International Workshop on the Circular Electron-Positron Collider

The University of Chicago - Michelson Center for Physics

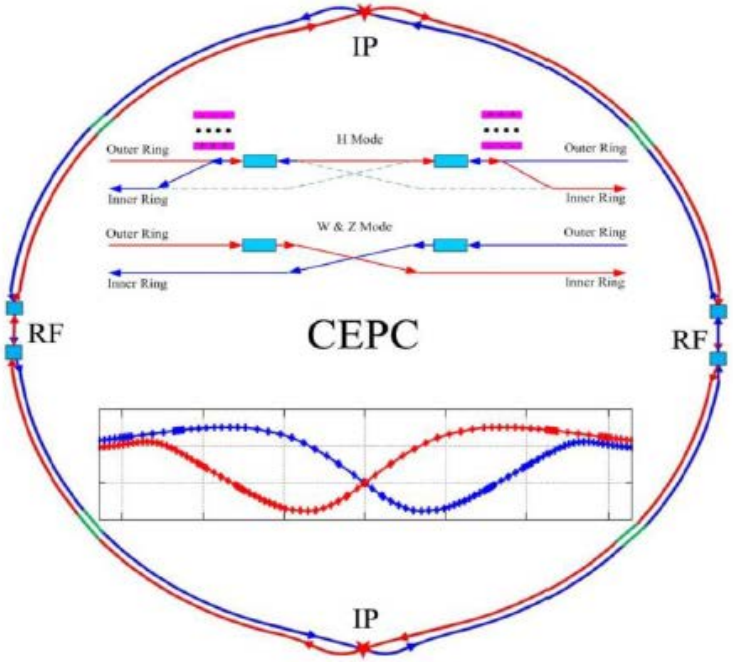
September 16-18, 2019

CEPC CDR

Lumi.	Higgs	W	Z	Z(2T)
$\times 10^{34}$	2.93	11.5	16.6	32.1

Luminosities exceeded those in the preCDR

- double ring baseline design (30MW/beam)
- switchable between H and Z/W w/o hardware change (magnet switch)
- use half SRF for Z and W
- can be optimized for Z with 2T detector



Layout of 650 MHz SRF system for Collider Ring

details from Jie

Remarks

Physics:

Extensive studies of Higgs physics and its requirements,
but not so for Electroweak, flavor and QCD physics.
Are there unique detector requirements for those physics?

Tracking:

- What physics drives for the momentum resolution requirement beside the H→μμ decay? $\Delta\left(\frac{1}{p_T}\right) \sim 2\times10^{-5}$

  What will be the loss if the tracking volume is slightly reduced?
- Can the tracking material be controlled below 0.3X0 ? What kind of particle ID capability do we need? Can TPC handle Z pole running?

Calorimetry:

- Tradeoff between EM and jet energy resolutions: physics gains and losses?
- What kind of HCAL should a crystal ECAL be paired with?
  What is the expected jet energy resolution?
- How each option can be calibrated? Can the design be further optimized to reduce cost…