

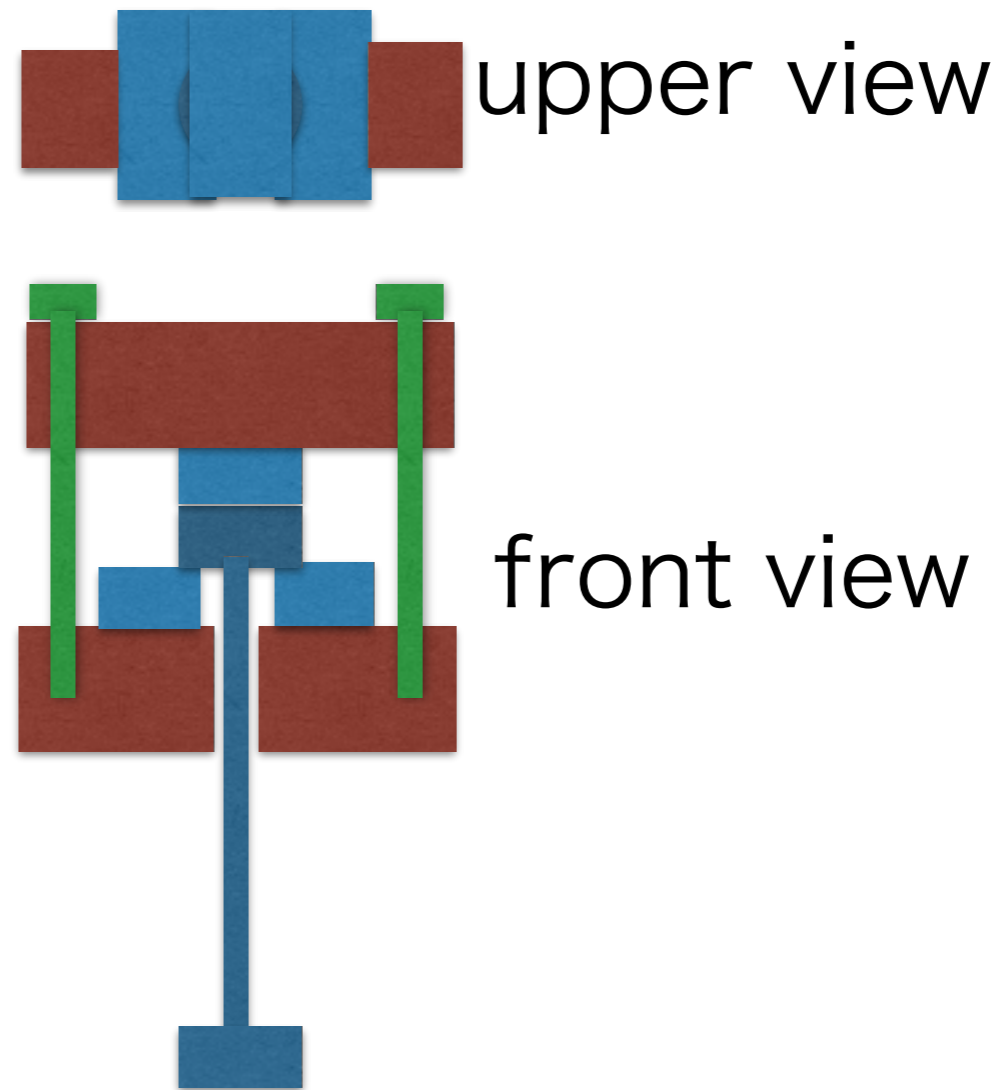
My work in 2015

6-2

Hiroki Tanaka

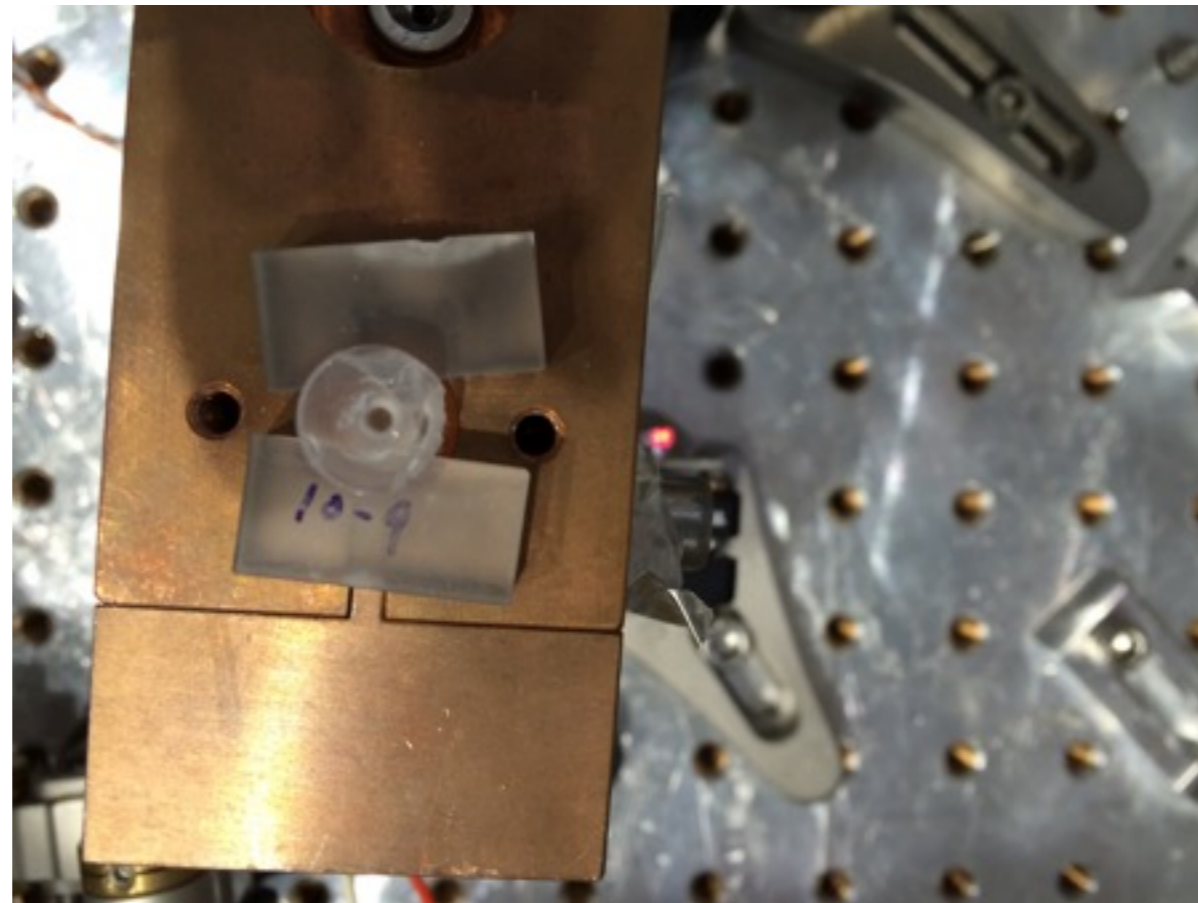
Q measurement

To improve clamp part in this measurement system, we (Katayama-san and I) clamped the fiber nail head by small sapphire blocks.



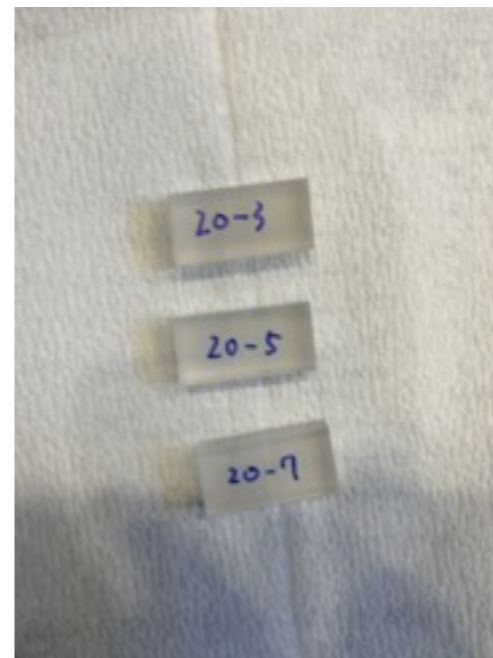
Q measurement

- The head of fiber 10 was broken more than ever.
- The blocks were also broken.



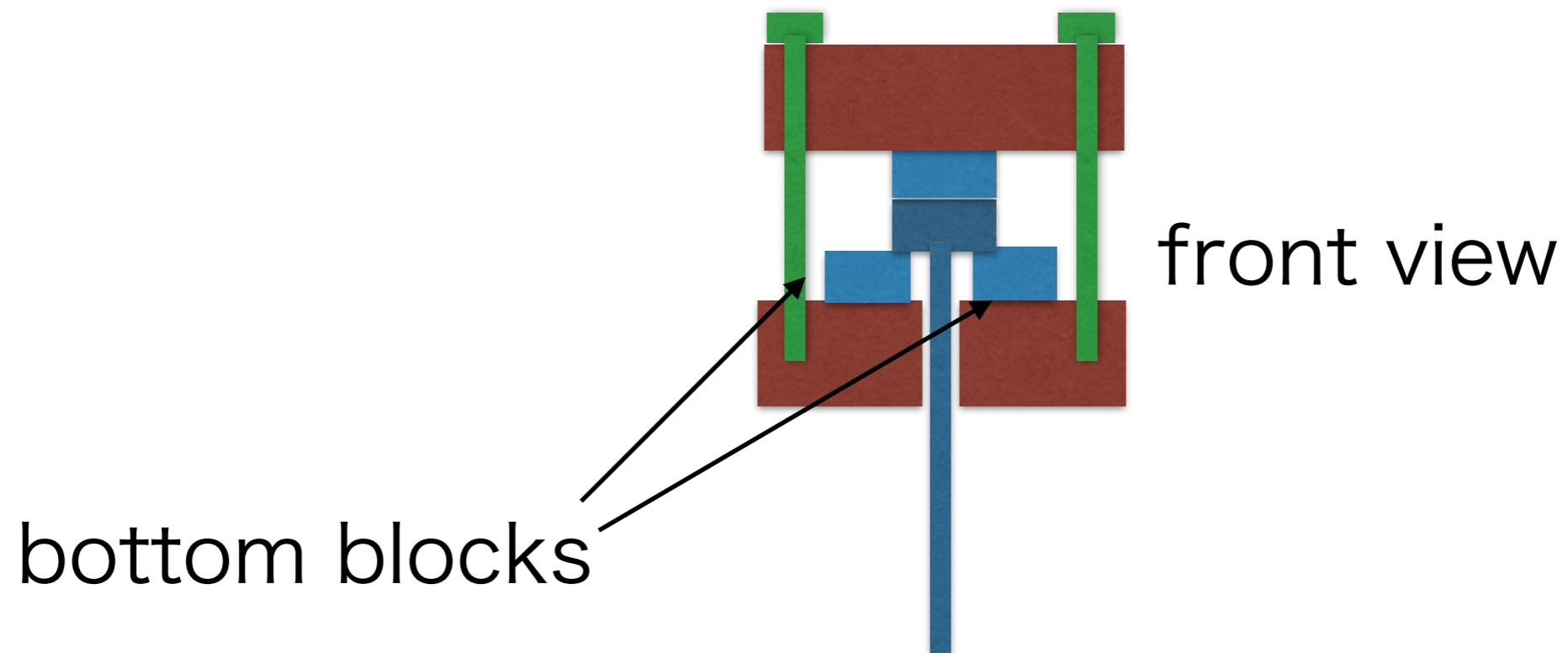
Q measurement

- We used a new fiber(fiber8).
- I used new sapphire blocks(10-7,10-7,10-9→20-3,20-5,20-7).



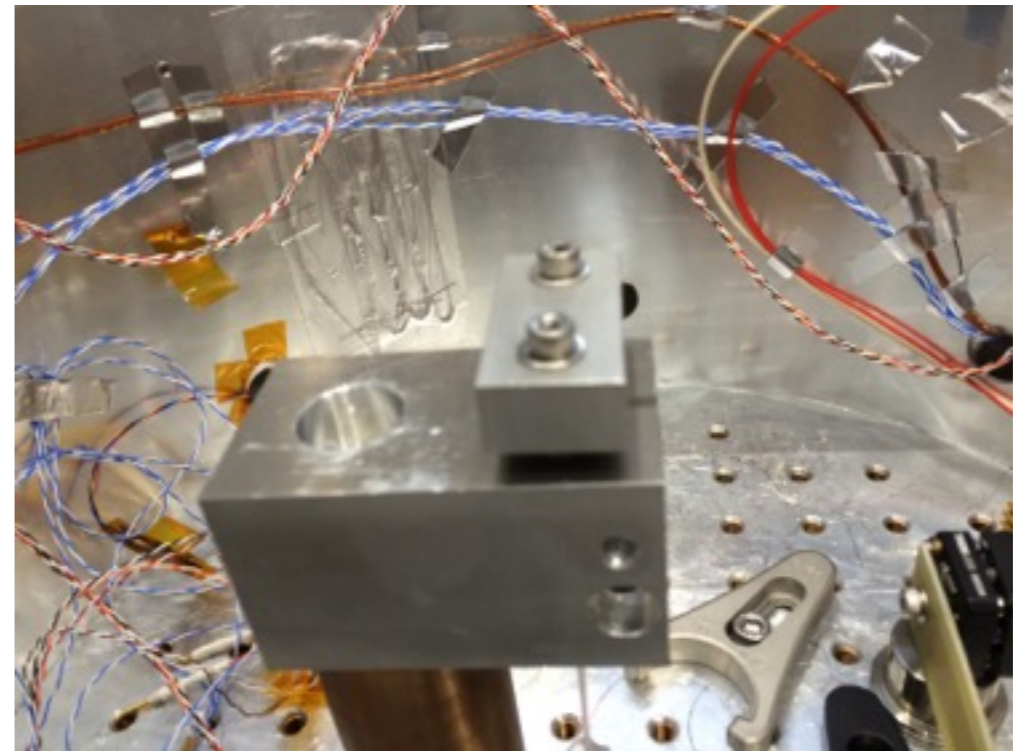
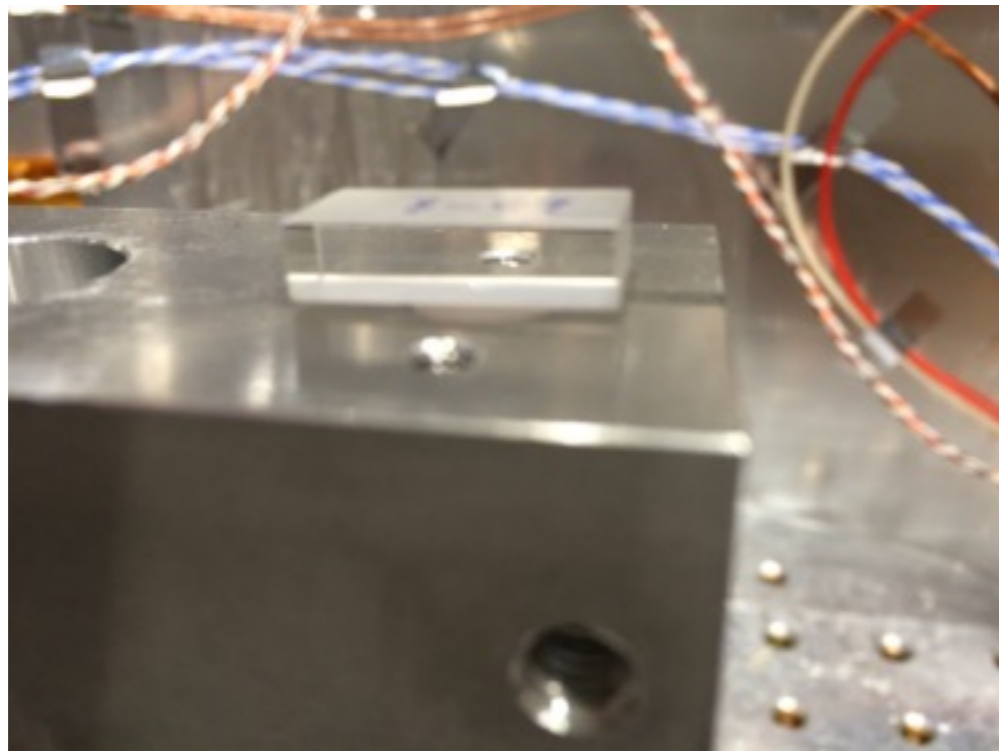
Q measurement

- Some cracks appeared in the bottom blocks again.



Q measurement

We used the aluminium clamp and put a sapphire block on the head.



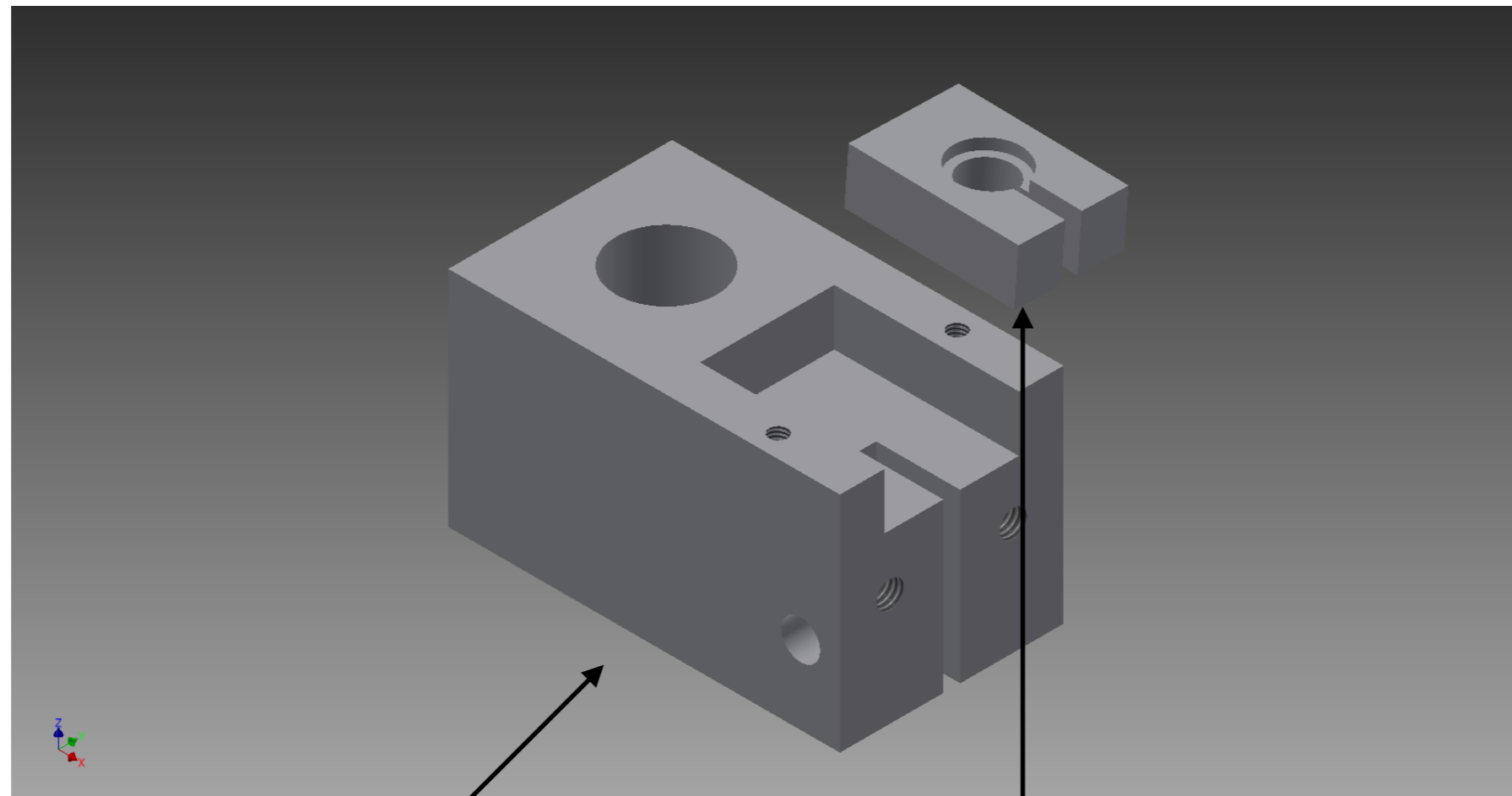
Q-value of monolithic fiber8

- Sapphire blocks...300K:Q=4450(87Hz)
(measured by Katayama-san)
- Al clamp+an upper sapphire block...
300K:Q=4140(92Hz)

Q-value of monolithic fiber10

- Cu clamp...300K:Q=4280($\Delta Q/Q=0.2\%$)、
5K:Q= 7.4×10^5 (92Hz)
- Sapphire blocks...300K:Q=4180、
5K:Q= 6.2×10^5 (92Hz)

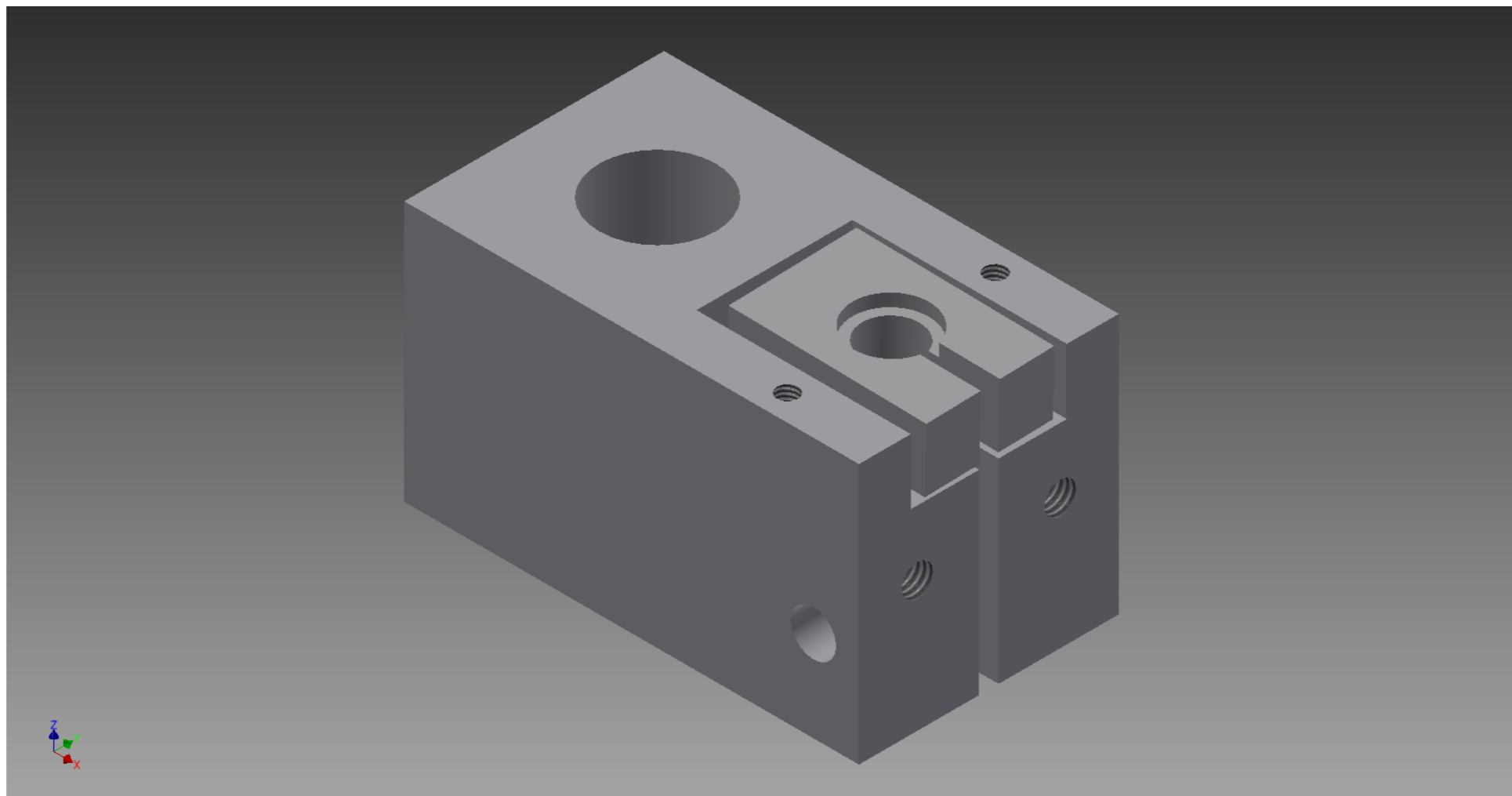
New clamp



Copper

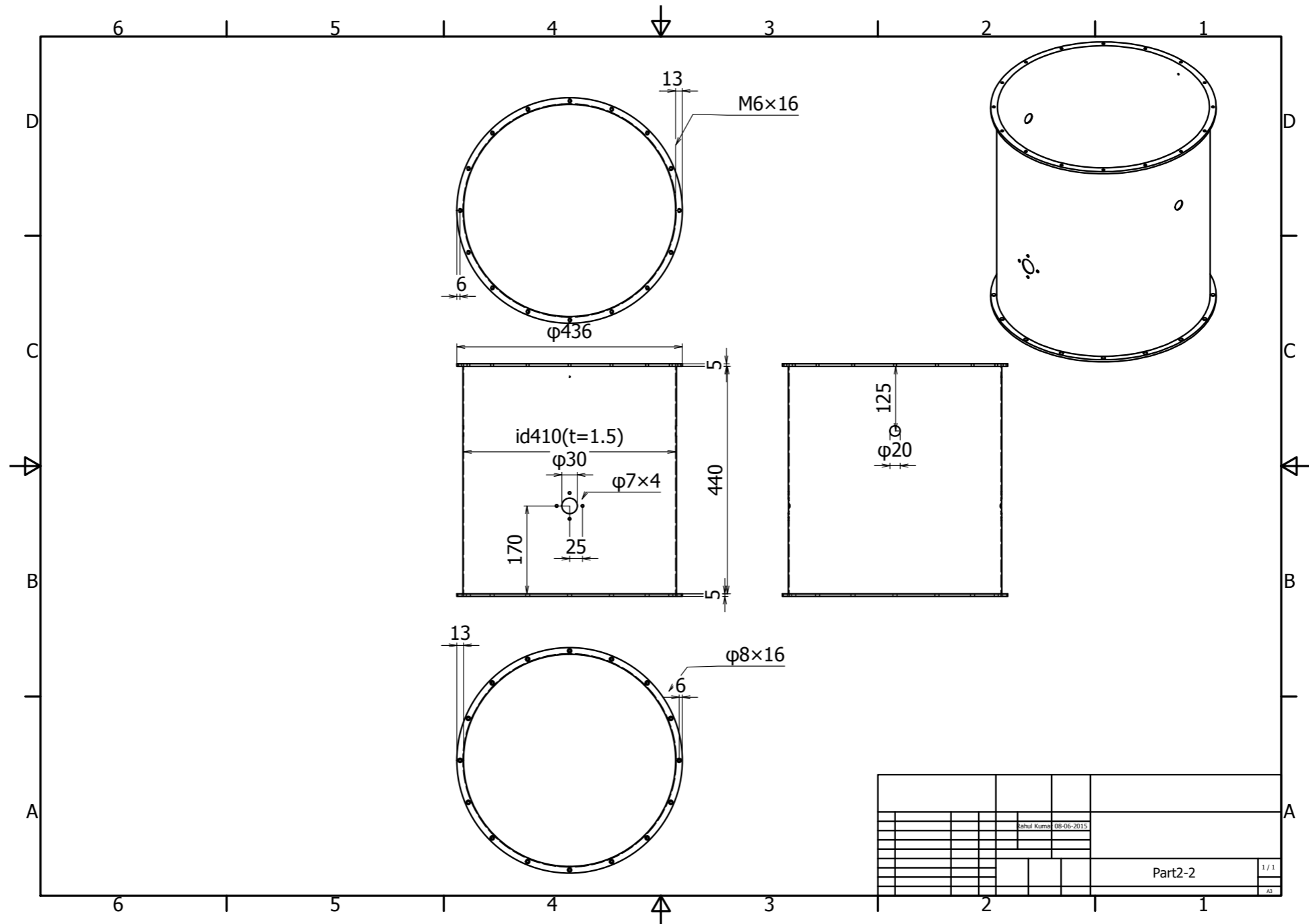
Sapphire

New clamp



Extension of the
cryostat in ICRR

Outside radiation shield



Other items

- I started to learn Ansys, but the network connection was often broken.
- When I use Ansys, I want to use PC in KEK (For example, the PC which is behind Miyamoto-kun's desk).
- We will give back the displacement sensor and the tungsten wire to KEK.
- The next thesis of our seminar is Dr. Uchiyama's doctor thesis or Dr. Numada's master thesis or Dr. Yamamoto's doctor thesis or...

Radiation through the windows

- Stefan-Boltzmann

$$\text{law} \rightarrow 5.6 \times 10^{-8} \times 0.013 \times 300^4 = 5 \text{ (W)}$$