

Minutes: CEPC Reference Detector TDR Meeting in July 16, 2024

CEPC Reference Detector TDR Meeting (July 16, 2024)

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

Meeting agenda and minutes

- indico page: <https://indico.ihep.ac.cn/event/22976/>
- Participants
 - Present in the meeting room (M.B. 112)
 - Yifang Wang, Jianchun Wang, Xinchou Lou, Zheng Wang, Zhaoru Zhang, Weidong Li, Feipeng Ning, Jinyu Fu, Qi Yan, Yiming Li, Huirong Qi, Shengsen Sun, Quan Ji, Manqi Ruan, Miao He
 - Online at ZOOM
 - Jianchun Wang, Jingbo Ye, Bo Liu, Fangyi Guo, Fei Li, Chengdong Fu, Haijun Yang, Hengne Li, Suen Hou, Jingzhou Zhao, Joao Guimaraes da Costa, Lei Zhang, Mei Zhao, Mengzhao Li, Mingshui Chen, Tao Lin, Meng Wang, Wei Wei, Weizheng Song, Wenxing Fang, Shang Xia, Xiaolong Wang, Xin Shi, Xiongbo Yan, Yang Zhang, Ling Zhao, Zhijun Liang, Ye Chen, Shaojing Hou

Overview: Yifang/Jianchun

- Notice of Tuesday meeting will be sent to chapter chief editors only
- Every chapters should report progress every week
- Start preparing review slides using unified template

Perfromance: Manqi Ruan

- global performance (BMR, jet origin, PID) move forward
- BM: $H \rightarrow ss/cc$, VCB, α_s , BS
 - α_s , BS not covered yet

MDI: Haoyu Shi

- Status report: [slides](#)
 - calculation method of background simulation
 - comparison with other experiments
 - status of samples
- Discussion
 - Yifang: get new results of single beam background soon

Silicon tracker: Qi Yan

- Status report: [slides](#)
 - latest progress of barrel and endcap design
- Discussion:
 - Yifang: comparison of two endcap design: material budget, dead area fraction, cell efficiency..

Vertex: Zhijun Liang

- status report: [slides](#)
 - comparison of Stitching layer vs CMOS ladder design
- Discussion:
 - Xinchou: talk to Qingjin about bending methods used on SR experiment

TPC: Huirong Qi

- status report: [slides](#)
 - updated chapter outline
 - material budget of endcap region is improved
 - updates of hit density and occupancy

Calorimeter: Haijun Yang

- status report: [slides](#)
 - updated outline
 - discussion of beam background
- Discussion:
 - Yifang:
 - refine chapter to 4-5 levels
 - start preparing slides for rehearsal, summarizing previous design, simulation, comparison of different designs
 - invite Sen Qian to talk about scintillator glass

Muon: Xiaolong Wang

- status report:
 - updated barrel geometry: decide to choose spiral structure
- Discussion:
 - Yifang:
 - geometry structure to be finalized very soon: precision with mm, connection with other detectors, gaps, scintillator size, position and connection of electronics..
 - Performance study based on this geometry

Electronics: Wei Wei

- Status report: [slides](#)
 - updated outline of electronics
 - The framework of the Electronics review slides was almost ready
- Discussion:
 - Yifang: cannot understand high counting rate of Calorimeter. Energy calculation may be wrong.
 - Haoyu: losing rate of full ring vs collision point, need to check

Magnet: Feipeng Ning

- status report: [slides](#)
 - mechanic design updated

Trigger and DAQ: Fei Li

- Outline of chapter 12
- Discussion:
 - Yifang/Xinchou: prepare backup plan of hardware trigger, because background (high data rate) is not well understood yet.

Software: Weidong Li

- status report: [slides](#)
 - updated outline
 - summary table of software
- Discussion:
 - Yifang: improve the summary table, including information of "waiting for detector inputs" or "waiting for manpower"
 - Yifang: get final version by end of September
 - Xinchou: this table is a good example for global systems (electronics, mechanics..)
 - Yifang: remind to introduce R&D and team, e.g BESIII experience

Mechanics: Quan Ji

- status report: [slides](#)
 - Outline of mechanics
 - design of experimental hall
 - The vertical shaft of the detector hall requires a list of requirements for the detector
- Discussion:
 - Yifang:
 - consider vertical structure of main hall and associated hall

Cost and timeline: Miao He

- status report: [slides](#)
- Discussion:
 - Yifang:
 - every sub-detectors should have detail cost table with 50-100 rows and at least 3 levels
 - detail version for internal, simplified version with 10-20 rows for public