

# Minutes of CEPC HZZ Meeting

Online, 2020-07-07

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Meeting indico link: <https://indico.ihep.ac.cn/event/11459>

## Analysis Update

1. After the 2D cut is applied in the cut-based analysis, to make all of 6 categories independently, final precision on the HZZ yield becomes 9.43% (previous one is 9.68% )
2. From a quick comparison, the "ideal" improvement, by regarding both as signals is ~1% ( 9.43% -> 8.43% ) at the final number. Note that the number is estimated from the  $\sqrt{S+B}/S$  method so that it might be different from the fitting results.

For the treatment of contaminated signals, for example, mmHvvqq' region after "2d-cut" contains Z->mumu,H(ZZ\*->vv,qq) and Z->vv,H(ZZ\*->mumu,qq) events, we will keep the current method, "Z->mumu,H(ZZ\*->vv,qq)" is signal, while "Z->vv,H(ZZ\*->mumu,qq)" is background.

## Actions

1. Update of the BDT analysis with the "2d cut".
2. For the HZZ events in background which are other than the 6 categories, try to list the numbers from each category.
3. Try to see the impact on the final number(s) by setting the other Higgs decay's contribution as floating, especially the one which has large number of events in background. ( H->bb , H->WW, H-> $\tau\tau$  , etc. ) ( by two weeks later, July 21th ? )

## Other discussion

- We will have a meeting on next Tuesday (July 14th), 10:30 am (Beijing time).