

Status of EF02

Mingshui Chen, Yaquan Fang, Hao Zhang

Two Meetings held to discuss the EOI




Snowmass EF02

Wednesday, June 24, 2020 from 20:00 to 21:20 (Asia/Shanghai)

Description 腾讯会议: 141 293 329

agenda 上传文件密码: 1234

Wednesday, June 24, 2020

- 20:00 - 20:20 **Introduction 20'**
Material: [Slides](#) 
- 20:20 - 20:40 **h->RHN from LHC to CEPC 20'**
Speaker: Gao, Yu
Material: [Slides](#) 
- 20:40 - 21:00 **Composite Higgs at CEPC 20'**
Speaker: Prof. Jing Shu (ITP)
- 21:00 - 21:20 **anomalous H->ZZ at CEPC 20'**
Speaker: Dr. Hao Zhang (Technical Institute of Physics and Chemistry, CAS)
Material: [Slides](#) 

Snowmass EF02

Thursday, July 23, 2020 from 20:00 to 21:20 (Asia/Shanghai)

Description 腾讯会议: 141 293 329

agenda 上传文件密码: 1234

Thursday, July 23, 2020

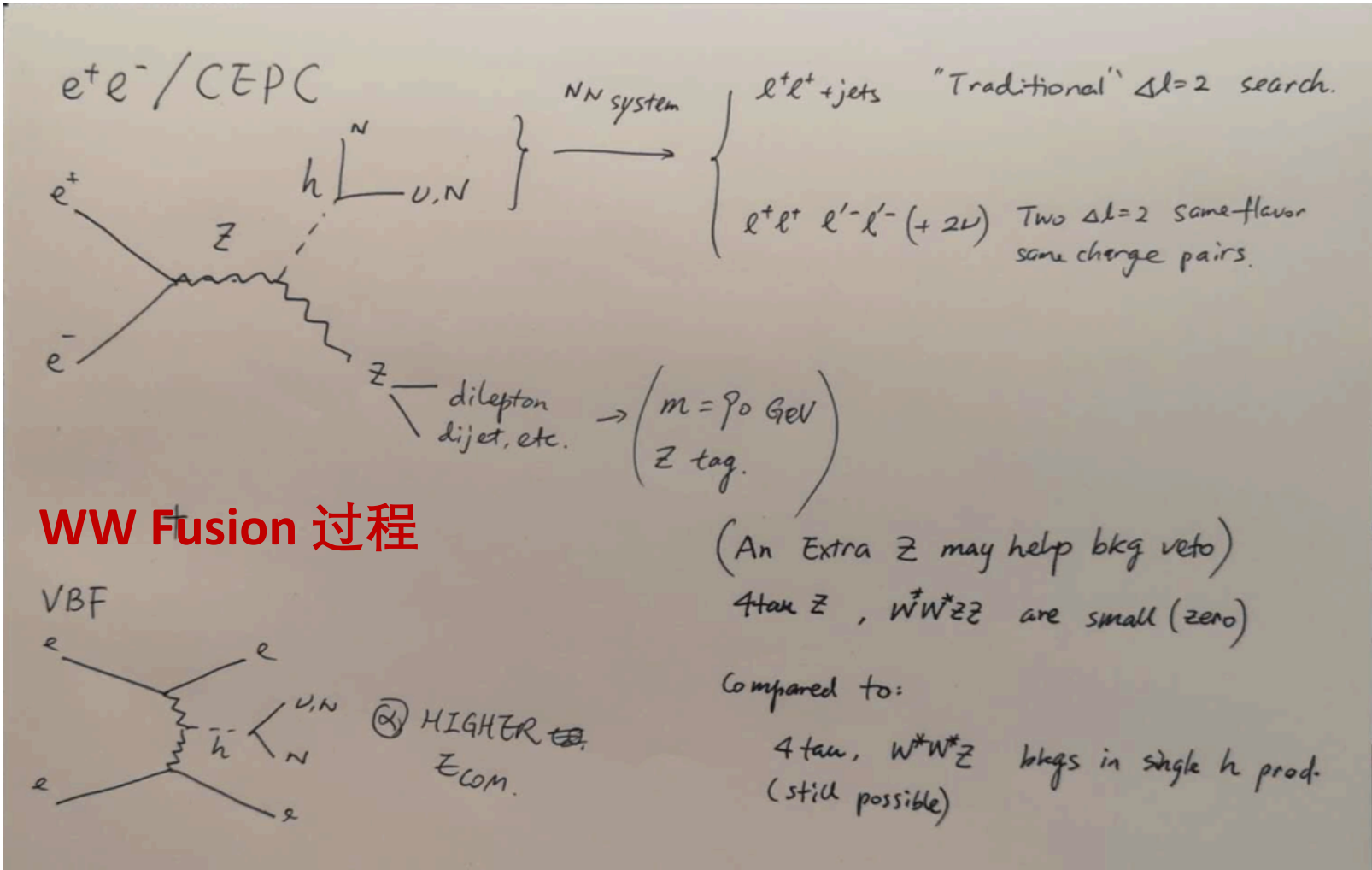
- 20:00 - 20:20 **Introduction 20'**
Speakers: Prof. Mingshui CHEN (IHEP), Dr. Hao Zhang (Technical Institute of Physics and Chemistry, CAS),
Yaquan Fang
- 20:20 - 20:40 **CEPC H->long lived particle 20'**
Speaker: Mr. Yulei Zhang (Shanghai Jiaotong University)
Material: [Slides](#) 

Search for Massive neutrino at CEPC

高宇 (IHEP)

Zh 过程

比起LHC, CEPC更加干净。



WW Fusion 过程

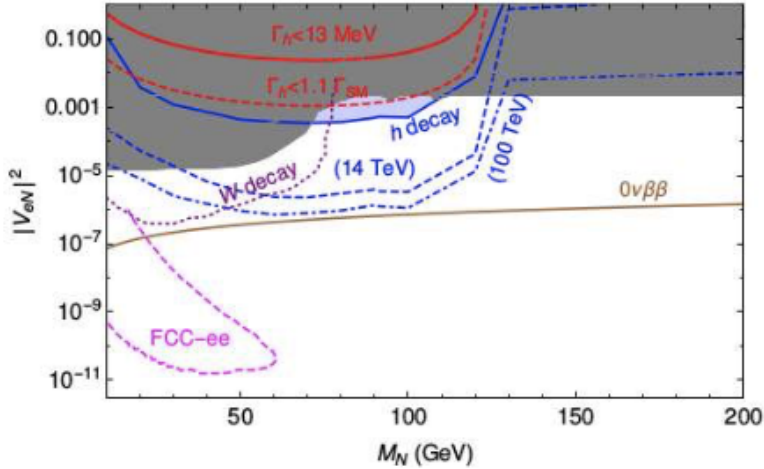
(An Extra Z may help bkg veto)

4tau Z, W^*W^*ZZ are small (zero)

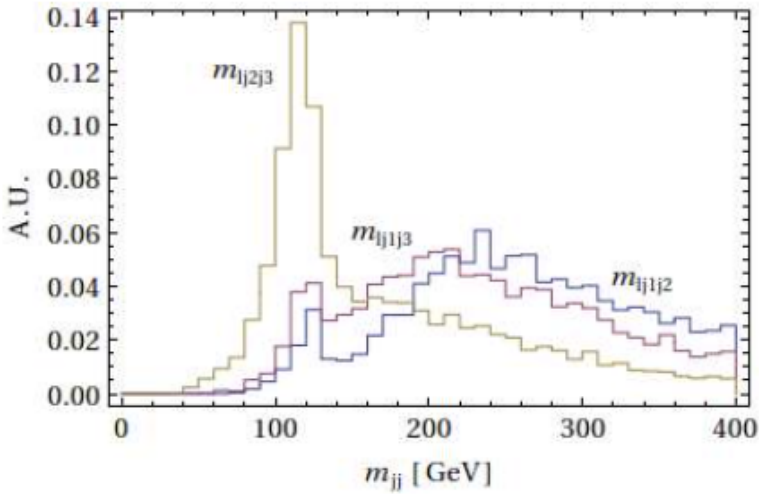
Compared to:

4tau, W^*W^*Z bkg in single h prod. (still possible)

LHC has sensitivity on the $h \rightarrow N\nu \rightarrow ll\nu\nu$

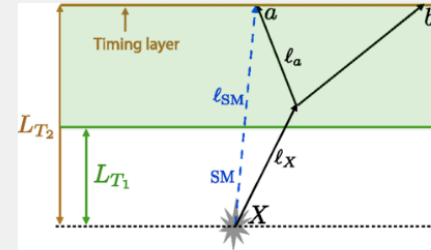
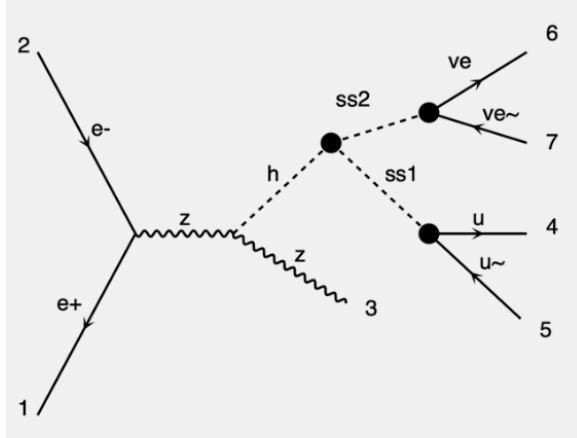


A.Das, B.Dev, C.S.Kim, 1704.00880



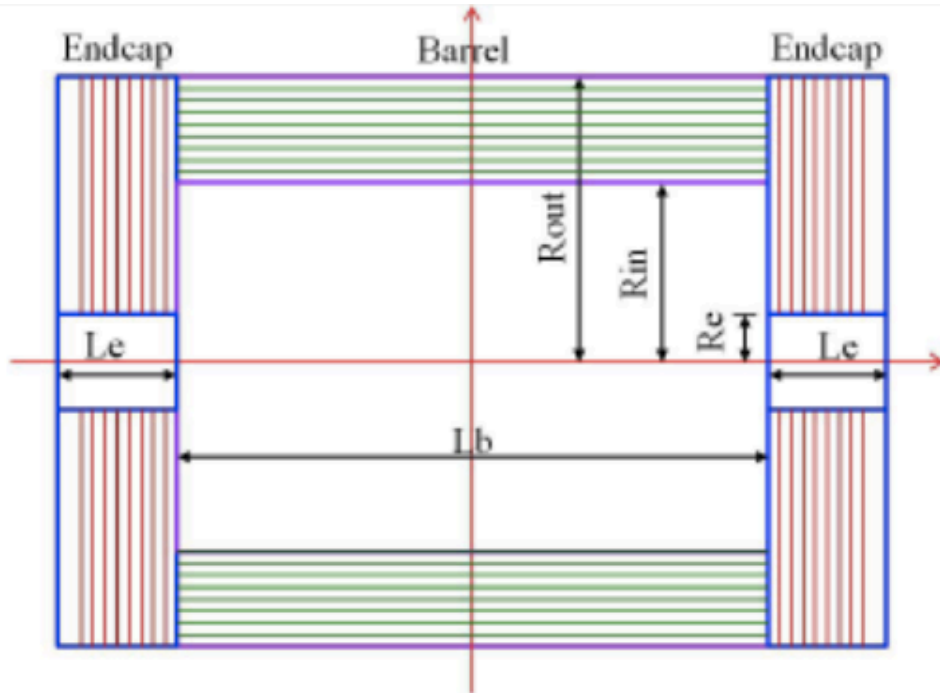
A.Das, Y.Gao, T.Kamon, 1704.00881

Search for Higgs decaying to Long lived particles



- $\Delta t_{\text{delay}}^i = \frac{\ell_X}{\beta_X} + \frac{\ell_i}{\beta_i} - \frac{\ell_{SM}}{\beta_{SM}}, \quad (i = a, b)$
- For SM particles, $\beta_{SM} \sim 1$

Yulei Zhang,
Liang Li,
Xiang Chen,
Jifeng Hu



- **Muon Detector**
 - $R_{in} \approx 4m$
 - $R_{out} \approx 6m$
- **Select events within Muon detector**
 - $\Delta t = t_{\text{Hit}} - r_{\text{Hit}}/c$
- **Dominant Background**
 - $ZH \rightarrow \nu\nu b\bar{b}, \nu\nu j\bar{j}$
 - $e^+e^- \rightarrow q\bar{q}$
 - $ZZ \rightarrow \nu\nu q\bar{q}, q\bar{q}q\bar{q}$
- **Full simulation** with CEPC official software

MC Request and Plan

- We can rely these two proposals as our baseline EOIs
 - Welcome (open) to more proposals
- Start to think about preparing MC
 - Will request the CEPC samples for the first analysis.
 - For the second one, need to work on tracking algorithms if we want to expand the analysis into the LLP with earlier decays.
 - Otherwise, the analysis is in good shape.