**Minutes for the 1st Snowmass General Meeting**

Time: 20:00 p.m. 28/06/2020

Participants: 44

We have organized 7 working groups, the aim of this meeting is to brief the status of each group.

EF01: Higgs Boson properties and couplings

Wang Jin stressed the goal of EF01 is to find the key reference measurement for precision Higgs program. We need to provide the theoretical motivations and to compare the advantage of future colliders. He presented some existing results in CDR, and proposed two topics: fiducial differential cross sections and CP violating Higgs couplings. Some typical analysis on differential cross sections in LHC and their interpretations are shown. For Higgs CP violating analysis, there were phenomenology studies on Higgs to tautau in snowmass 2013, but not much on experiment analysis. For CEPC, ZH->mumubb results could also be improved. Another consideration is to take SPPC into account as a complementary Higgs precision measurement. Jin proposed to work on the analysis where CEPC have advantage. During the discussion, it is proposed that for differential analysis, only Pt differential is too narrow, other differential analysis might be interesting.

Gang Li presented the current Higgs analysis from generation to simulation and analysis. In order to be more competitive, we need to improve our analysis strategy. He proposed the method of simultaneously analysis of 9 channel, to improve the precision. This method also provides a single parameter for optimization, by diagonalizing the efficiency matrix.

EF02: Higgs Boson as a portal to new physics

Yaquan Fang introduced how the Higgs related new physics group works. The main difficulty is the need of stable manpower to do the simulation and analysis. A kick-off meeting of this group was held on 24 June, and the conveners are Hao Zhang, Mingshui Chen, and Yaquan Fang. During the meeting several topics were proposed, including: search for massive neutrino at CEPC (already study on FCC and extrapolated to CEPC Z pole), composite Higgs (exist study on FCC), Lorentz structure of the Yukawa interaction (might be a combination with EF01 Higgs CP violating analysis,).

EF03: Heavy flavor and top quark physics

Huaqiao Zhang talked about the current status on snowmass meeting, the topics are top mass analysis and dark matter, they are mainly about the other facilities but CEPC not yet included. In CEPC, single top can be used in FCNC analysis. The z pole flavor is another topic to be analyze, some analysis such as Bc to tau nv have already been done.

EF04: EW Precision Physics and constraining new physics

Zhijun Liang showed the status of contact with snowmass community, we have already made presentation about CEPC EW studies on the topical meeting. The CEPC electroweak physics was estimated by extrapolation from LEP experiments, from the feedback of snowmass conveners, we’d better have further detailed study on CEPC with simulation (2~3 benchmark electroweak observables). Another feedback is that convener is interested Rb measurement and would like to follow up. Another promising topic is aTGCs/QGCs in WW events.

EF05+06+07: QCD and strong interactions

Zhao Li presented the topics proposed during discussion on 24 June, including exclusive decay of Z (10^12 Z boson in Tera-Z, leading to high precision on rare decay), exotic hadrons (4-quark, 5-quark), Alphs\_s determination and non-perturbative modeling (CEPC can further improve the precision), and quark/gluon identification.

EF08: Model specific explorations

Xuai Zhuang talked about two existing SUSY analysis on CEPC. For stau pair analysis, the CEPC can cover very compressed region and can search for stau\_R. For gaugino pair analysis, the result is still to be improved. A kick-off meeting for this group is planned on July 13-17, more topics will be discussed.

EF09+10: More general explorations & Dark Matter at colliders

Xin Shi and Hao Zhang presented the status of this group. An introduction was made in the kick-off meeting on 22 June. For BSM, there might be two direction. One is top-down new physics model, for CEPC where the energy is not very high, the work will be searching for effective interaction such as higher order interaction. The other direction is BSM with mediators such as Higgs portal or Z’. These models might have better sensitivities on CEPC. The registered topics proposed are: loop effect of new particles in HZ production, mono-V/H/Scalar, dijet + missing energy, and top + jet + missing energy. Further discussion will be organized and converge to more topics.