

Minutes: CEPC Reference Detector TDR Meeting in July 9, 2024

CEPC Reference Detector TDR Meeting (July 9, 2024)

- 09:00 - 12:00 (Beijing Time)

Meeting agenda and minutes

- indico page: <https://indico.ihep.ac.cn/event/22914/>
- Participants
 - Present in the meeting room (M.B. 112)
 - Yifang Wang, Jianchun Wang, Jingbo Ye, Zhijun Liang, Zhaoru Zhang, Weidong Li, Feipeng Ning, Mingyi Dong, Jinyu Fu, Yunyun Fan, Qi Yan, Yiming Li, Huirong Qi, Guang Zhao,
 - Online at ZOOM
 - Xinchou Lou, Gang Li, Xiaoting Li, Bo Liu, Jinfan Chang, Fangyi Guo, Fei Li, Chengdong Fu, Haoyu Shi, Hengne Li, Suen Hou, Jinfei Wu, Jingzhou Zhao, Kaili Zhang, Mengzhao Li, Miao He, Qi Yan, Shanzhen Chen, Shengsen Sun, Tao Lin, Meng Wang, Wei Wei, Wenxing Fang, Linghui Wu, Shang Xia, XiaoLong Wang, Xin Shi, Xiongbo Yan, Yang Zhou, Yao Zhang, Ye chen, Yunyun Fan, Zhan Li, Ying Zhang, Ling Zhao, Shaojing Hou, Tianchi Zhao,

Overview: Jianchun Wang

- Overleaf is ready for project and chapters.
- Chief editor of chapter has access to chapter file
- Every chapters should report progress in every Tuesday meeting

Electronics: Wei Wei

- Status report
 - outline of electronics
 - VTX: transfer Taichu3 to 65nm, size 15*15 um², using standard process
 - CAL: high count rate
 - ITK: refine design
- Discussion:
 - Yifang: cannot understand high counting rate of Calorimeter. Need double check with Haoyu
 - Yifang: Haoyu should report background simulation result regularly, with comparison with other experiment to convince reliability of the result. Sub-detector should check simulation with Haoyu
 - Meng: Need to unify definition of hit rate with Haoyu

- Yifang: make a table to explain parameter definition in samples.
- Jianchun: Fei provide template of table for sub-detectors

Trigger and DAQ: Fei Li

- Outline of chapter 12
- Discussion:
 - Yifang:
 - slow control move to upper level
 - put design of control room to ECS chapter
 - Add one chapter for computing, Weidong responsible for it

Mechanics: Quan Ji

- Outline of mechanics
- Discussion:
 - Yifang:
 - put experimental hall to the end and combine with cooling section
 - add one section for pre-assembly on the ground, including hoisting process
 - Need to find a chief processing engineer (总工艺师) for water, cooling, power, electricity. Zheng helps to look for candidates.
 - The distance between main room and associated room should be optimized.
 - Jianchun: long distance results in long cables which reduce transmission rate
 - circle shape can save cost

Magnet: Feipeng Ning

- Outline of magnet
- Discussion:
 - Yifang:
 - add one section for work experience and team
 - put 9.9 in front
 - need study whether particle go through magnet field of anti-solenoid

Vertex: Zhijun Liang

- Mechanics thickness and temperature will affect stitching
- Discussion:
 - Yifang:
 - need to calculate dead zoon fraction
 - don't mention SOI
 - Mingyi test the smallest diameter of rolling 50um/40um dummy
 - comparing performance of 18mm- stitching and 11mm-CMOS

Silicon: Qi Yan

- Discussion:
 - Yifang:
 - For endcap design, clarify advantage of physics and technology for using this new technology, give quantitative comparison.
 - Double-sided LGAD strip
 - Zhijun: LGAD strip has difficulty
 - Jianchun: keep R&D, finish TDR firstly

TPC: Huirong Qi

- Discussion:
 - Jianchun: including prototyp and beam test and international cooperation, invite foreign colleagues as editors
 - Xinchou: make sure TPC beam test result solid, reviewer will ask

TOF+OTK: Yunyun Fan

- Discussion:
 - Yifang: Why need high ADC precision? need optimization

Muon: Xiaolong Wang

- Discussion:
 - Yifang: need to come up with full muon detector design ASAP.

MDI: Haoyu Shi

- Discussion:
 - Yifang: The main part of this chapter should be background study, including calculation methods, reliability estimation, comparison with other experiment, etc.
- Jianchun: where to talk about beam energy measurement
 - Yifang: put it general chapter, plan to use polarization

AOB:

- Yifang: Each chapter should report progress in every weeks
- Jianchun: finalize outline and make a table of status and plan
- Yifang: clarify 1. why choose this detector; 2. how to design; 3. validation of performance
- Xinchou/Yifang:
 - meeting with Daniela on Aug. 7th, every chapters has 20mins talk
 - Rehearsal on July 27th
 - slides should include R&D, manpower/team
 - Use uniform slide template

