

Progress in mechanical design of CEPC detector TDR

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July 16, 2024

Progress of the week (10 July – 15 July)

1. Report (outline) --- Modified chapter Order

14 Detector Mechanical Overall design and Installation

14.1 Overall mechanical design of detectors

14.1.1 Layout of the general Drawing

(Introduction & Requirements : **weight, dimensions, clearance, accuracy.....**)

14.1.2 Installation design of the yoke iron(zero-assist tool)

14.2 Design of sub-detector connection structure

14.2.1 Fixation and Connection of the magnet (**simulation**)

14.2.2

14.3 Overall installation design of detectors

14.3.1 Overall Installation plan(**include alignment**)

14.3.2 Installing and fixing of the magnet

14.3.3

1. Report (outline)

14 Detector Mechanical Overall design and Installation

14.4 Design of the underground detector hall

14.4.1 Layout and Requirements(**installation**)

14.4.2 The configuration and functions the underground detector hall
(Include **experiment** and **auxiliary** Hall)

14.5 **Auxiliary facilities and supporting equipment**

14.5.1 Introduction & requirements

14.5.2 Cryogenic system

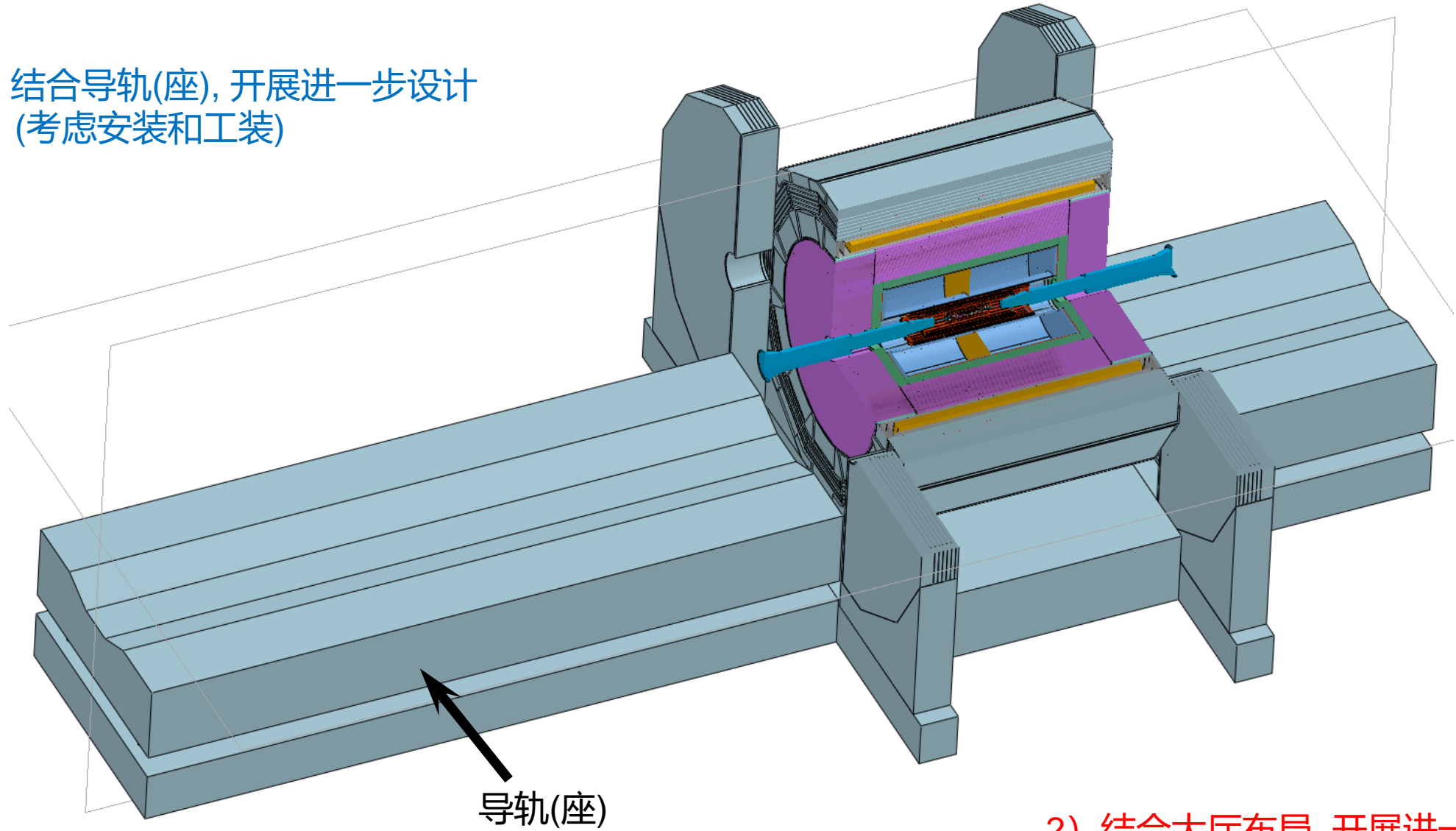
14.5.3 Cooling system

14.5.4

14.6 Summary and question

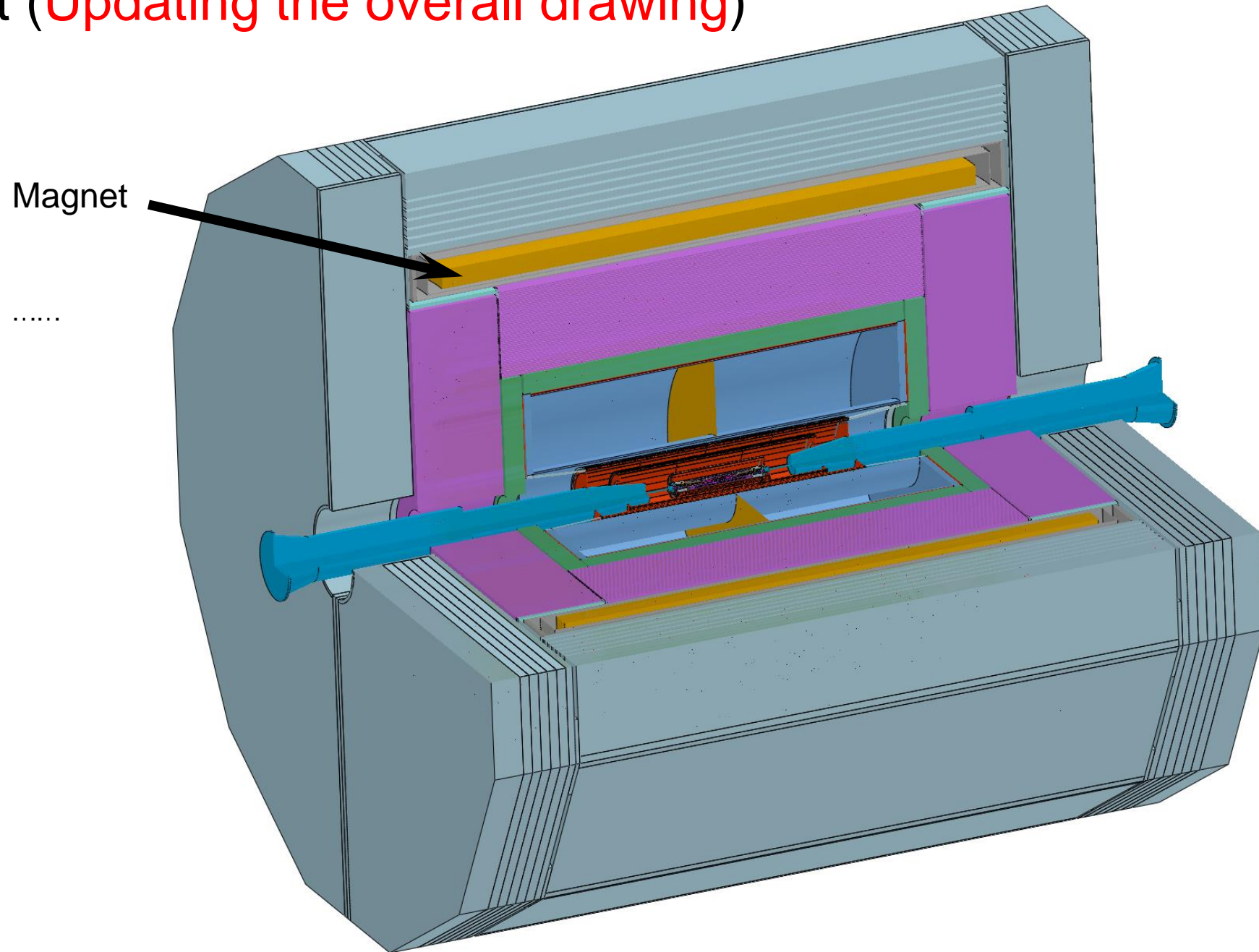
1. Report (Design)

1) 结合导轨(座), 开展进一步设计
(考虑安装和工装)

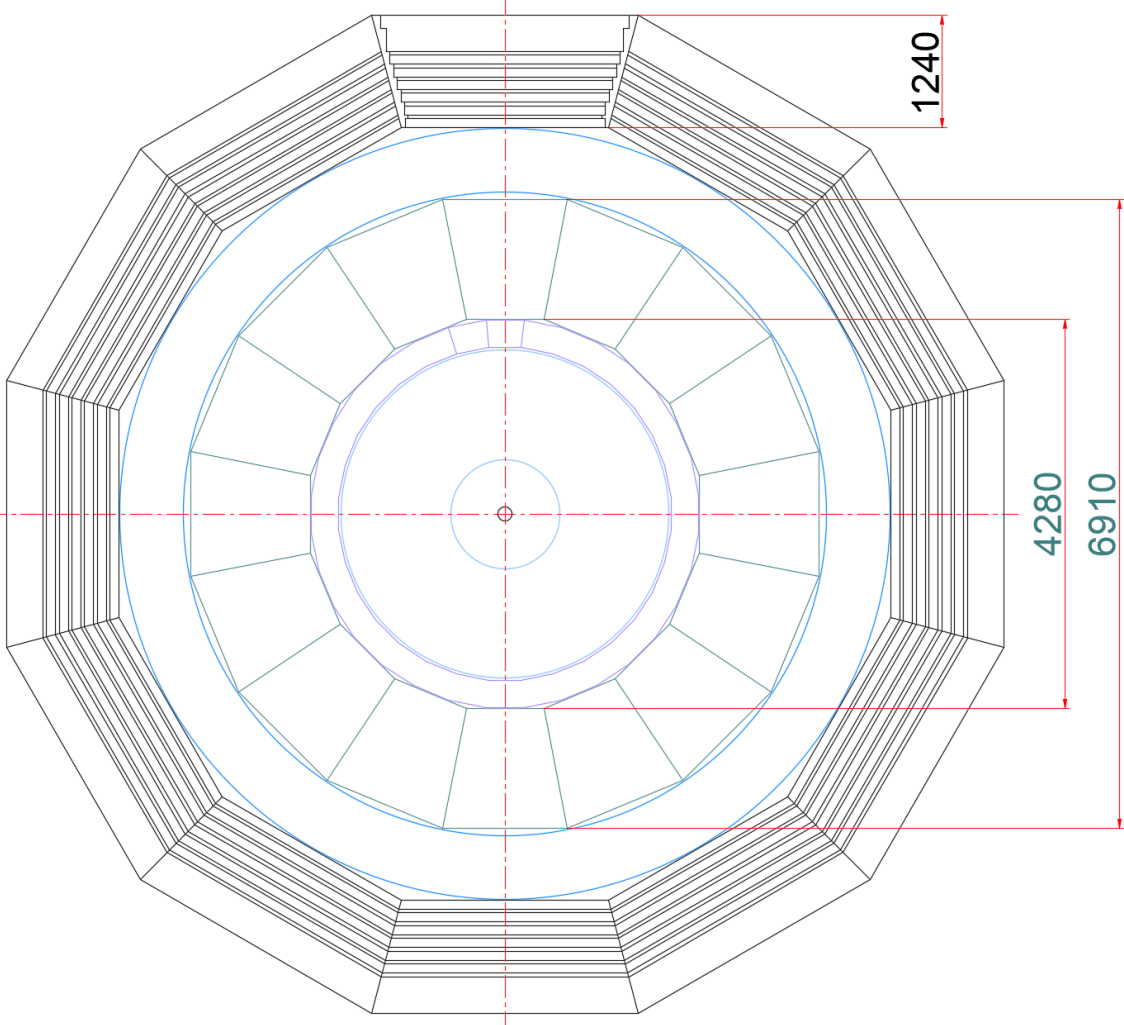


2) 结合大厅布局, 开展进一步设计
(考虑地面大厅和竖井等)

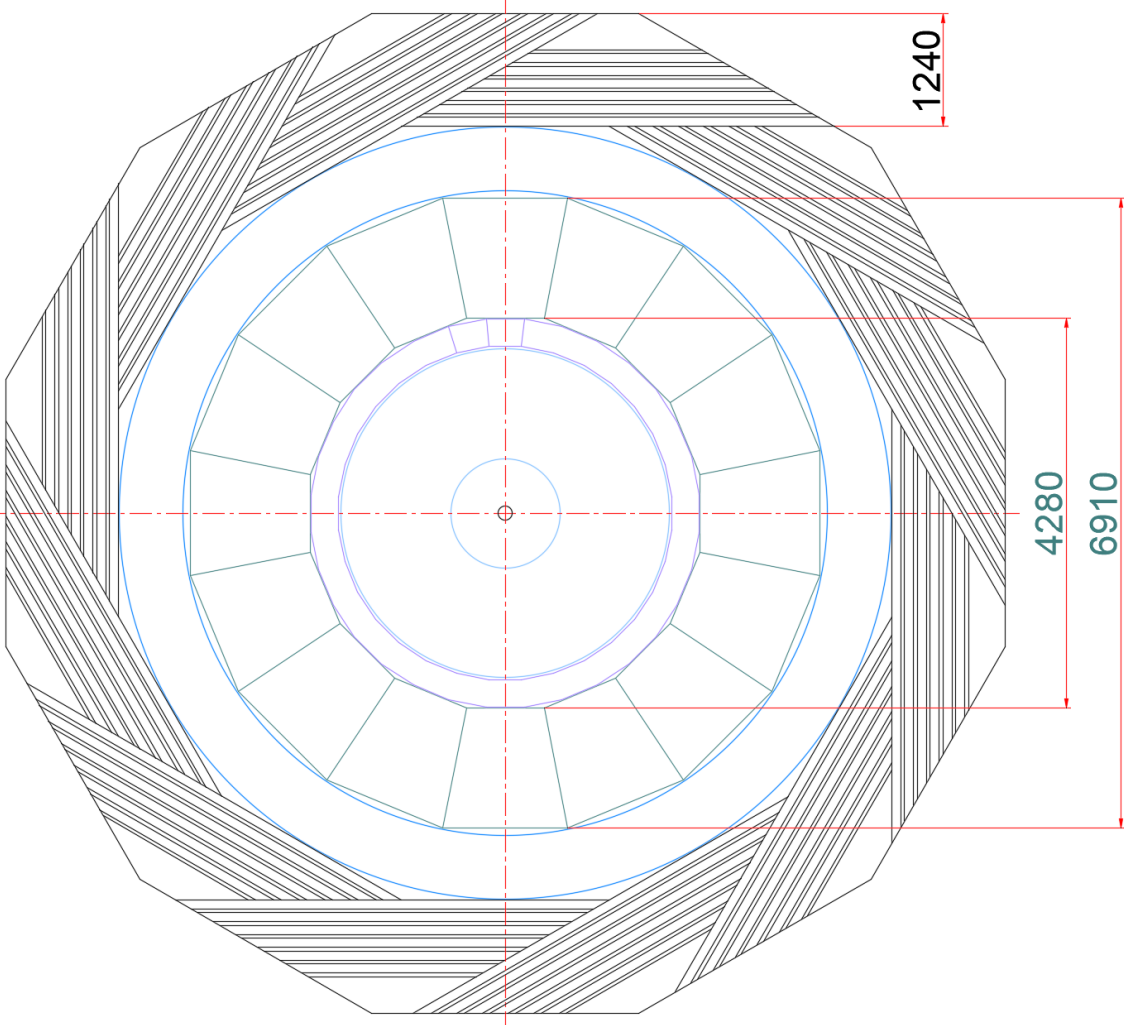
1. Report (Updating the overall drawing)



2. Selected spiral structure (Fudan University, 王小龙)



symmetrical



Spiral

3. Underground Detector Hall (王铮、纪全)

主厅与配厅设计
2024年1月29日



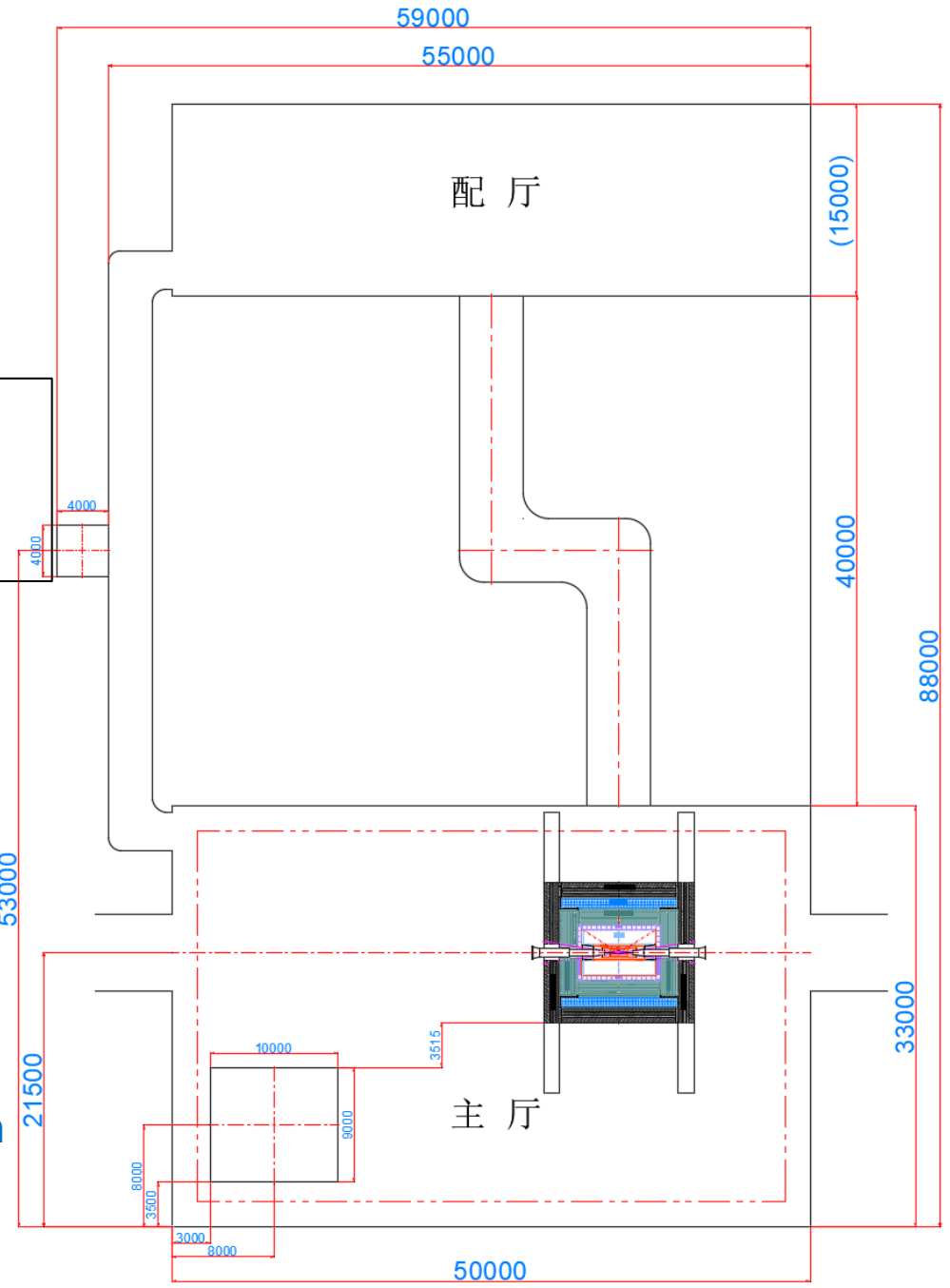
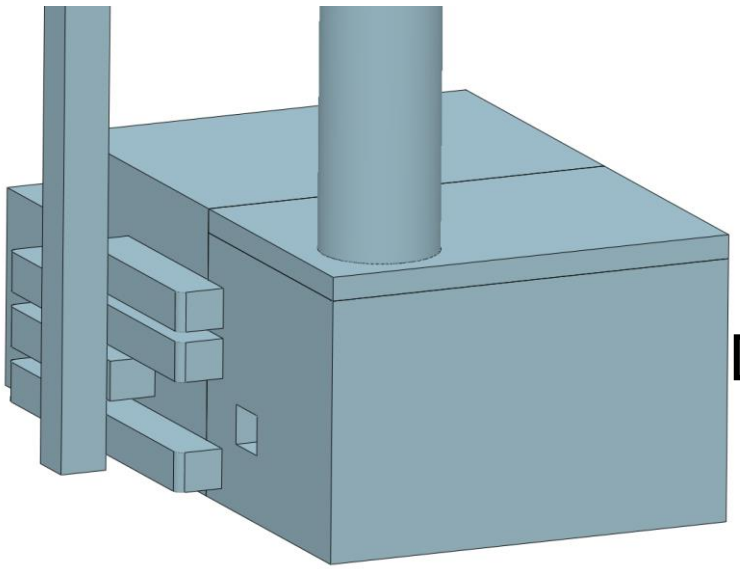
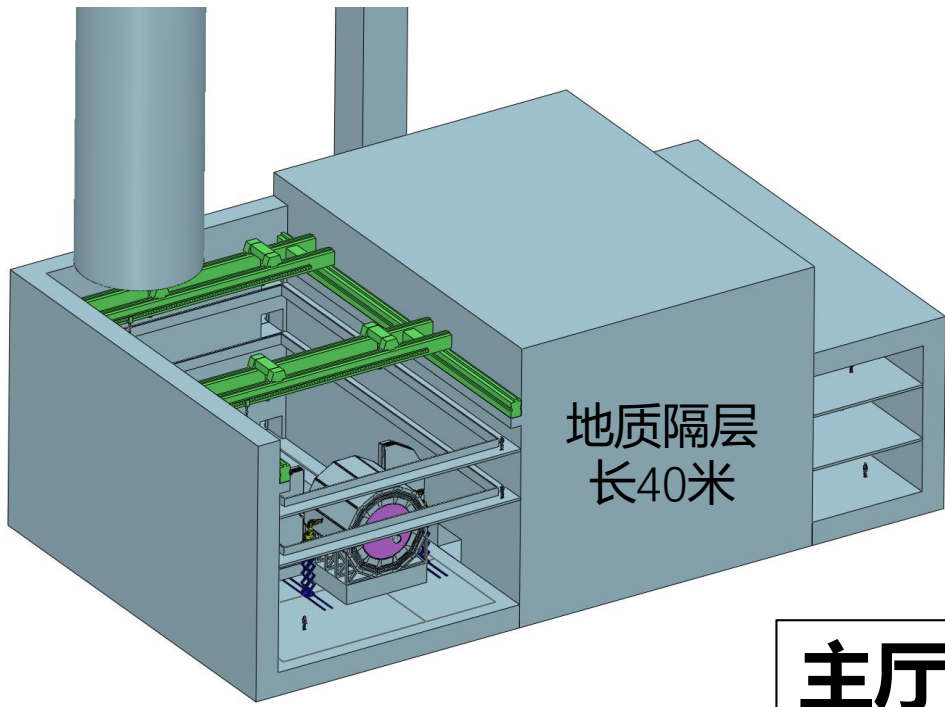
改动: 2024年7月9日
主厅和配厅之间的距离:
10米 → 40米

主厅与配厅的关系?
(与加速器、黄河设计院讨论)

水平配置 → 上、下布置?
2024年7月11日晚

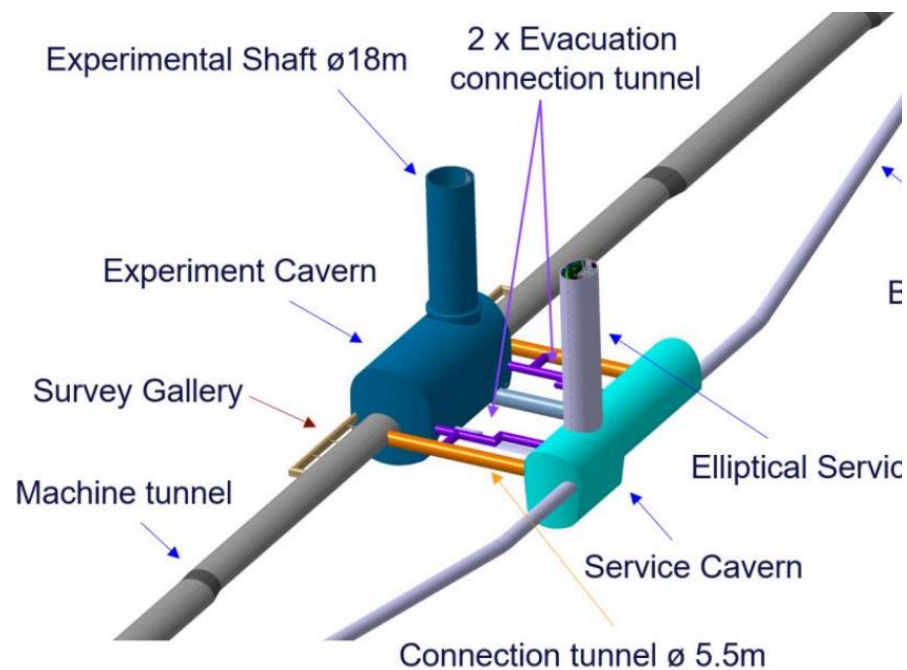
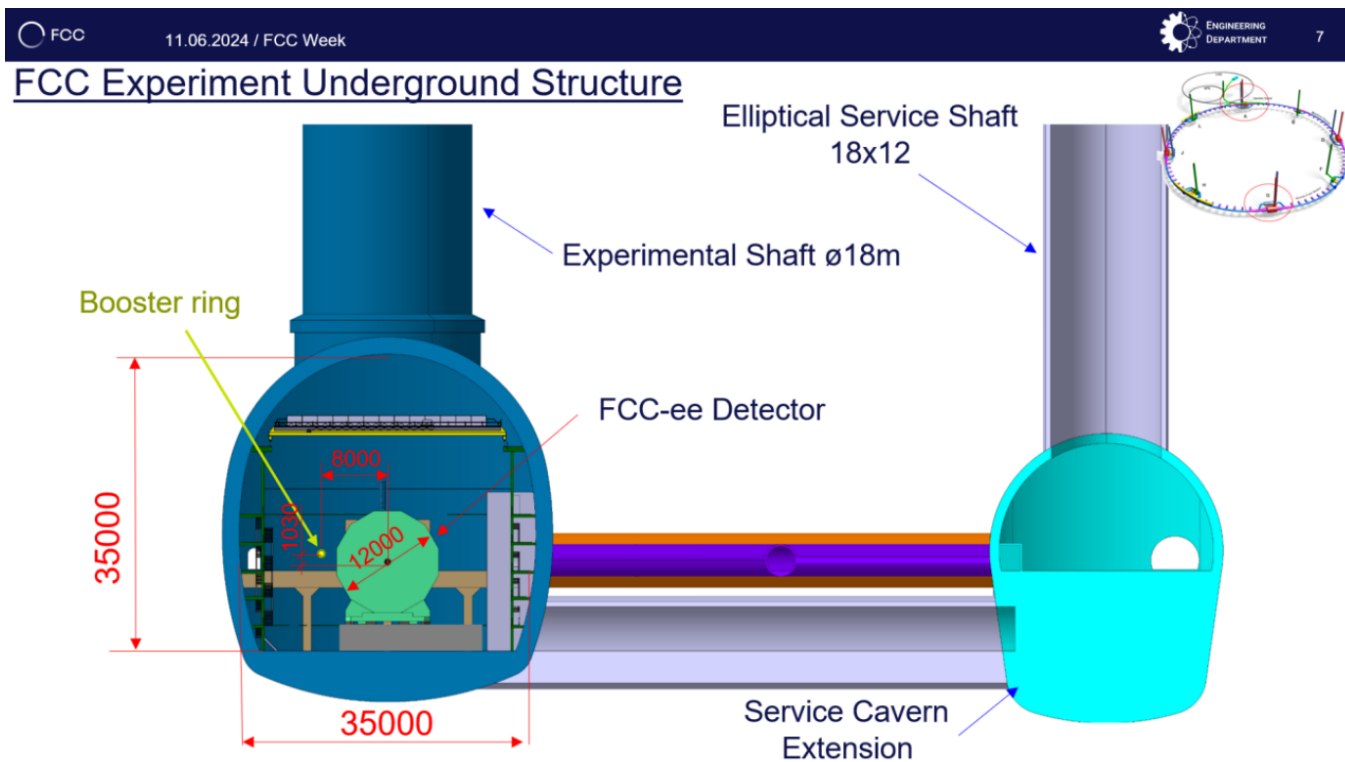
Discuss again: ACC suggestion

? FCC的主配厅是水平配置?



3. Underground Detector Hall (王铮、纪全)

FCC Underground Structure



FCC的主、配厅水平布置示意图

3. Underground Detector Hall (王铮、纪全)

讨论的目的:

1. 减少竖井数量

2. Detector Hall的竖井, **必须**能够运输加速器的设备(如真空管、磁铁等)

时间: 2024年7月11日,20:00-22:00

人员: 黄河设计院, 加速器, 实验物理中心

加速器方面提出, 尽快收集竖井设计要求:

1. 探测器各系统提需运输设备清单和要求;
2. 探测器大厅的布置需考虑运输加速器的设备。

Suggestion:

Optimize hall layout and configuration

Optimize vertical shaft configuration