



中國科學院高能物理研究所
Institute of High Energy Physics
Chinese Academy of Sciences

Status of CEPC ref-TDR Chapter06

Huirong Qi and Linghui Wu

On behalf of the gaseous tracker group

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Status of Chapter6

6.1 Physics requirements

6.2 Gaseous tracker system overview

6.2.1 Technology comparison

6.2.2 Baseline gaseous tracker

6.2.3 R&D efforts and results

6.3 Pixelated readout Time Projection Chamber

6.3.1 Time Projection Chamber detector

6.3.2 Pixelated readout electronics

6.3.3 Design of mechanical and cooling

6.3.4 Commissioning and validation of prototype

6.3.5 Challenges and critical R&D

6.3.6 Costs

6.4 Performance

6.4.1 Overview of the simulation framework

6.4.2 Physical process in the framework

6.4.3 Tracking performance

6.4.4 Particle identification

6.4.5 Improvement using the machine learning algorithm

6.4.6 Beam background source and estimation

6.4.7 Alternative the drift chamber

6.5 Prospects and outlook

- 整体文档**20 页**（上周）
- 已整合入IHEP Overleaf文本内
- 计划到**40页**（Draft version）



- 整体文档**43 页**（本周）
- 已整合入IHEP Overleaf文本内
- 下周计划到**50页**（Draft version）

Lacking details of the few subsection

6.3.3 Design of mechanical and cooling

6.3.4 Commissioning and validation of prototype

6.3.5 Challenges and critical R&D

6.3.6 Costs

- **Cooling for the electronics**
 - **Baseline technology : Water cooling (to room temperature)**
 - **Alternative technology: CO₂ cooling (to room temperature)**
 - **Consistent with the overall cooling design of the mechanical design**
- **Costs**
 - **Detailed sub-item inquiries starting based on the baseline design**

Work plan and discussion

- Core of the research team (**10 staffs + TPC group**)

- IHEP: **8 staffs + 4 students**
- Tsinghua: **2 staffs + 3 students**



- Collaboration of the research team (**6 staffs +10 students + 5 LCTPC members**)

- TPC:** CIAE, Shandong University, Nankai University, Zhengzhou University and Liaoning University
- DC:** INFN, Wuhan University, Jilin University
- TPC and DC:** DRD1 collaboration and LCTPC collaboration



Shared editing
chapter from
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- Organization of team

- Regular weekly meeting from April 2024
- Collaboration regular meeting with some international groups



- Starting on December 10th**
- Overleaf will be shared with members of the ILD and LCTPC collaboration groups for collaborative editing.**

A screenshot of a WeChat group chat interface. It shows a grid of 16 user avatars in a 4x4 layout. The names of the users are listed below each avatar. The group name at the bottom is "CEPC-TDR-Chapter6".

Huiro...	张锦闲	李笑梅	赵光
祝成光	余信	伍灵慧	董明义
纪全	常悦	张俊嵩	邓智
喻纯旭	李刚	+	-

Group Name
CEPC-TDR-Chapter6

Many thanks!