



National University
The Graduate University
for Advanced Studies [SOKENDAI]

Sensitivity of the ILC to Anomalous Couplings b/w Higgs and Gauge Bosons

ILC Physics

Tomohisa. Ogawa 2015.

15/03/13
Short Status

HVV Anomalous Coupling

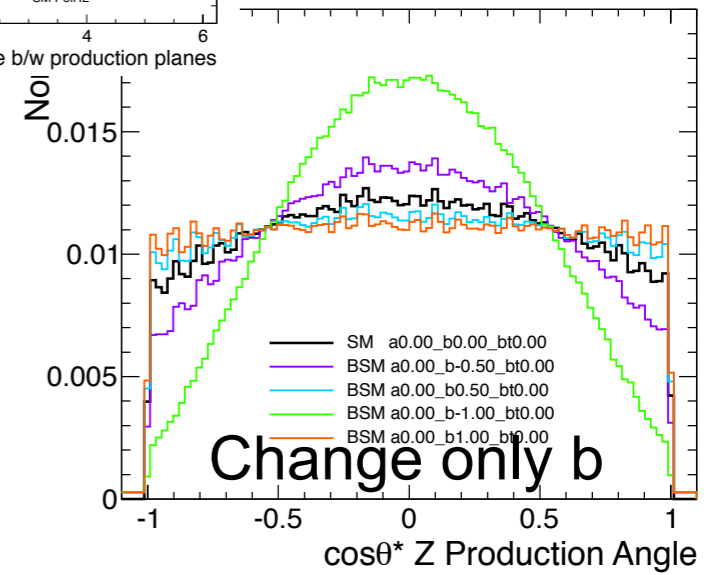
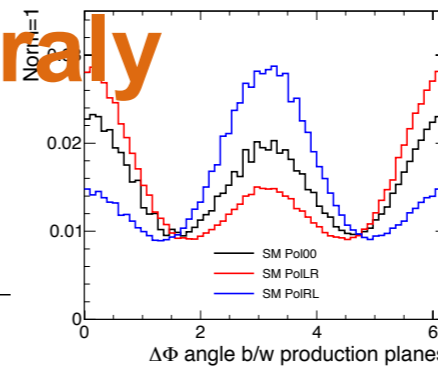
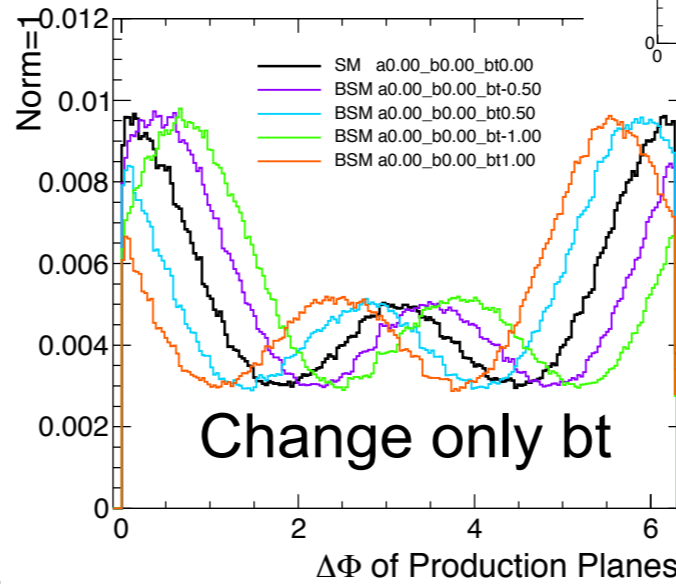
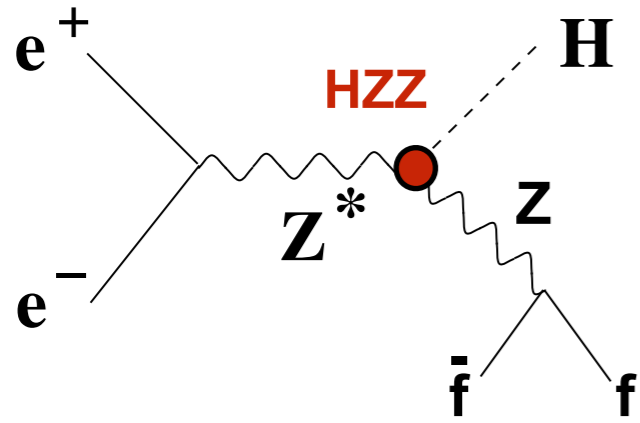
HZZ with Production Processes

HWW with Decay Processes

ZZH 250GeV Production Process

Very Very Temporally

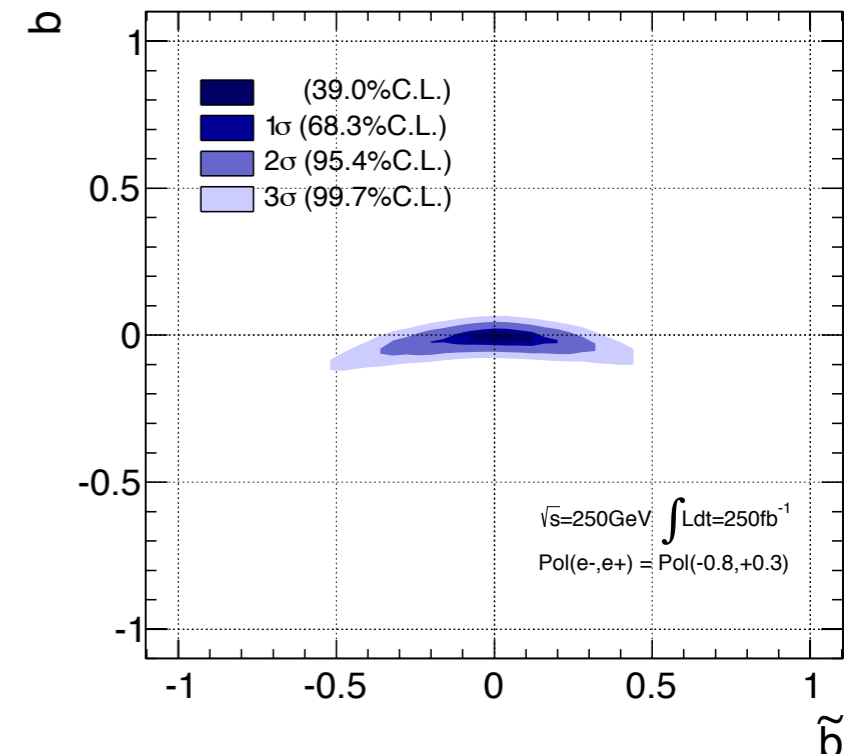
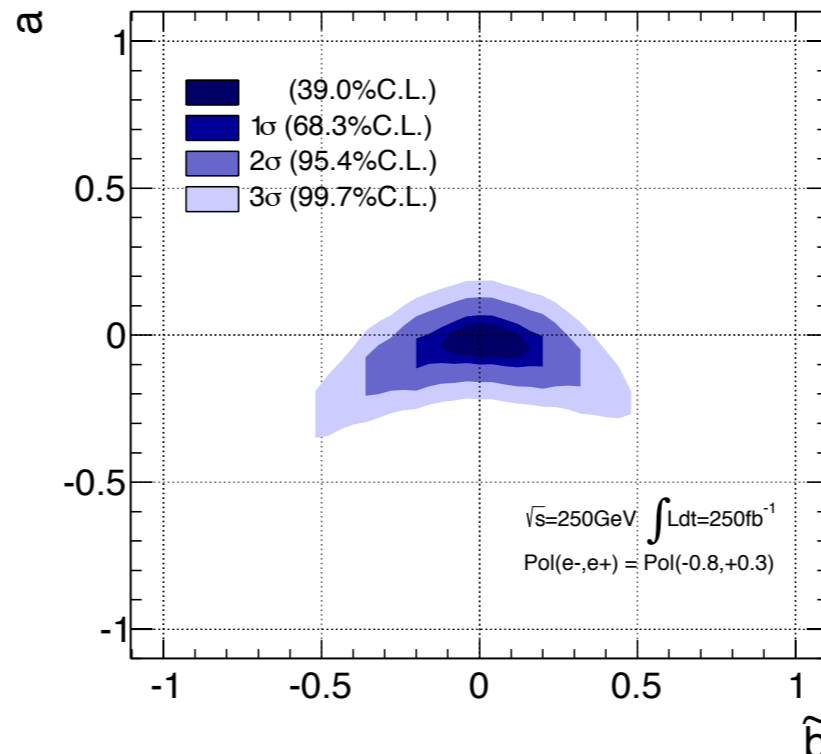
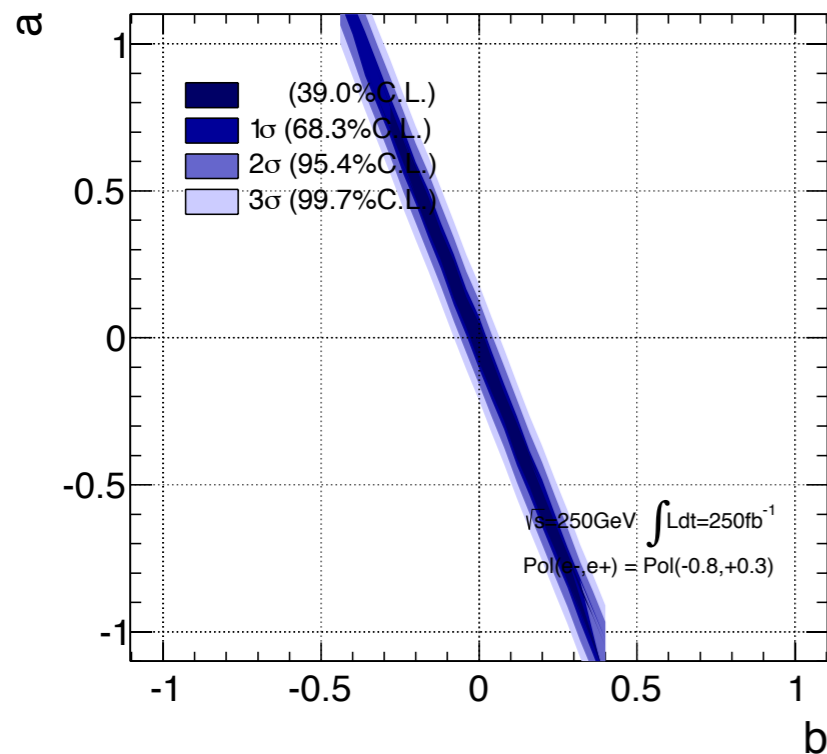
physsim/ZHStudy++



- we need not to pay attention on H.
- # signal events -> GPET+4thPol
- muon channel $\mu\mu H$

estimation from parameter “ $\cos\theta^*$ ”

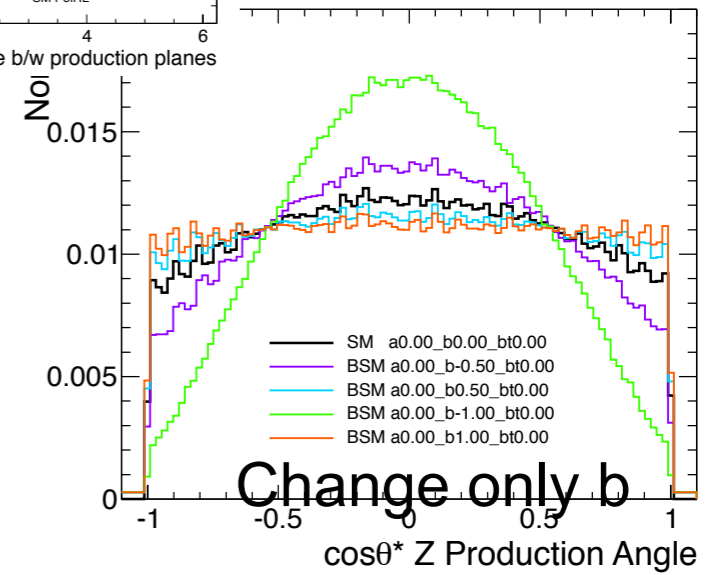
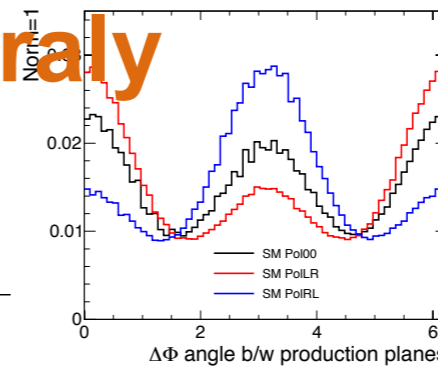
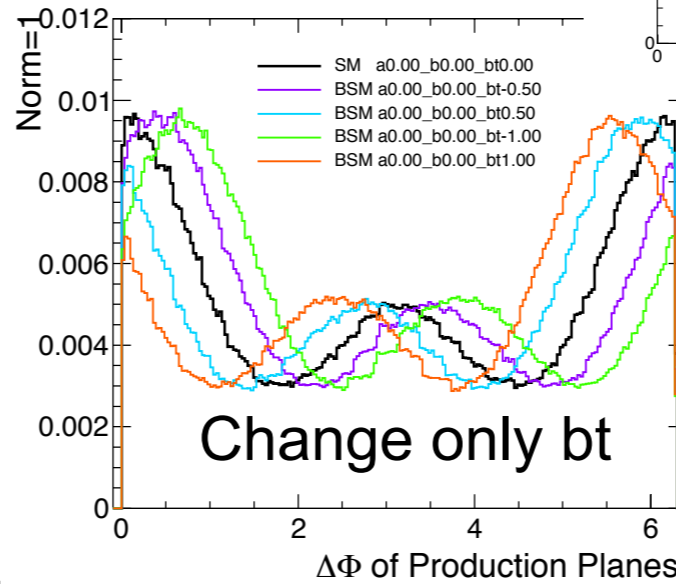
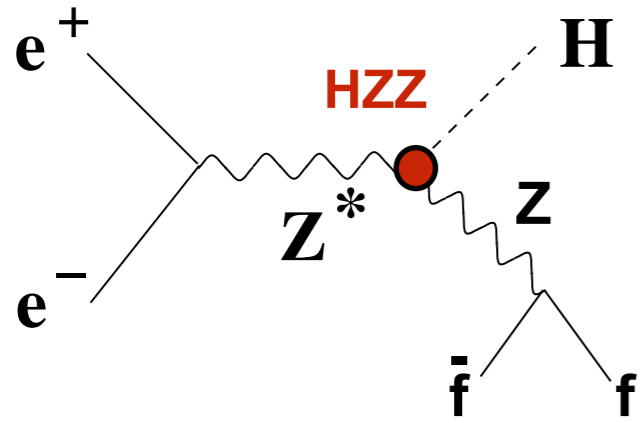
estimation from parameter “ $\Delta\Phi$ ”



ZZH 250GeV Production Process

Very Very Temporally

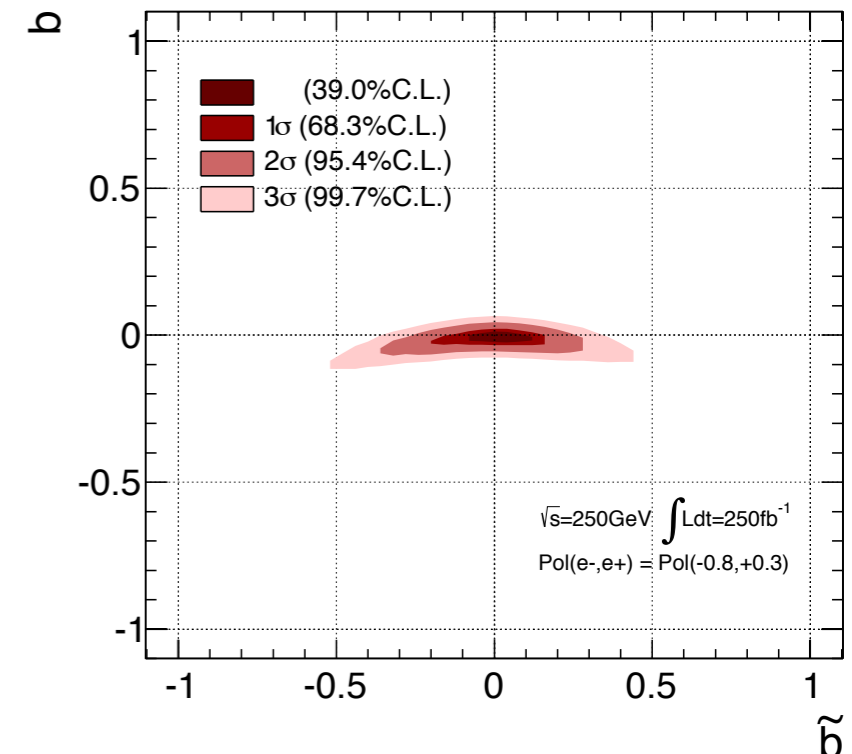
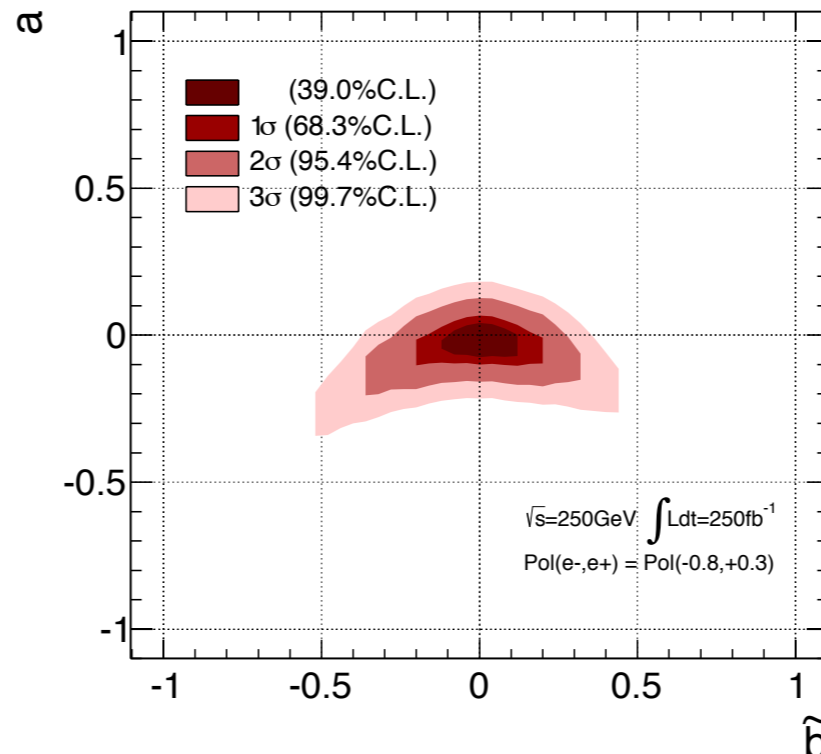
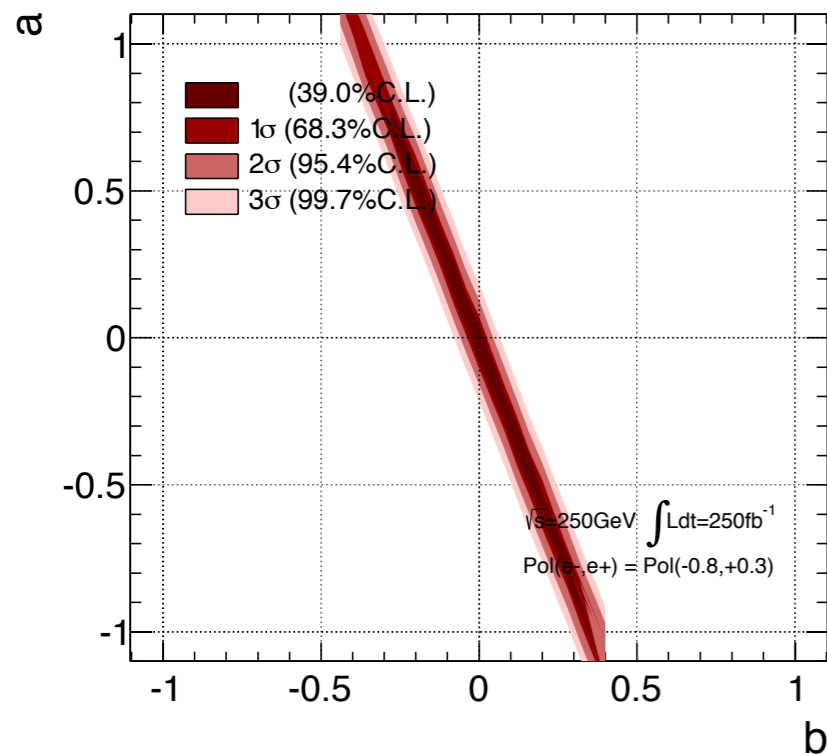
physsim/ZHStudy++



- we need not to pay attention on H.
- # signal events -> GPET+4thPol
- electron channel eeH

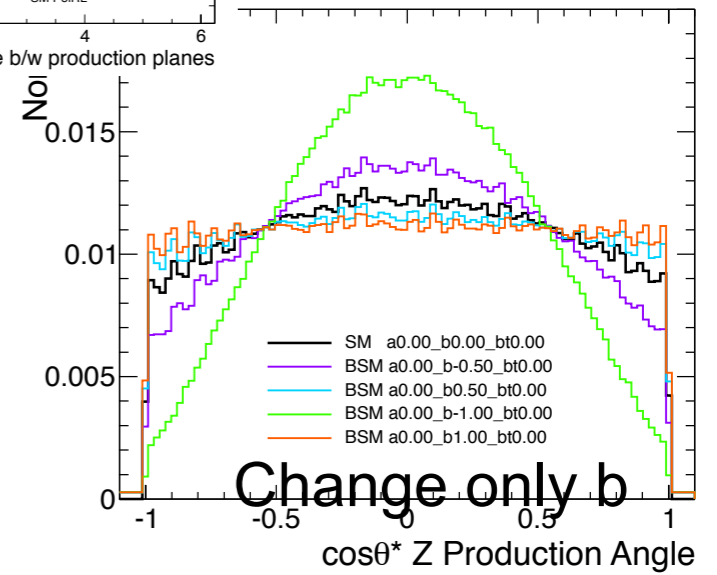
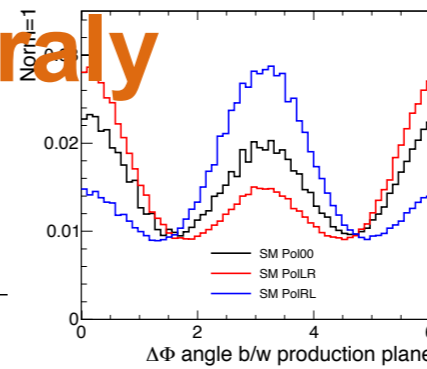
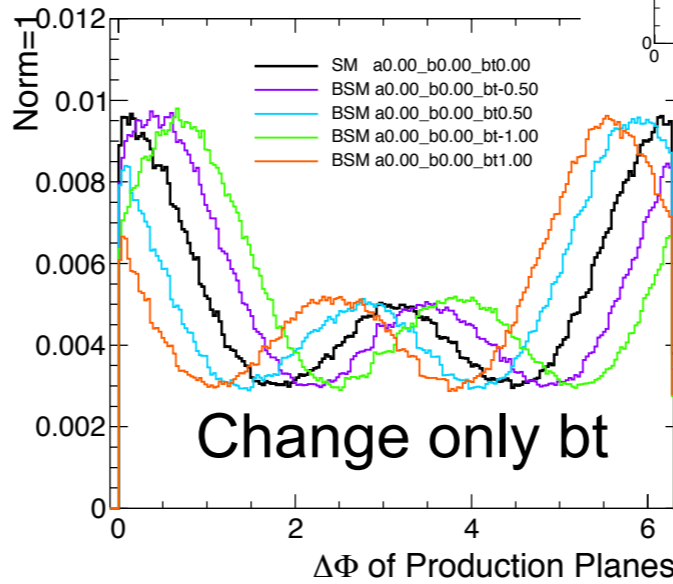
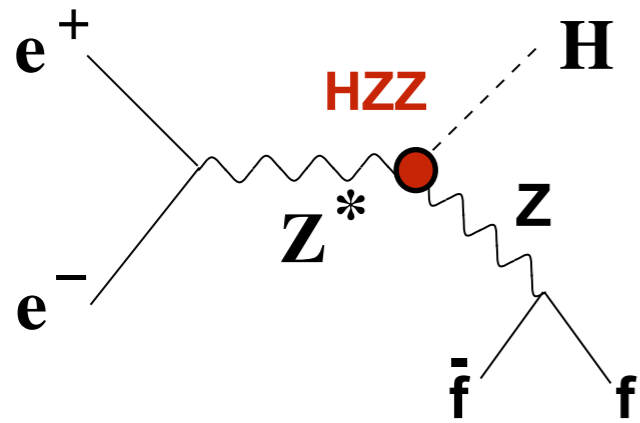
estimation from parameter “ $\cos\theta^*$ ”

estimation from parameter “ $\Delta\Phi$ ”



ZZH 250GeV Production Process

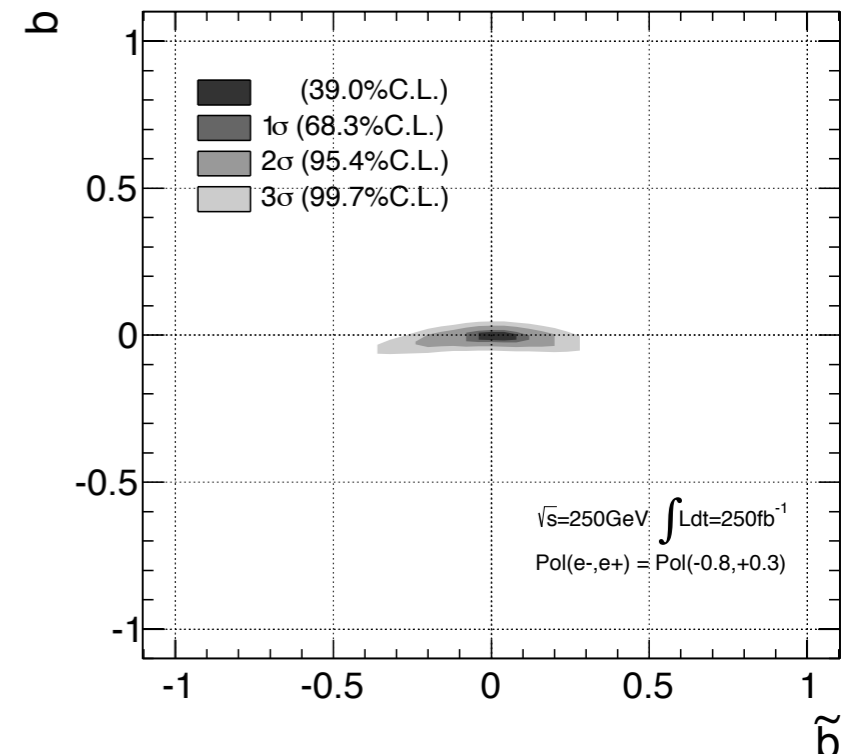
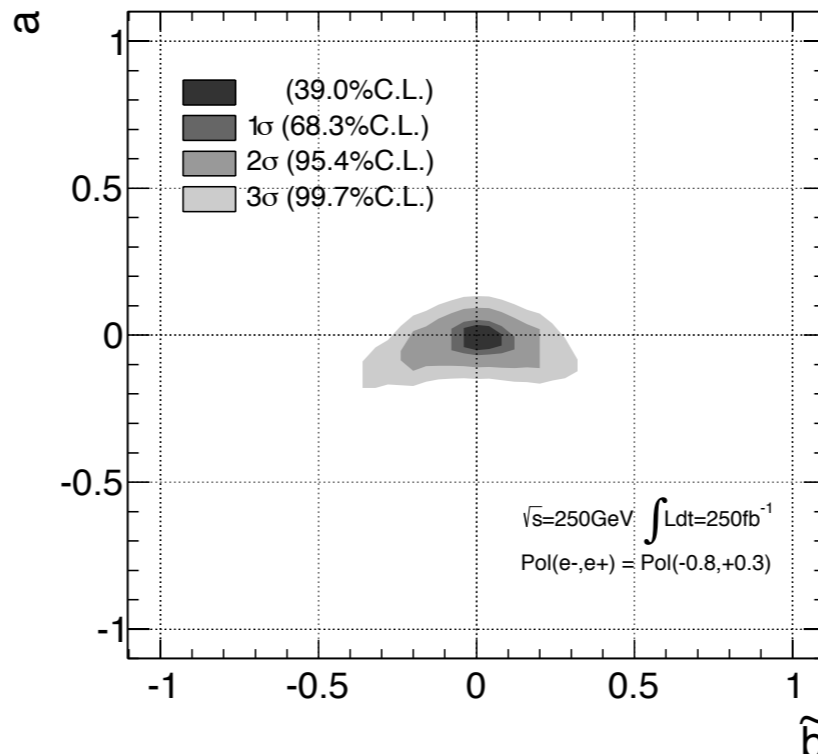
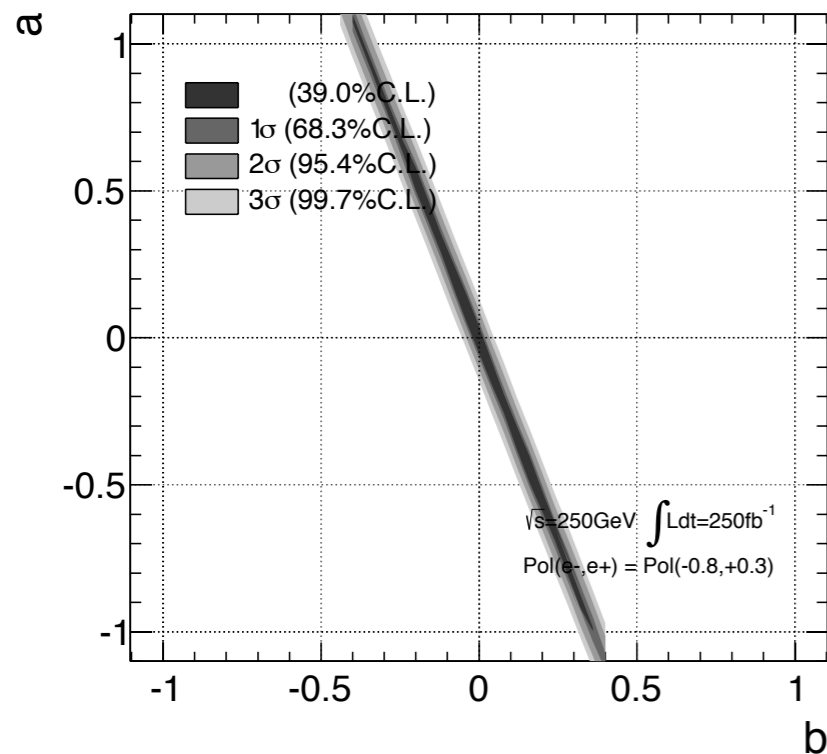
Very Very Temporally



- we need not to pay attention on H.
- # signal events -> GPET+4thPol
- combined both channels eeH & μμH

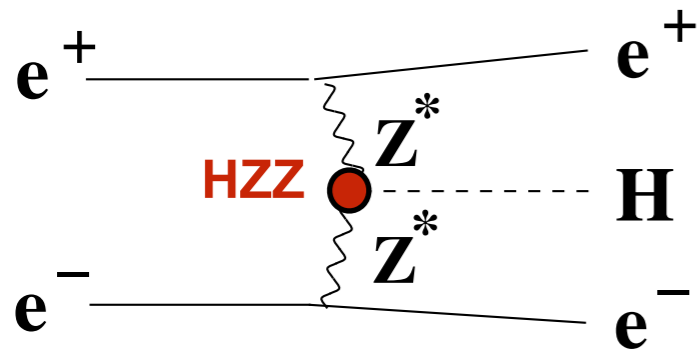
estimation from parameter “ $\cos\theta^*$ ”

estimation from parameter “ $\Delta\Phi$ ”

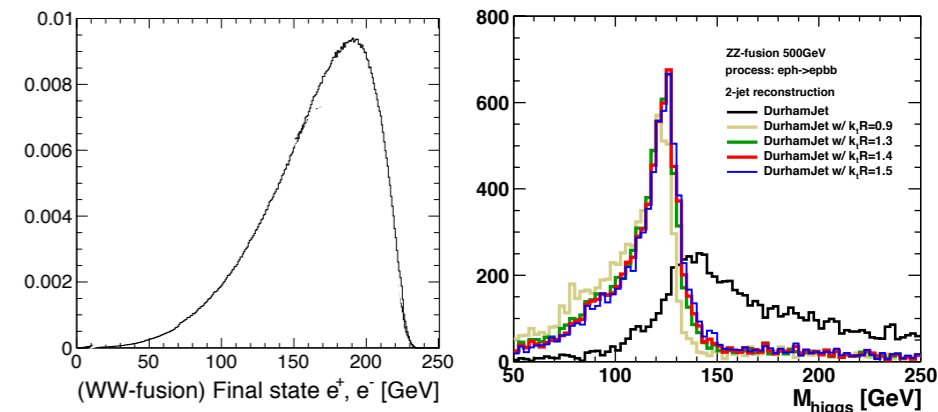
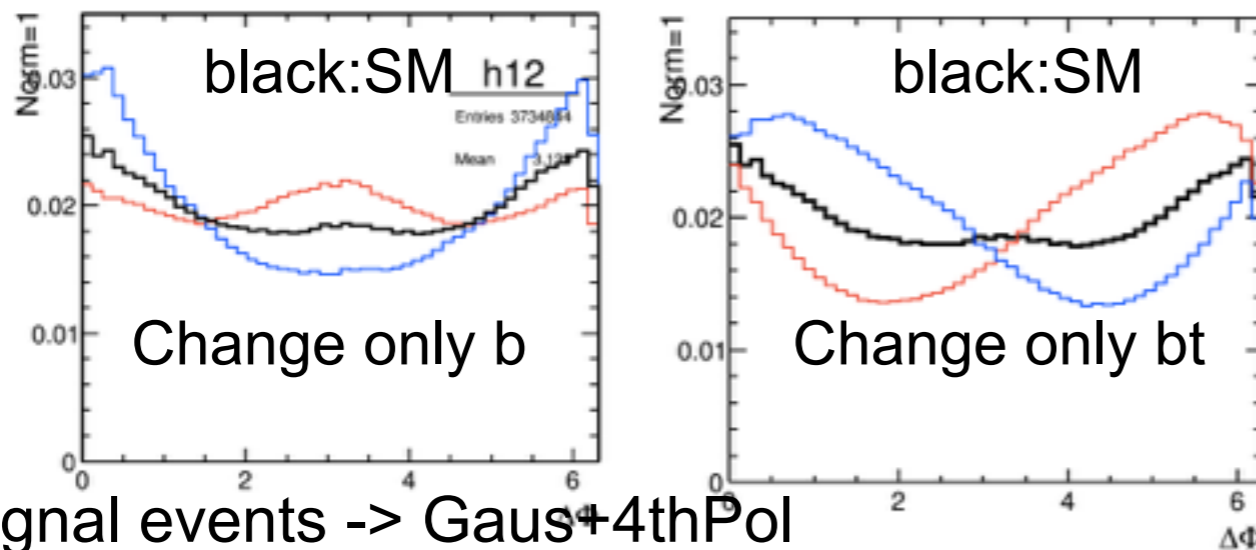


ZZH 500GeV Production Process

- Use the process H->bb (57.8%).
- Require high momentum e- & e+ (>20 GeV) to exist in a event
- Use kt algorithm to remove AA background R=1.4 (optimal)
- Durlam 2Jet-clustering forcibly.

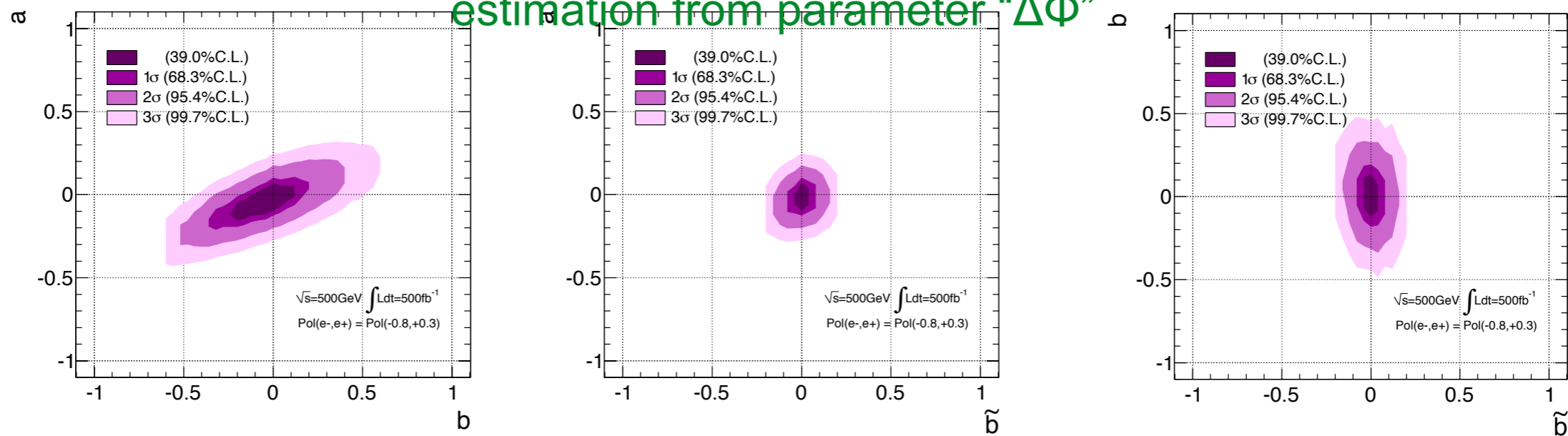


$\Delta\Phi$ b/w production planes calculated by using initial e^{-} & final e^{+}



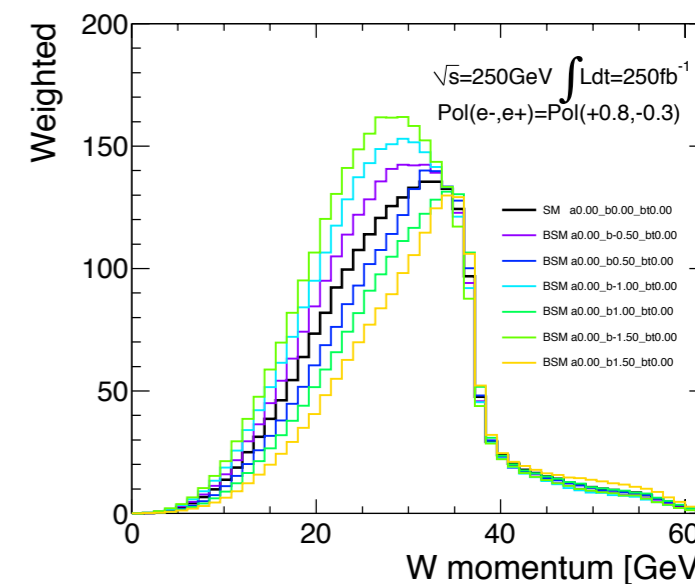
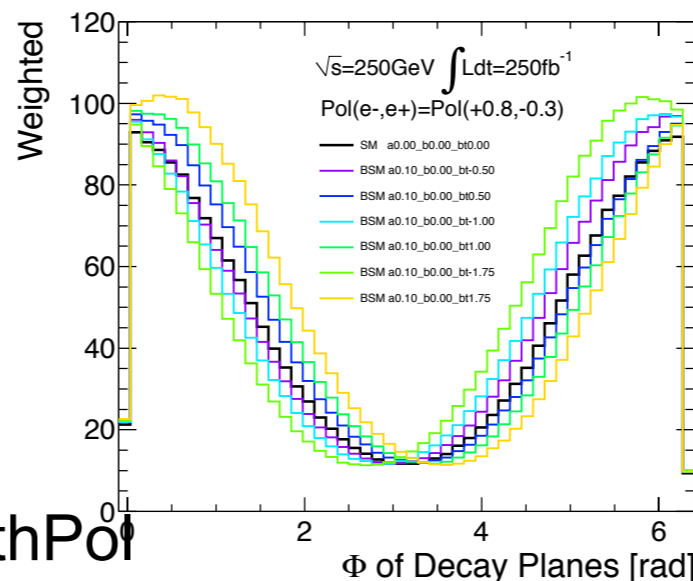
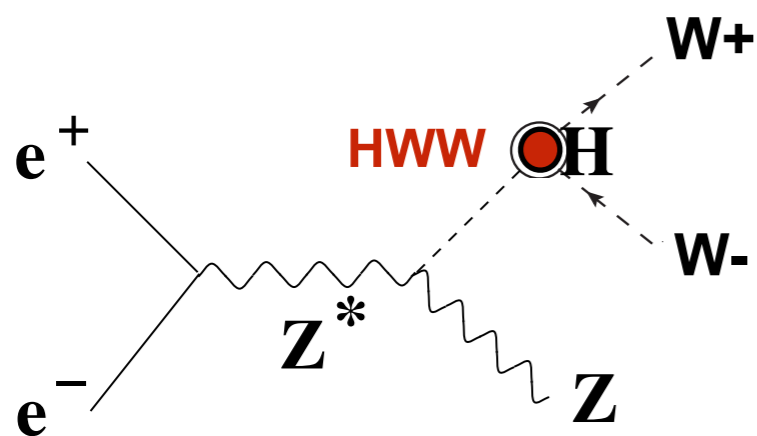
- # signal events -> Gaus+4thPol

estimation from parameter " $\Delta\Phi$ "



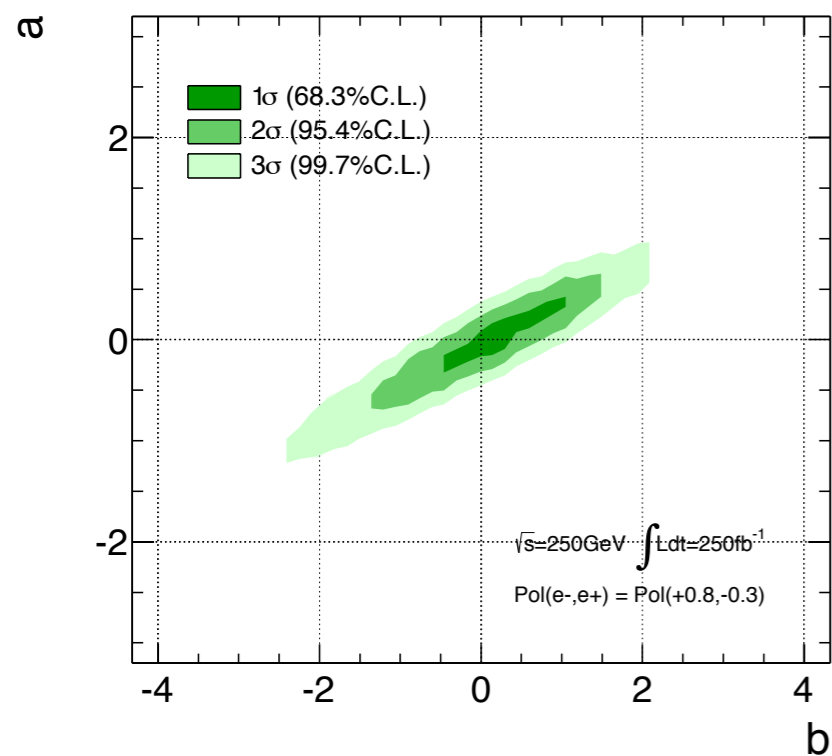
HWW 250GeV Decay Process

physsim/WWZStudy++

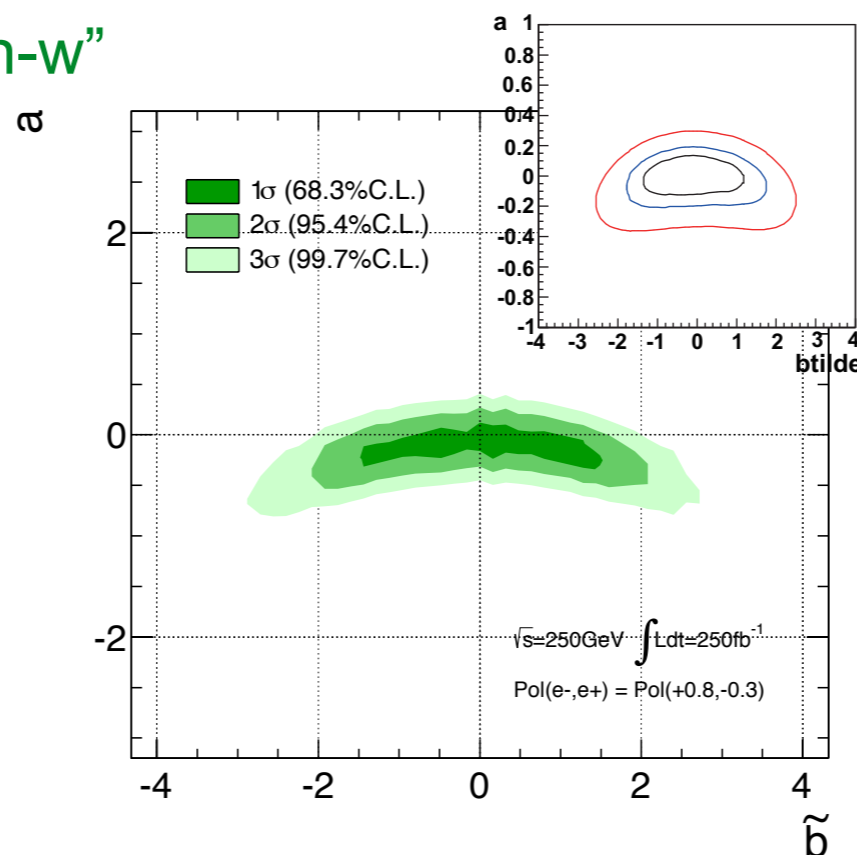


- # signal events -> Gaus+Gaus+4thPol
- Still miss reconstruction is included.
- Almost same result with previous study.

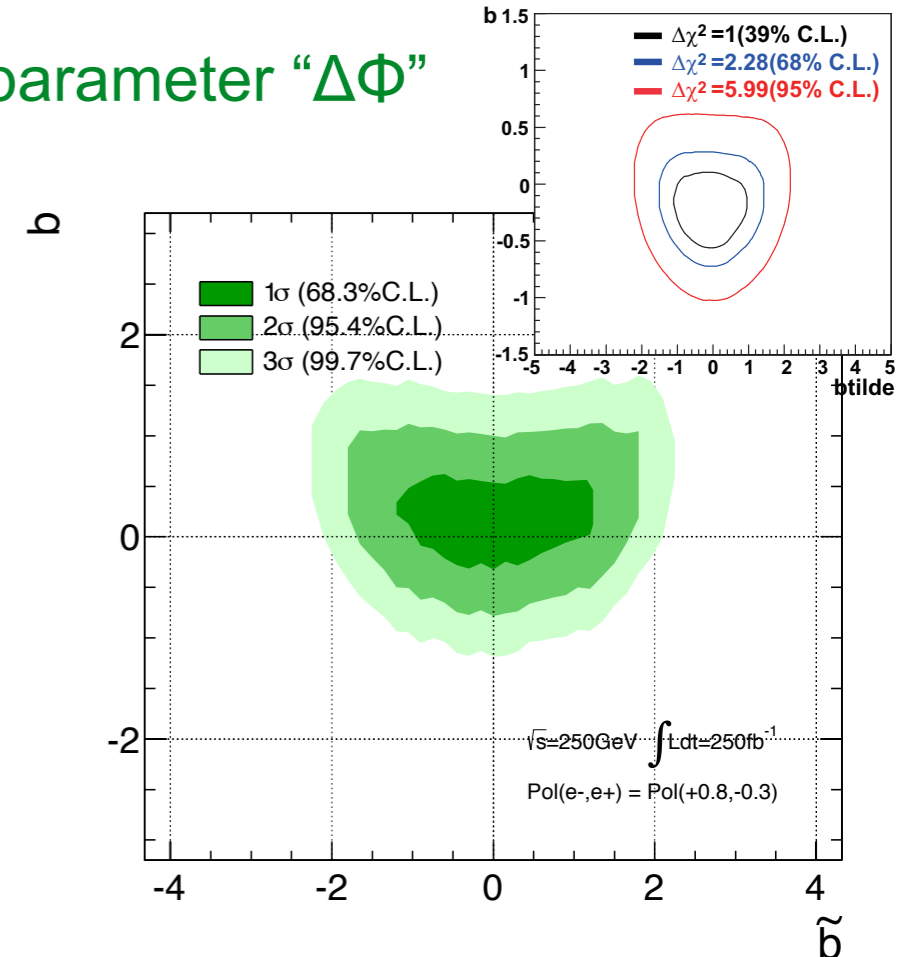
estimation from parameter "Pon-w"



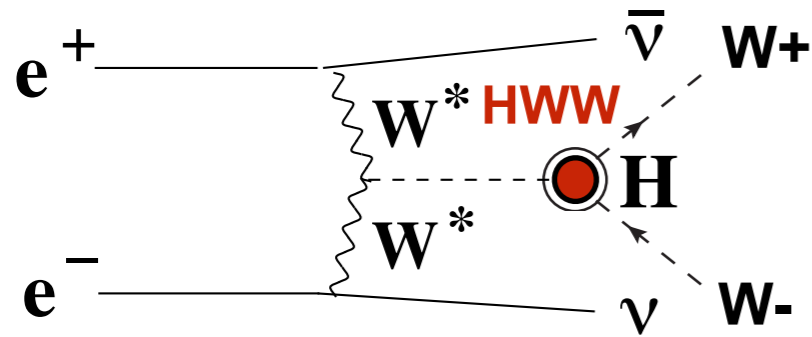
estimation from parameter "ΔΦ"



takubo's



HWW 500GeV Decay Process



- Generator is not available.
- I could not have modified correctly for the moment. need much time.

15/03/13 Summary

1. Temporary I got the contour plots for parameters to show sensitivity of HVV.
2. I have to modify NNH generator to include Anomalous-couplings.
3. I have to understand theoretical parts on HVV.

1. (Maybe) I should report about more detail on each analysis.

1. There are some technical problem on these analysis.

I do not summarize it, so I will report at next time.