**Minutes for CEPC Snowmass Progress Meeting**

Time: 9:00-11:00 18 Dec. 2020

**Talk 1：SUSY global fits with future colliders using GAMBIT, by Yang Zhang**

The impact of future ee collider on global fit of some simple models (CMSSM/mSUGRA) is studied. (CMSSM/mSUGRA)

The CEPC likelihood is implemented into GAMBIT using the SM as the center value.

In future studies, the present SUSY best-fit point will be used as the center value and the GAMBIT will be updated.

Comments:

* The likelihood is calculated from the center value and accuracy, for instance, no background is included.
* The computing resource at IHEP is available if needed.

**Talk 2: The progress of llp research at lepton collider, by Yulei Zhang**

The long-lived particles with vertex in muon chambers are studied using cut-based analysis. The time of flight and energy deposition in Muon detector are the two main variables with good separation power. The machine learning method uses events with vertex from 1m-6m, the result shows it is almost background free.

Comments:

* The response is similar for different masses since only 50GeV is simulated, the other masses are scaled accordingly. However, the behavior for less than 10GeV should be different.
* In the analysis the maximum T is used but it might be problematic in hadronic decay with slow components.
* The vertex inside tracking system can also be included
* A comparison with HL-LHC can be added.

**Talk 3: Exclusive hadronic Z decays, by Shan Cheng**

The motivation of exclusive hadronic Z decays and the future plan is presented. The 2 body decay can be used in the analysis of QCD running behavior. The Z->pi0 gamma channel is background free.

Comments:

* K+K- branching ratio is larger than pi+pi-, proton branching ratio depends on the pdf and should be larger. These channels can be studied in the same time.

**Talk 4: Bs->phi+nv nv progress, by Yudong Wang**

The phi reconstruction performance is presented, preliminary result shows the signal selection efficiency is about 10% and the backgrounds are reduced to 10-6.

**Talk 5: LFU Tests and other B meson rare decays at the Z pole, by Lingfeng Li**

The b->stautau channel analysis is only possible on Z pole, and the current b->ctaunv anomalies indicate large enhancement of b->stautau rates. The D 3 prong decay is irreducible background, but calorimetry can help to remove backgrounds with neutral particles. 4 benchmark channels are studied, and the S/B ratio is a few precents. In the future studies, more FCCC channels will be tested and new physics will be implemented.

Comments:

* The missing mass is calculated using visible direction and energy with some assumption.
* The requirements on detector design can be added, such as vertex & neutral reconstruction