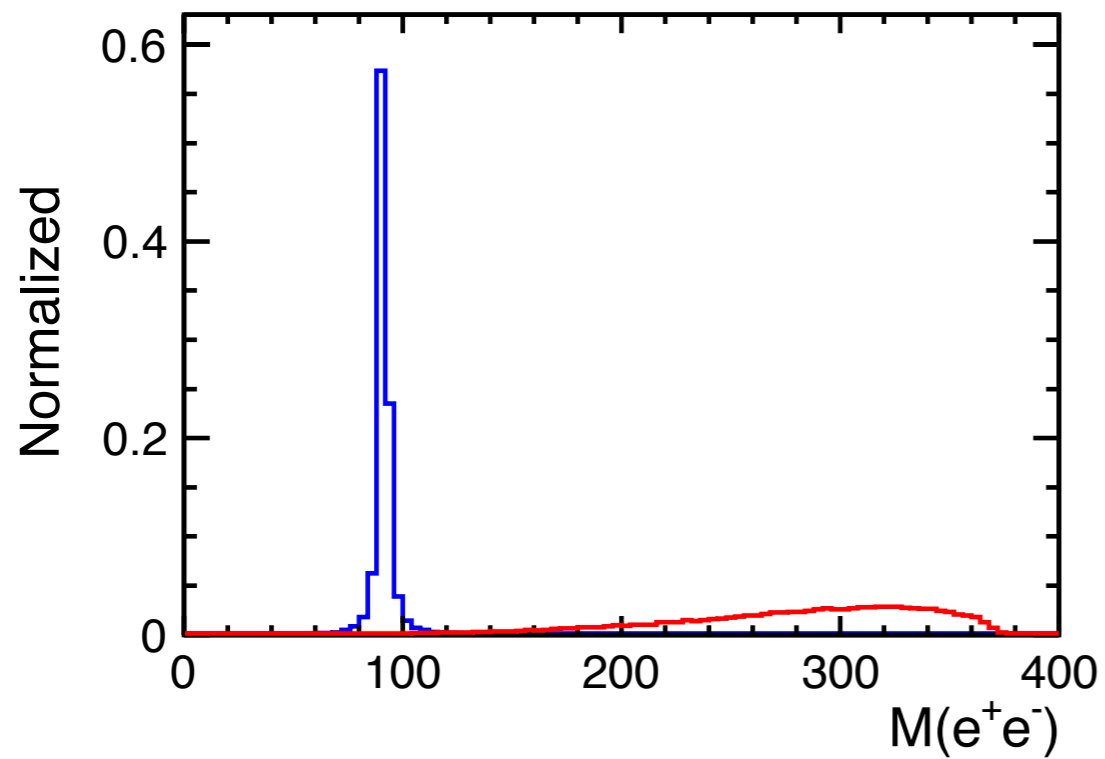
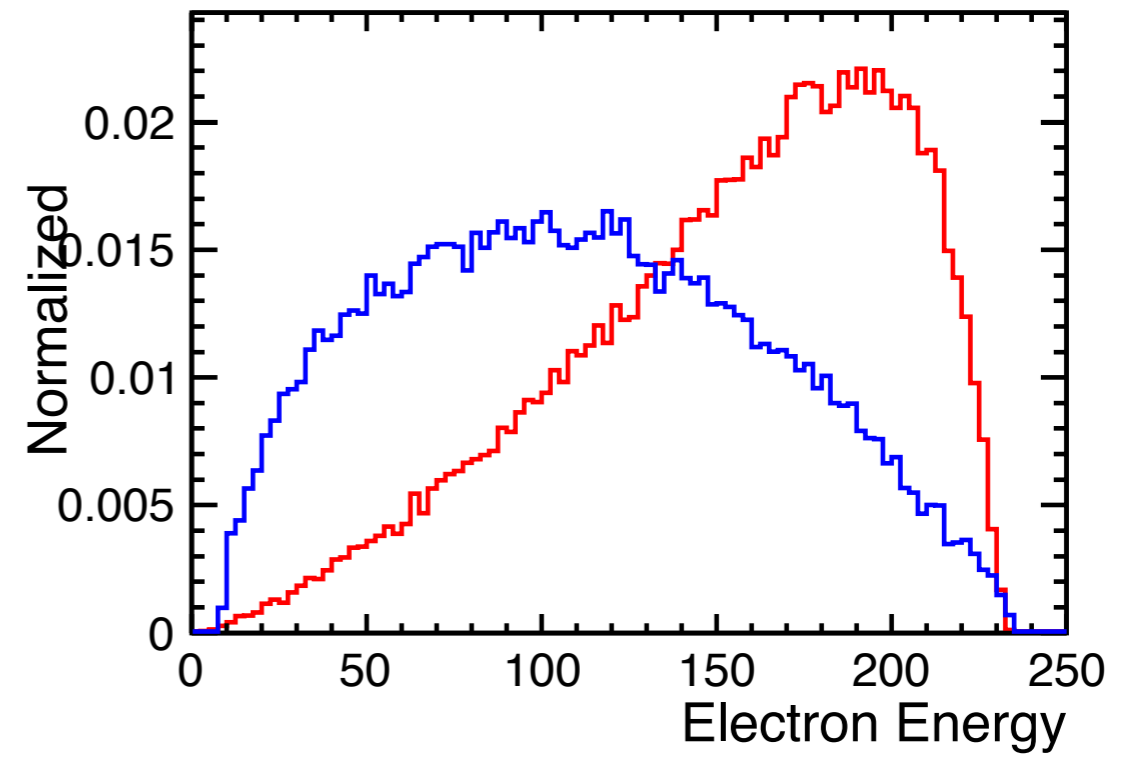
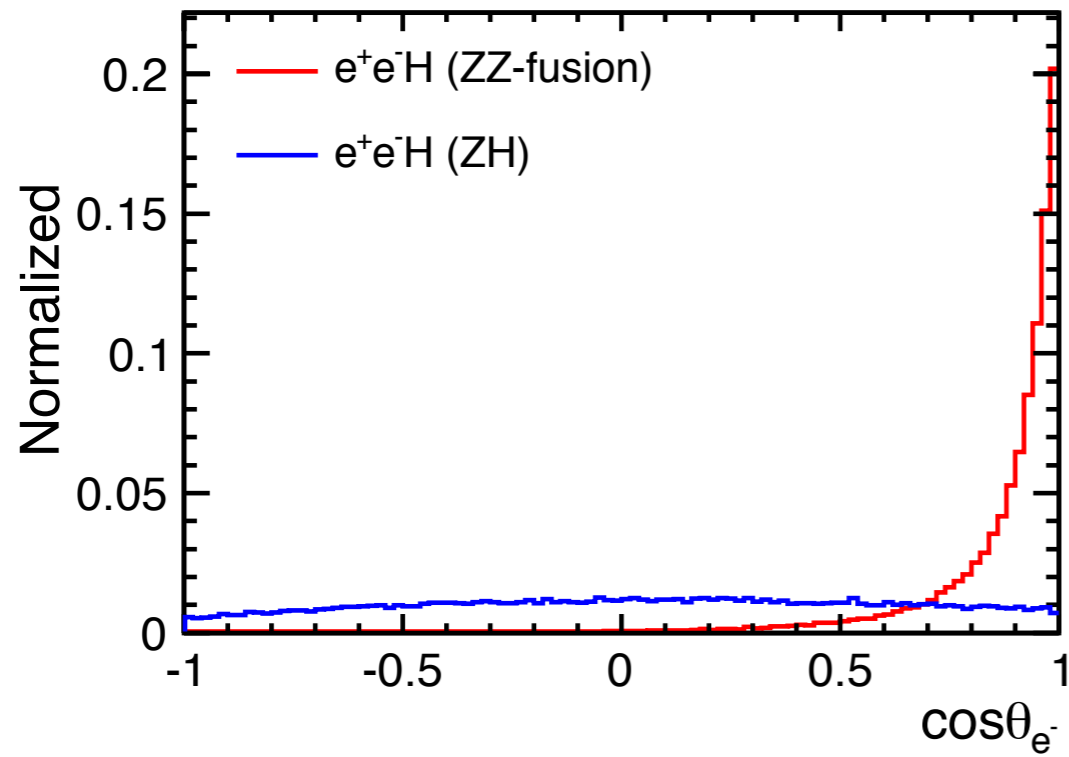
H decay needs be implemented

back up

photon recovery (BS, FSR) for electron

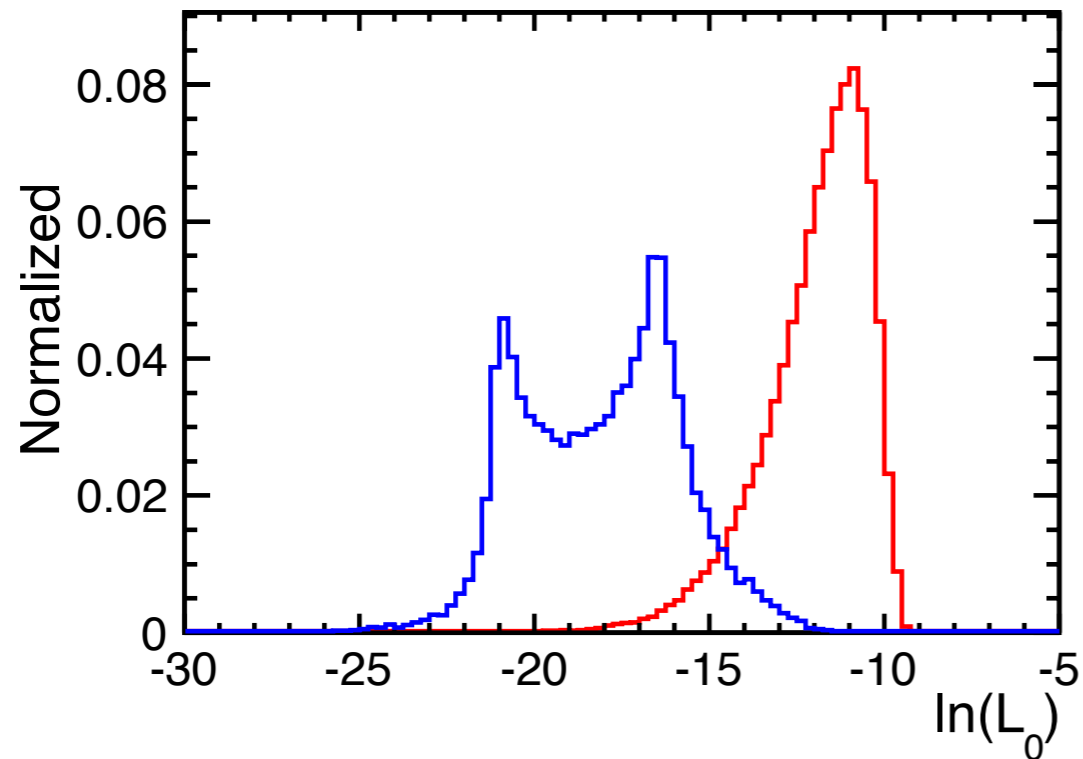


some distributions

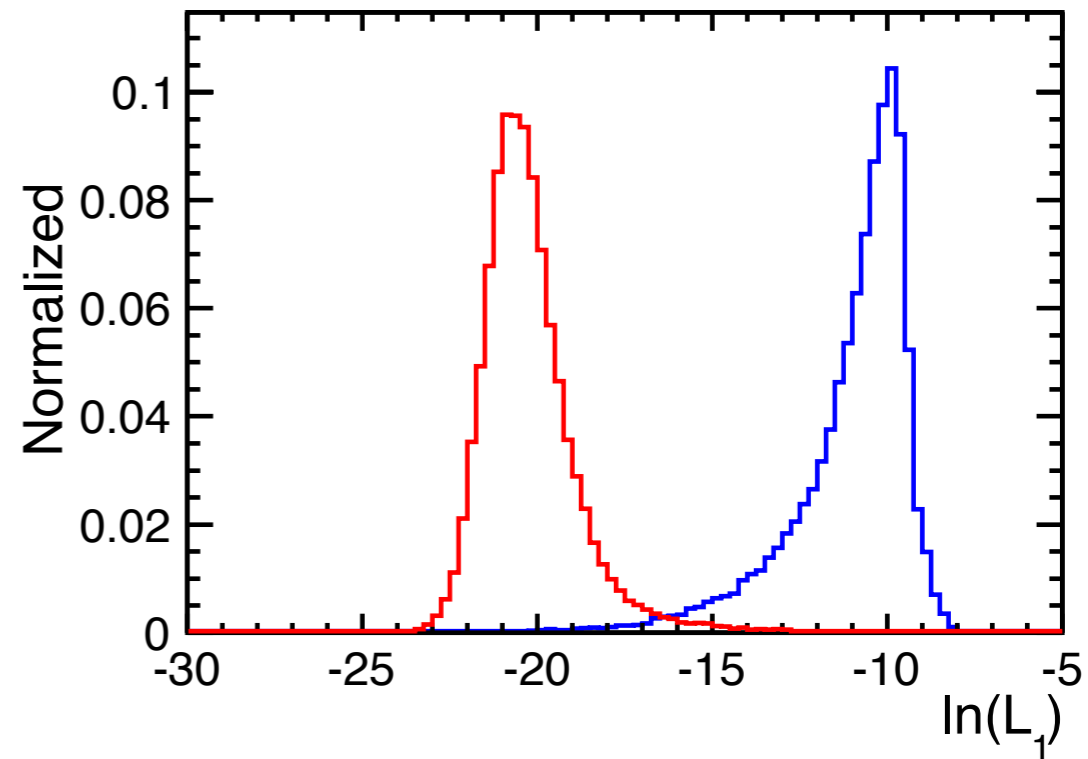


matrix elements (generator level)

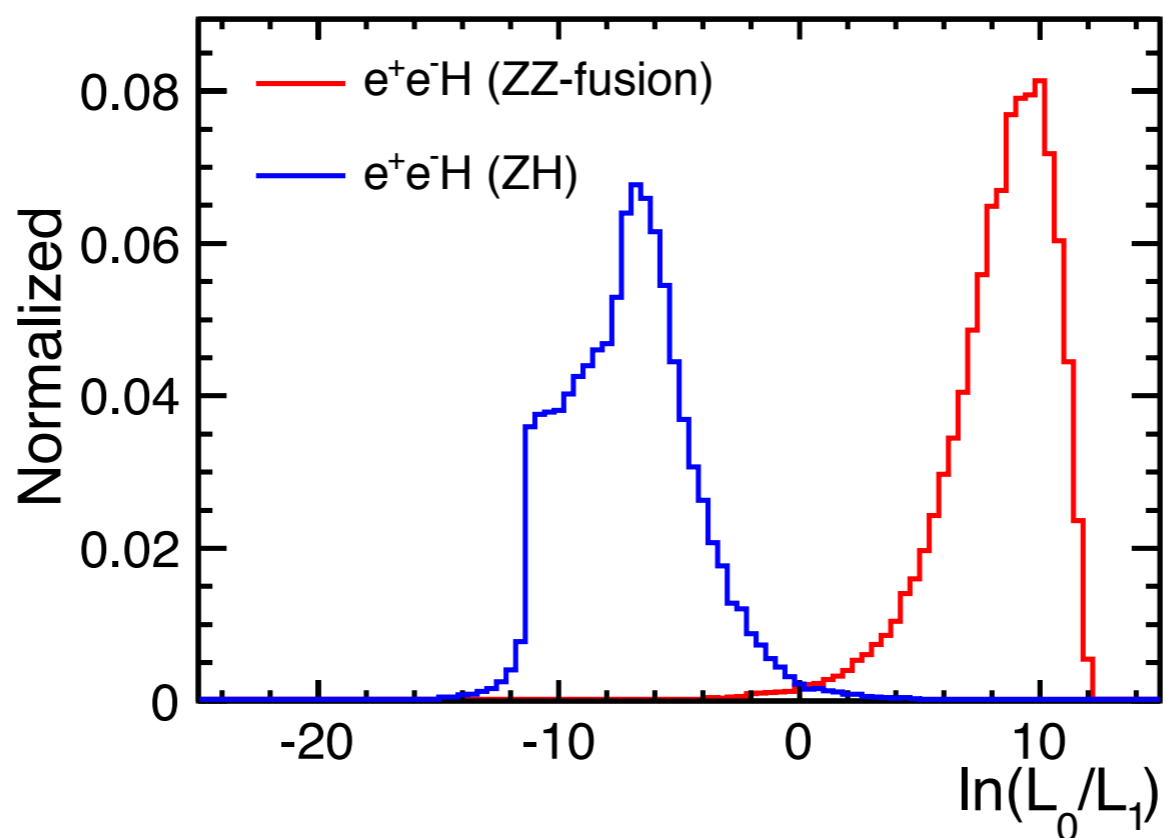
ME as from ZZ-fusion



ME as from ZH



ratio of ME



L_0 : ME from ZZ-fusion

L_1 : ME from ZH

(Neyman-Pearson lemma)