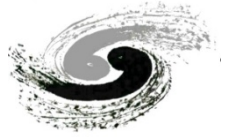


W/Z physics in CDR

Zhijun Liang

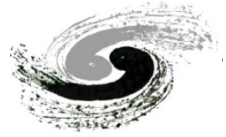
IHEP,CAS

News



- **Some discussion about CEPC Z pole running .**
 - <http://indico.ihep.ac.cn/event/7709/>
 - **Two possibility:**
 - **$E=240\text{GeV}$, $L=1.6 \times 10^{35} \text{ cm}^{-2}\text{s}^{-1}$, solenoid field = 3T (new default)**
 - **Two year running proposed by accelerator team**
- **WW threshold scan**
 - **Proposal from accelerator team**
 - **One year running about 160GeV**
 - **Total luminosity 3.2 ab^{-1}**

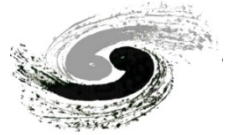
CEPC W/Z physics Plan for CDR



- Plan to cover the prospects of 6-7 key parameters.
- Text for CDR need to ready soon
- Contributions are welcome

Observable	LEP precision	CEPC precision	CEPC runs	$\int \mathcal{L}$ needed in CEPC
m_Z	2 MeV	0.5 MeV	Z threshold scan runs	1ab^{-1}
m_W	33 MeV	2-3 MeV	WW threshold, ZH runs	5ab^{-1}
A_{FB}^b	1.7%	0.1%	Z threshold scan runs	1ab^{-1}
$\sin^2 \theta_W^{\text{eff}}$	0.07%	0.01%	Z threshold scan runs	1ab^{-1}
R_b	0.3%	0.05%	Z pole	1ab^{-1}
N_ν	1.7%	0.05%	ZH runs	5ab^{-1}
R_μ	0.2%	0.01%	Z pole	1fb^{-1}

Performance input



- Identify some performance input needed to support the W/Z physics prospect study
 - May need to repeat some study with 3T magnetic field and new detector geometry
- $A_{fb}(l)$: lepton angular resolution
- R_b : “B jet efficiency” vs “cjet/light rejection”
- W mass (direct approach) : jet energy resolution
- W mass (threshold scan): ?
- N_v : photon energy resolution

