# Status of Higgs analyses

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# Higgs mass&xsection

- Three decay modes of Z boson
  - uuH: full simulation with CEPC_v1 (z.x. Chen)
  - eeH: full simulation with CEPC_v1 (z.x. Chen)
  - qqH: fast simulation with CEPC_v1 configuration (by a French college)
- Need new analyzers  to update

# Higgs width

- three key inputs
  - Higgs—>WW: LI Tong is updating it
  - Higgs—>ZZ:  Shih-Chieh Tsu and his student(s)
  - WW fusion cross section: Liang Hao, big progress on the interference effect, need more work

# Higgs decays

- Higgs—>di-muon: Z.W. Cui graduate soon, Y.P. Huang will take it over
- Higgs—>di-gamma: F. Wang & Y.T. Sun left, F.Y. Guo(Yaquan's student is working on it)
- Higgs—>2jets(bb,cc,gg): Y. Bai
    - uuH & eeH is in good status
    - qqH complicated
- Higgs—>invisible : X. Shi and his students and postdoc taking care of it
- Higgs—>tau+tau-: D. Yu (our postdoc) does very good job
- Higgs—>Zgamma: W.M. Yao provide some very nice preliminary results(4sigma) at CEPC_v1, need somebody to update.

# Higgs combination

- Kaili Zhang does great job for combination and keeps in touch with all analyzers, sometimes makes cross check. But

# CEPC Higgs Analysis: Status:2018

| | di-muon | di-electron | di-neutrino | di-jets | di-taus |
|---|---|---|---|---|---|
| σ(ZH) | | | - | | |
| $M_H$ | | | - | | |
| σ(ZH)*Br(H→bb) | | | | | |
| σ(ZH)*Br(H→cc) | | | | | |
| σ(ZH)*Br(H→gg) | | | | | |
| σ(ZH)*Br(H→WW) | | | | | |
| σ(ZH)*Br(H→ZZ) | | | | | |
| σ(ZH)*Br(H→ττ) | | | | | |
| σ(ZH)*Br(H→γγ) | | | | | |
| σ(ZH)*Br(H→μμ) | | | | | |
| σ(ννH)*Br(H→bb) | - | - | | - | |
| Br(H→invisible) | | | - | | |
| Br(H→exotic) | | | - | | |

CEPC_v4 in progress

CEPC_v1

Need manpower

# A mini-workshop

- June 27-29, focus on the analysis and software of CEPC, Please try to attend

- https://indico.ihep.ac.cn/event/7875/ release soon