

# *Final design of cryostat*

Design is finished and **assembly** is in **progress**.  
**Cooling test** will **start** on **October**.



Main body ( $\Phi 2.6\text{m}$ , H3.6m)



at Toshiba Keihin Product Operations

# ***Final design of cryostat***

**Vacuum chamber**

**at Toshiba Keihin Product Operations**





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**Vacuum chamber**

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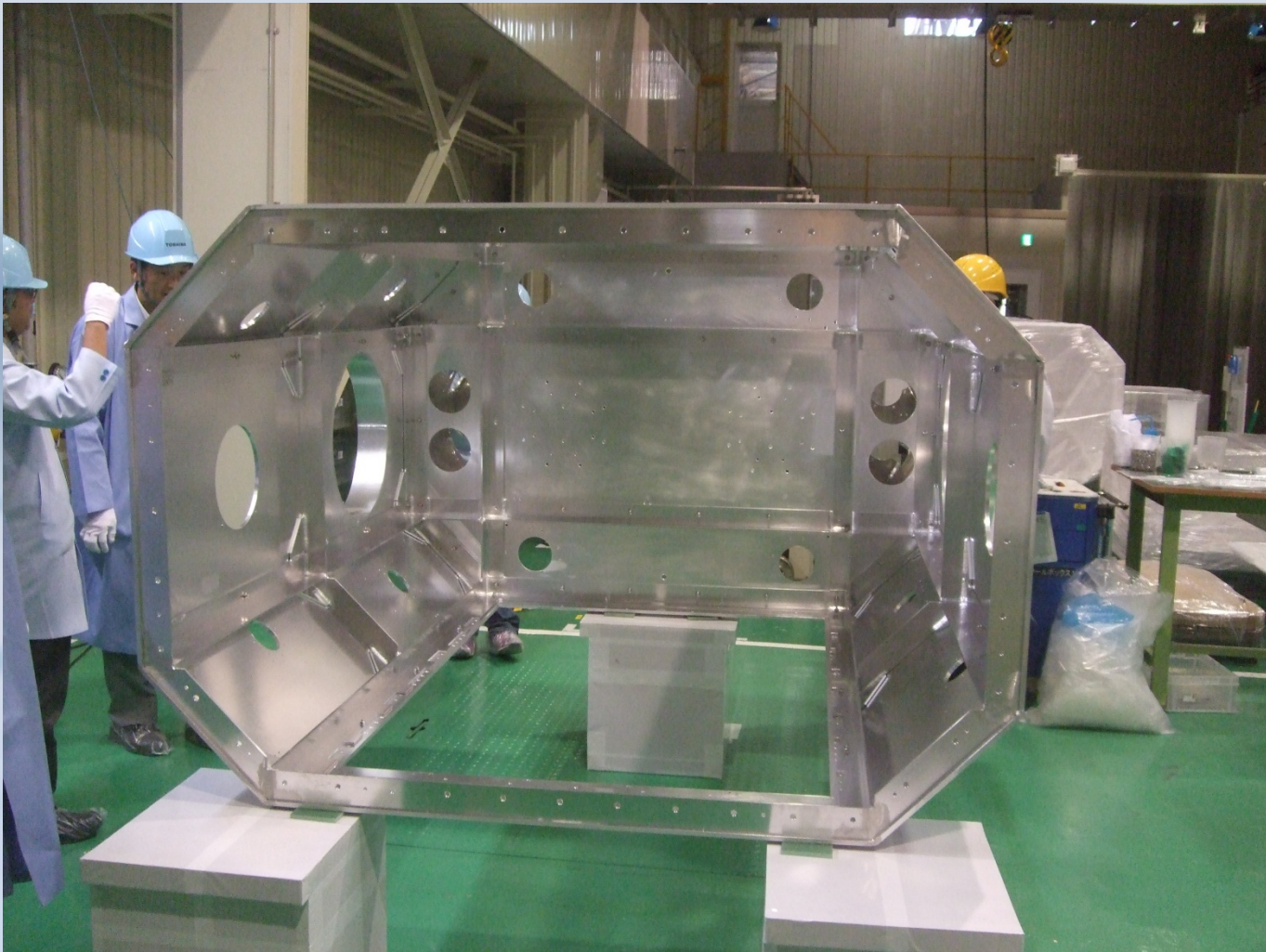




# ***Final design of cryostat***

**Shield**

**at Toshiba Keihin Product Operations**



# *Coordination with other subgroups and change in future*

Cryostat and shield are as **large** as **possible**.  
The limitation is the **law** of transportation on the road.

Other groups **can use the space** in the cryostat and shield (although not so large room).

# *Cryogenic duct*

Design from point of view of heat load is finished.

The temperature of cryogenic duct is between **57K** and **110K**.

Although temperature is slightly higher than the requirement, heat which comes into radiation shield for mirrors is about **4.5 mW**.

We think that **it does not matter**.

# *Design of cryogenic payload and interface between payload and Type A*

Design of payload is in progress.

**Optimization** of initial cooling time, vibration isolation, thermal noise and so on ...

Interface between payload and Type A

Two candidates for material

Bolfer : amorphous metal. It is used in **CLIO** and **Crab** (resonant detector in Japan).

Maraging : We checked **brittleness** at **low temperature**. It is OK. 7

# ***Model of scheme of heat path***

Y. Sakakibara **constructed the thermal simulation** to consider scheme of heat path.

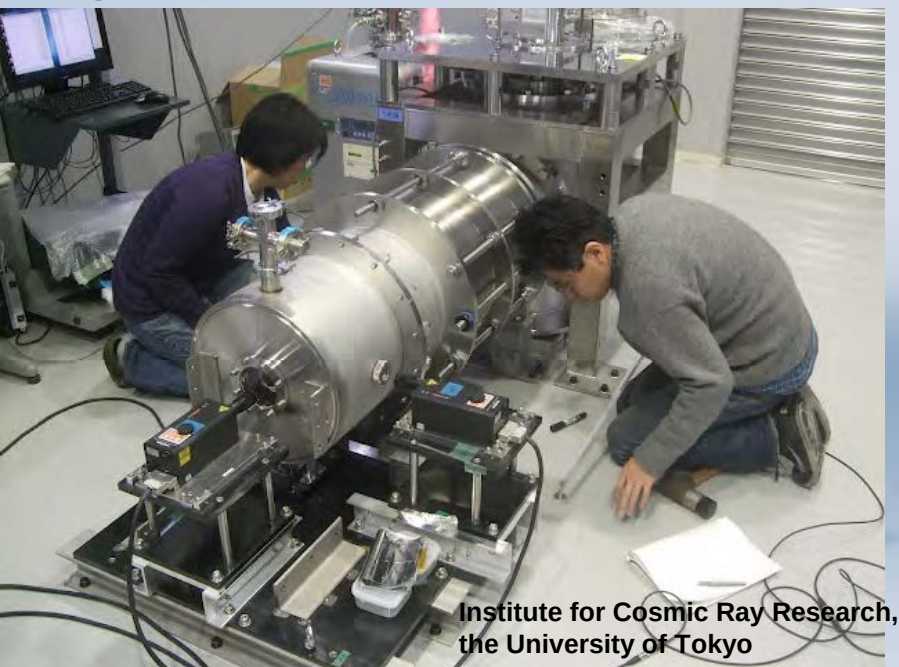
He investigated the case of **CLIO using his code**.  
The result is not same but **similar**.

We consider and investigate **new scheme**. In talk about VIS, it has already shown.

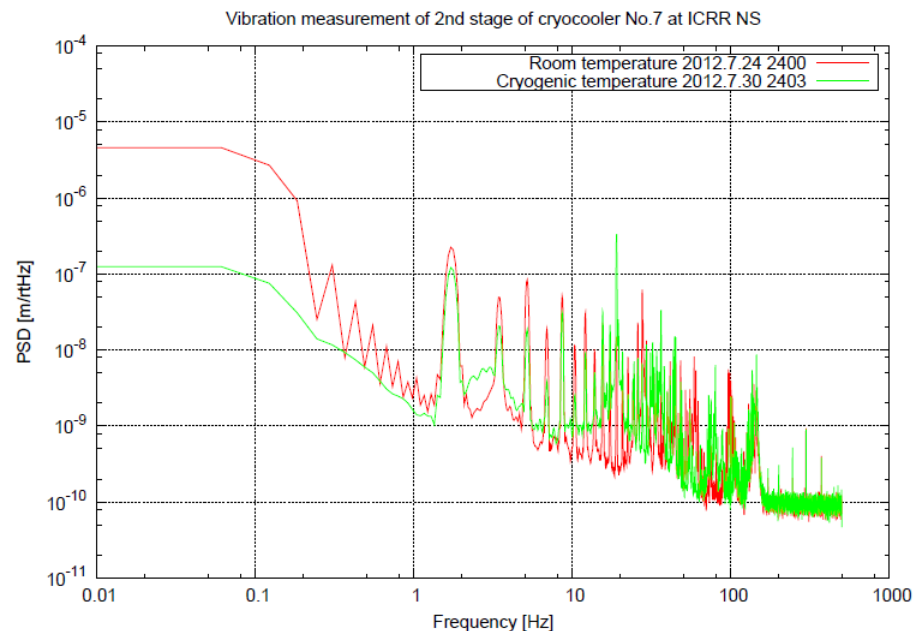


# Vibration of cryocooler

Cryocooler unit : Measurement is **in progress**.



Institute for Cosmic Ray Research,  
the University of Tokyo



**Vibration is slightly larger than requirement.**

**The improvement is necessary.**

**Radiation shield : Luca Naticchioni (Rome) and Dan Chen (Tokyo) **will measure** vibration of radiation shield of **KAGRA** in this autumn (or winter).**