Silicon Tracker的组织事项

严琪

2025年1月17日

1月24号CEPC Day的报告

1月24号，我将代表Silicon Tracker组，在CEPC Day上做年终报告。希望能更好地宣传组里成员所做的工作。

落实到组里，需要配合提供以下ppt材料（请尽快）：

1: 高压CMOS（一鸣、周扬）：COFFEE2的测试（这个材料我应该有，最好能最新）
COFFEE3的设计、流片、最新进展、以及未来计划

2：CMOS Strip（史欣）： CMOS Strip的设计、流片、最新进展、以及未来计划

3: AC-LGAD Sensor （赵梅）：AC-LGAD Sensor的设计、流片、最新进展、以及未来计划

4: AC-LGAD ASIC （严雄波）：AC-LGAD ASIC的设计、流片、最新进展、以及未来计划

5: 机械（李宇杰）： 机械方面的总体情况、最新进展、以及未来计划

6: 软件（傅成栋）： 最新的MC的开发、以及软件概貌、开发进展

7: Performance（李刚）： 如果有更好的performance的一些图

每个人提供的Slides需要高质量。

Silicon Tracker Ref-TRD已经完成的修改章节（蓝色部分）

Silicon Tracker Ref-TRD已经完成的修改章节（蓝色部分）

端盖部分的应力分析和热分析 请加快！！！

Silicon Tracker Ref-TRD最新目录

HV-CMOS Pixel的端盖设计

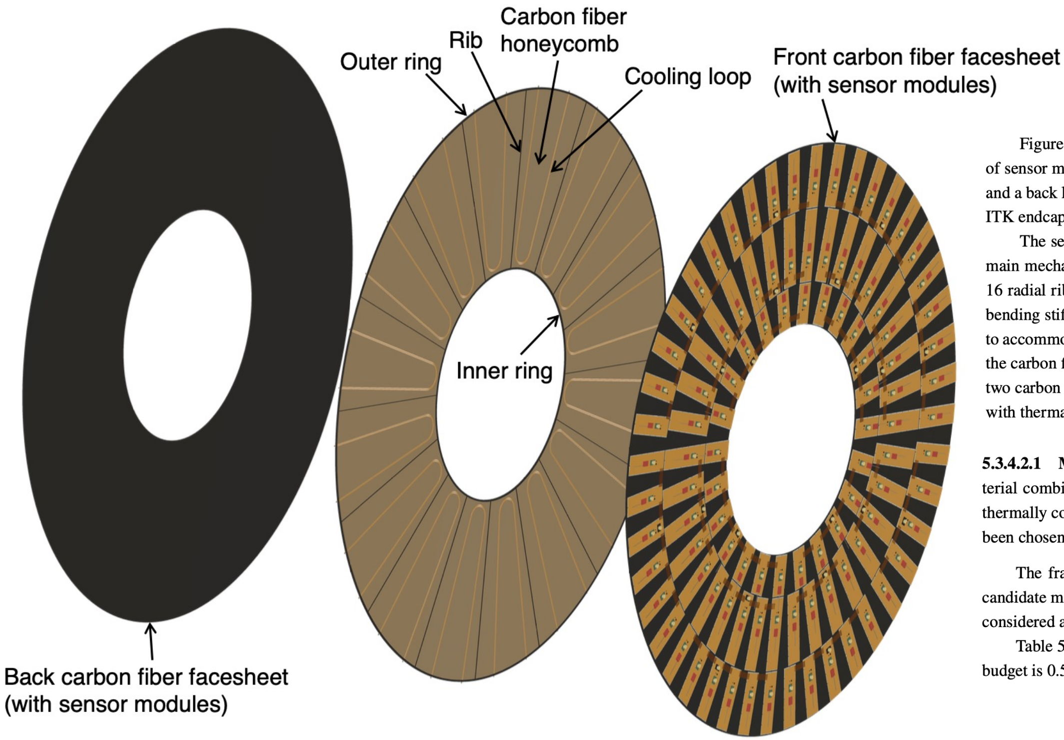

Figure 5.51: ITK HV-CMOS pixel endcap mechanics and cooling

Figure 5.51 illustrates the structure of the ITK endcap with the HV-CMOS pixel detector, consisting of a front layer of sensor modules attached to a carbon fiber plate, an opened cooling plate layer with mechanical and cooling structures, and a back layer of sensor modules also glued to a carbon fiber plate. These layers are all sandwiched together to form the ITK endcap.

The sensor modules are attached to the front and back carbon fiber plates (facesheets) using thermal adhesive. The main mechanical skeleton (frame) of the opened cooling plate consists of an inner ring and an outer ring, connected by 16 radial ribs in between. In addition, carbon fiber honeycomb cores are embedded within the frame to enhance overall bending stiffness and maintain the flatness of the two facesheets. U-shaped grooves are reserved in the honeycomb cores to accommodate cooling pipes. The outer ring interfaces with the inlets and outlets of 16 cooling loops. The gaps between the carbon fiber honeycomb and the cooling loops are sealed with low-mass, high thermal conductivity foam. Finally, the two carbon fiber facesheets (with the sensor modules) and the opened cooling plate are bonded using an adhesive infused with thermally conductive carbon particulates.

5.3.4.2.1 Materials The two facesheets are constructed from layers of high-modulus unidirectional carbon fiber material combined with cyanate ester resins. The interface between the cooling tubes and the facesheets is formed using thermally conductive carbon foam, such as Allcomp K9. Water circulating through cooling loops of the cooling plate has been chosen as the baseline cooling medium for the ITK endcap.

The frame, comprising the inner ring, outer ring, and 16 radial ribs is made from stiff materials. The primary candidate material for these components is carbon fiber. For the outer ring, high performance PEEK polymer may also be considered as an alternative material.

Table 5.9 lists the estimated contributions of the ITK endcap to the material budget. The overall estimated material budget is 0.591% X_0.

Estimation of ITK HV-CMOS pixel endcap material contributions					
Functional unit	Component	Material	Thickness [μm]	X_0 [cm]	Radiation Length [% X_0]
Sensor Module	FPC metal layers	Aluminium	50	8.896	0.056
	FPC Insulating layers	Polyimide	100	28.41	0.035
	Sensor	Silicon	150	9.369	0.160
	Glue		100	44.37	0.023
	Other electronics				0.050
Structure	Carbon fiber facesheet	Carbon fiber	150	26.08	0.057
	Cooling tube wall	Titanium		3.560	XXX
	Cooling fluid	Water		35.76	XXX
	Graphite foam+Honeycomb	Allcomp+Carbon fiber	2000	186	0.108
	Carbon fiber facesheet	Carbon fiber	150	26.08	0.057
	Glue	Cyanate ester resin	200	44.37	0.045
Total					0.591+XXX

Table 5.9: Estimation of ITK HV-CMOS pixel endcap material contributions

每周例行会议邀请报告：轮流报告人员列表

职工（河南半导体探测器经费人员）

1	严琪	课题组长	
2	严雄波	1	2025.1.03
3	李一鸣		
4	周扬	3	2025.1.17
5	徐子骏		
6	袁煦昊		
7	陆卫国		
8	史欣		
9	王聪聪		
10	樊云云		
11	赵梅	5	2025.2.14
12	田蕾	×	
13	娄冉	×	
14	罗睿琪	×	
15	周静	×	
16	李刚		
17	谈敬萍	×	
18	傅成栋		

学生、博士后、其他

1	李瞻		
2	王成伟		
3	张奕晗		
5	周嘉奇		
6	骆首栋		
7	符晨曦		
8	姜啸捷		
9	李宇杰	2	2025.1.10
10	汪恒宇		
11	龚家宝		
12	项治宇		
13	赵森		
14	陈娇龙	4	2025.2.7
15	崔宇鑫		
	……		

- 组织3个子探测器技术+电子学+机械（冷却）+软件每周在组里安排一个报告。
- 好的报告直接推荐到CEPC Day，也让你们做得工作能被更多的人认识。好的工作也会推荐代表组里在外面做会议报告。
- 每周一次组内的邀请报告，每周讨论确定下两周报告人选。
- 以分享为主，讲的内容可以是现在的工作、未来的计划、甚至可以是CEPC以外的工作、……