**Minutes for CEPC Snowmass Progress Meeting**

Time: 9:00-11:00 27 Nov. 2020

**Talk 1: Higgs CP measurement with EFT model at CEPC, by Qiyu Sha**

The coupling parameter P is measured from optimal variable ω (calculated from three angles).

Comments:

* The ω and φ are used for the CP-mixing extraction, since ω is calculated from φ, they are highly correlated.
* In this method the Higgs decay information is not used, the observables are the 4-momentum of Higgs and the 4-momenta of the 2 Z decayed leptons. However the 4-momentum of Higgs depends on the decay modes.
* This study is on truth level, if estimation of simulation is needed, Zhen’s paper (<https://arxiv.org/pdf/1512.06877.pdf>) can be used as a reference

**Talk 2: SUSY Search at the CEPC, by Jiarong Yuan**

Sleptons and electroweakino can be searched at CEPC, four channels are studied: direct stau production, direct smuon production and chargino pair production (Bino LSP and Higgsino LSP)

Comments:

* A comparison with LHC might be added, including the advantage and the complementary
* Detector demanding can be considerate, a first expectation is that the higgsino LSP depends on energy resolution.
* Low energy tracks reconstruction might be an issue. The pid for muon with energy lower than 1 GeV is concerned.
* The mass splitting set need to be check, especially for Higgsino. For mass splitting smaller than few GeV region, some hints can be found in <https://arxiv.org/pdf/1801.05432.pdf>

**Talk 3: Higgs boson CP properties at CEPC, by Jin Wang**

An earlier studies done in (2l)(bb) final state (only sensitive to production vertex ZH). The exploration of ZH→ 2l4q final state is planned. Since the team has already been formed, the following study should be quick.

Comments:

* This method consider not only the production but also the decay information.
* The full hadronic final states of WW and ZZ is hard to separate, should be studied after combined.

**Talk 4: Effective mixing angle measurement at CEPC, by Zhenyu Zhao**

The effective mixing angle have the largest accuracy among all the electroweak parameters, the objective accuracy is 10^-5.

Two method of effective mixing angle measurement is presented. Fist is using Afb, the accuracy depends on the efficiency and mis-id rate. For lepton channel, the objective accuracy is achieved at Zpole, for B quark the accuracy is still good at other energy, making is possible to study the running effect. The other is using P(τ), the statistics error is not crucial here, the systematic error sources contains: ecal energy reconstruction, pid, and non-tau backgrounds.

Comments:

* P(τ) uses Ae and Aτ as input, the universality is assumed here. Ae can be measured from beam polarization. Aτ measurement might be interesting.

**Talk 5: Measurement of Bs → π0π0 at CEPC, by Yuexin Wang**

Fast simulation study of pi0 reconstruction is studied, with different ecal resolution and pi0 energy.

Physics benchmark of Bs to π0π0 is studied, the reconstruction mainly depends on ecal resolution and b-tagging.

Comments:

* Even though B have larger BR on π0π0, we are not using this channel since we don’t have advantage compared with Belle.
* The statistics of background sample is too small here, a larger sample is needed, or the statistic error need to be discussed.