

CEPC Silicon Tracker TRD撰写 (5)

严琪

Dec 6, 2024

上周的重点任务安排(蓝色部分)

Chapter 5 Silicon Trackers

5.1	Requirements	✓	
5.2	Overview of ITK and OTK		(a)
5.2.1	Tracker system layout optimization		
5.3	Inner silicon tracker (ITK)	✓	
5.3.1	CMOS chip R&D	✓	
5.3.1.1	HV-CMOS pixel R&D	✓	
5.3.1.2	CMOS strip R&D	✓	
5.3.2	ITK design	✓	
5.3.3	Readout electronics	✓	
5.3.4	Mechanical and cooling design		(b)
5.3.5	Prospects and plan		(c)
5.4	Outer silicon tracker (OTK) with TOF	✓	
5.4.1	AC-LGAD sensor and ASIC R&D	✓	
5.4.1.1	AC-LGAD Sensor R&D	✓	
5.4.1.2	AC-LGAD ASIC R&D	✓	
5.4.1.2.1	General requirements	✓	
5.4.1.2.2	ASIC architecture	✓	
5.4.1.2.3	Single-channel readout electronics	✓	
5.4.1.2.4	Data process and digital blocks	✓	
5.4.1.2.5	Radiation tolerance	✓	
5.4.1.2.6	Power distribution and grounding	✓	
5.4.1.2.7	Prototype performance	✓	
5.4.1.2.8	Monitoring	✓	
5.4.1.2.9	Roadmap towards production	✓	
5.4.2	OTK design	✓	
5.4.2.1	OTK barrel design	✓	
5.4.2.2	OTK endcap design	✓	
5.4.3	Readout electronics	✓	
5.4.3.1	Front-end board	✓	
5.4.3.2	Concentrator card and power distribution	✓	
5.4.3.3	Slow control and monitoring	✓	
5.4.3.4	Clock distribution	✓	
5.4.4	Mechanical and cooling design		(d)
5.4.5	Prospects and plan		(e)
5.5	Performance		(f)
5.5.1	The global performance of the tracking system		
5.5.2	The performance of silicon tracker (barrel)		
5.5.3	The performance of the transition zone (barrel+end-cap)		
5.5.4	The performance of forward tracking (end-cap)		

- 严琪: Requirements, ~~ITK 和 OTK 章节的introduction, ITK design和OTK design~~, Mechanical and cooling design (ITK), Mechanical and cooling design (OTK) (b) (d)
- 一鸣, 周扬: HV-CMOS pixel R&D. 80%
ITK: Prospects and plan (c)
- 史欣: CMOS strip R&D. 70%
ITK: Prospects and plan (c)
- 赵梅: AC-LGAD sensor R&D中sensor的发展和设计。80%
OTK: Prospects and plan (e)
- 樊云云: AC-LGAD sensor R&D中的sensor的测试。10% ??
OTK: Prospects and plan ?? (e)
- 严雄波: AC-LGAD ASIC R&D 80%
Readout electronics 80%
OTK: Prospects and plan (e)
- 李刚: Requirements (80%),
Overview of ITK and OTK (a)
Performance (10%) (f)

上周的任务完成情况

Chapter 5 Silicon Trackers

5.1	Requirements	✓	
5.2	Overview of ITK and OTK		(a)
5.2.1	Tracker system layout optimization		
5.3	Inner silicon tracker (ITK)	✓	
5.3.1	CMOS chip R&D	✓	
5.3.1.1	HV-CMOS pixel R&D	✓	
5.3.1.2	CMOS strip R&D	✓	
5.3.2	ITK design	✓	
5.3.3	Readout electronics	✓	
5.3.4	Mechanical and cooling design	✓	(b)
5.3.5	Prospects and plan	✓	(c)
5.4	Outer silicon tracker (OTK) with TOF	✓	
5.4.1	AC-LGAD sensor and ASIC R&D	✓	
5.4.1.1	AC-LGAD Sensor R&D	✓	
5.4.1.2	AC-LGAD ASIC R&D	✓	
5.4.1.2.1	General requirements	✓	
5.4.1.2.2	ASIC architecture	✓	
5.4.1.2.3	Single-channel readout electronics	✓	
5.4.1.2.4	Data process and digital blocks	✓	
5.4.1.2.5	Radiation tolerance	✓	
5.4.1.2.6	Power distribution and grounding	✓	
5.4.1.2.7	Prototype performance	✓	
5.4.1.2.8	Monitoring	✓	
5.4.1.2.9	Roadmap towards production	✓	
5.4.2	OTK design	✓	
5.4.2.1	OTK barrel design	✓	
5.4.2.2	OTK endcap design	✓	
5.4.3	Readout electronics	✓	
5.4.3.1	Front-end board	✓	
5.4.3.2	Concentrator card and power distribution	✓	
5.4.3.3	Slow control and monitoring	✓	
5.4.3.4	Clock distribution	✓	
5.4.4	Mechanical and cooling design		(d)
5.4.5	Prospects and plan		(e)
5.5	Performance		(f)
5.5.1	The global performance of the tracking system		
5.5.2	The performance of silicon tracker (barrel)		
5.5.3	The performance of the transition zone (barrel+end-cap)		
5.5.4	The performance of forward tracking (end-cap)		

- 严琪: Requirements, ITK 和 OTK 章节的introduction, ITK design和OTK design, Mechanical and cooling design (ITK), Mechanical and cooling design (OTK) (b)(d)
- 一鸣, 周扬: HV-CMOS pixel R&D 90%
ITK: Prospects and plan 40% (c)
- 史欣: CMOS strip R&D 70%
ITK: Prospects and plan 40% (c)
- 赵梅: AC-LGAD sensor R&D中sensor 90%
OTK: Prospects and plan 50% (e)
- 樊云云: AC-LGAD sensor R&D中的sensor的测试 10%
OTK: Prospects and plan 0%
- 严雄波: Readout electronics (ITK) 90%
Readout electronics (OTK) 90%
AC-LGAD ASIC R&D 90%
OTK: Prospects and plan 30% (e)
- 李刚: Requirements 90%
Overview of ITK and OTK 5% (a)
Performance 10% (f)₃

下周的重点任务安排(蓝色部分)

Chapter 5 Silicon Trackers

5.1	Requirements	✓	
5.2	Overview of ITK and OTK		(a)
5.2.1	Tracker system layout optimization		
5.3	Inner silicon tracker (ITK)	✓	
5.3.1	CMOS chip R&D	✓	
5.3.1.1	HV-CMOS pixel R&D	✓	
5.3.1.2	CMOS strip R&D	✓	
5.3.2	ITK design	✓	
5.3.3	Readout electronics	✓	
5.3.4	Mechanical and cooling design	✓	
5.3.5	Prospects and plan		(c)
5.4	Outer silicon tracker (OTK) with TOF	✓	
5.4.1	AC-LGAD sensor and ASIC R&D	✓	
5.4.1.1	AC-LGAD Sensor R&D	✓	
5.4.1.2	AC-LGAD ASIC R&D	✓	
5.4.1.2.1	General requirements	✓	
5.4.1.2.2	ASIC architecture	✓	
5.4.1.2.3	Single-channel readout electronics	✓	
5.4.1.2.4	Data process and digital blocks	✓	
5.4.1.2.5	Radiation tolerance	✓	
5.4.1.2.6	Power distribution and grounding	✓	
5.4.1.2.7	Prototype performance	✓	
5.4.1.2.8	Monitoring	✓	
5.4.1.2.9	Roadmap towards production	✓	
5.4.2	OTK design	✓	
5.4.2.1	OTK barrel design	✓	
5.4.2.2	OTK endcap design	✓	
5.4.3	Readout electronics	✓	
5.4.3.1	Front-end board	✓	
5.4.3.2	Concentrator card and power distribution	✓	
5.4.3.3	Slow control and monitoring	✓	
5.4.3.4	Clock distribution	✓	
5.4.4	Mechanical and cooling design		(d)
5.4.5	Prospects and plan		(e)
5.5	Performance		(f)
5.5.1	The global performance of the tracking system		
5.5.2	The performance of silicon tracker (barrel)		
5.5.3	The performance of the transition zone (barrel+end-cap)		
5.5.4	The performance of forward tracking (end-cap)		

- 严琪: Requirements, ITK 和 OTK 章节的introduction, ITK design和OTK design, Mechanical and cooling design (ITK), Mechanical and cooling design (OTK) (d)
- 一鸣, 周扬: HV-CMOS pixel R&D 90%
ITK: Prospects and plan 40% (c)
Counting rate estimation (n)
- 史欣: CMOS strip R&D 70%
ITK: Prospects and plan 40% (c)
- 赵梅: AC-LGAD sensor R&D中sensor 90%
OTK: Prospects and plan 50% (e)
OTK overall
- 严雄波: Readout electronics (ITK) 90%
Readout electronics (OTK) 90%
AC-LGAD ASIC R&D 90%
OTK: Prospects and plan 30% (e)
Electronic overall
- 李刚: Requirements 90%
Overview of ITK and OTK 5% (a)
Performance 10% (f)₄