



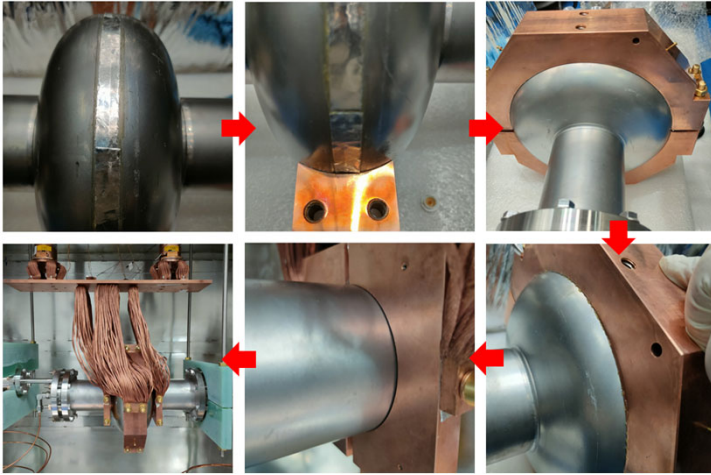
Hot-topic Session at TTC-Fermilab Meeting

Topic 1、 Topic 2

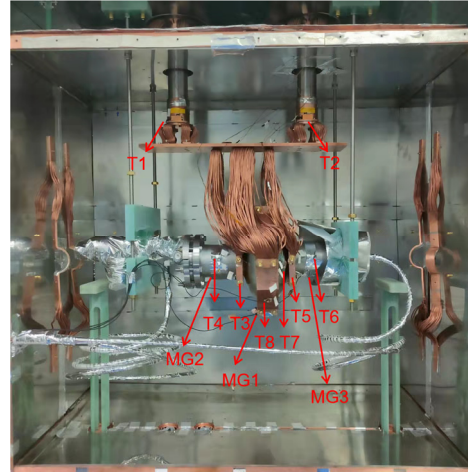
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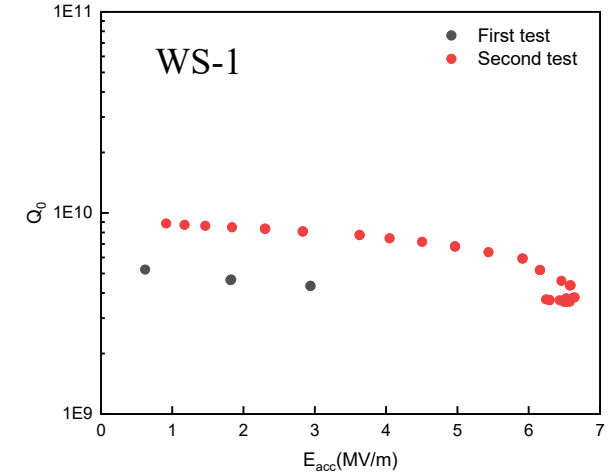
Thermal cycle effect of conduction-cooled Nb₃Sn SRF cavity



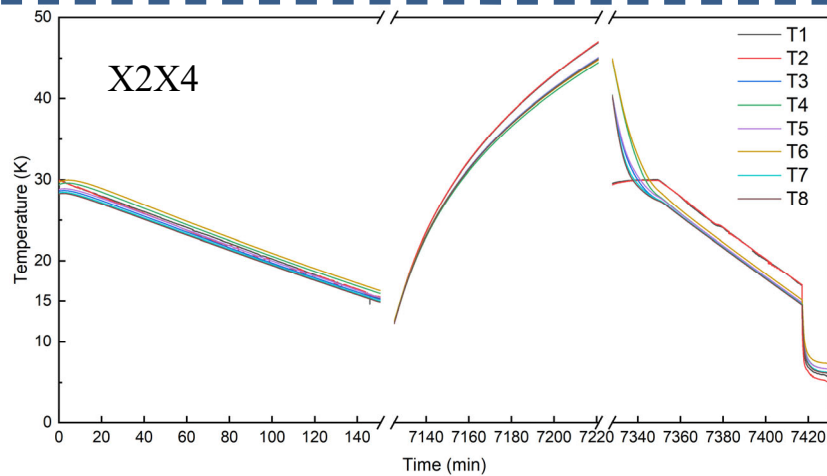
Assembly of conductive cooling anchor



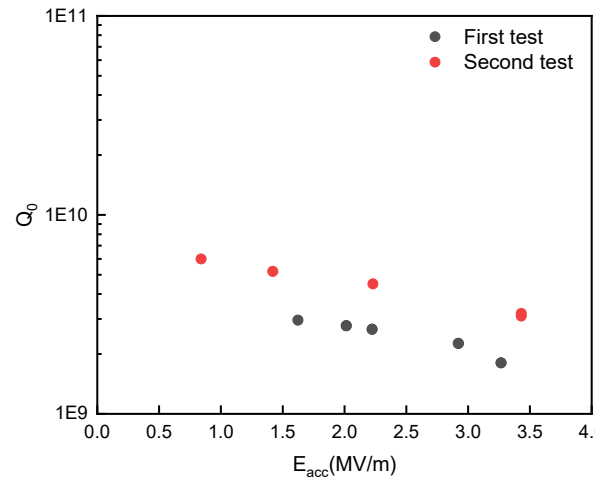
Cernox sensors and magnetic flux gates



Thermal effect **verification experiment** carried out on another Nb₃Sn cavity



Two cooldown processes crossing T_c



Improvement of RF performance after repeated cooldown process

1. Uneven temperature distribution in the first slow-cooldown due to the local contact between the copper strip and the cavity?
2. Repeated cooldown has been shown to reduce non-uniformity, but what is the physical picture?

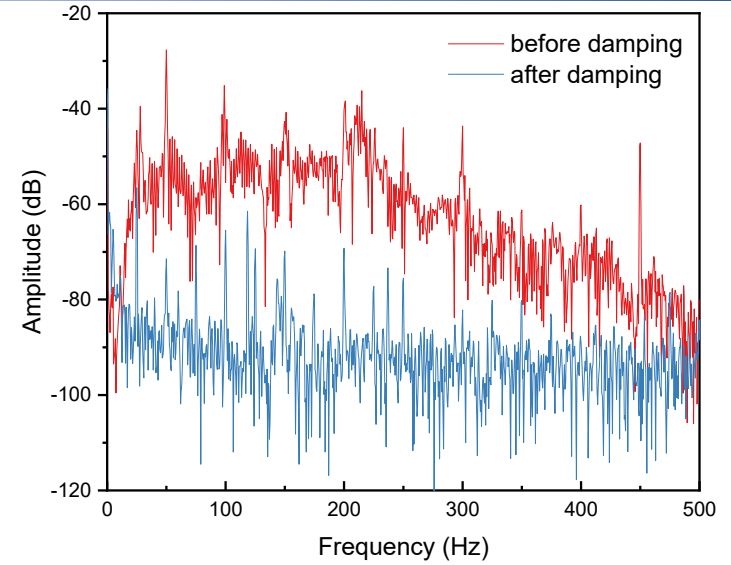
Frequency vibration caused by GM cryocoolers and suppression



Initial design: Vibrations transmitted to the top of module

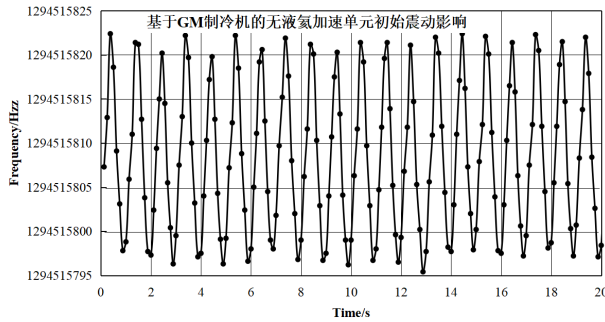


Optimized design: Vibrations transmitted to the ground

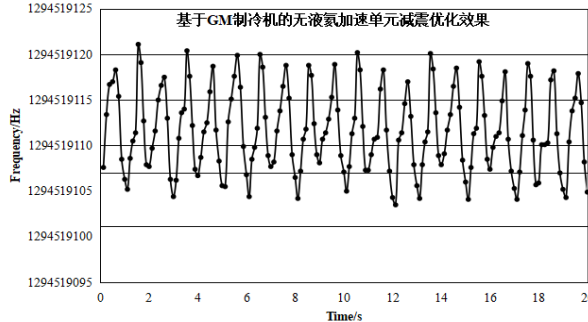


The mechanical vibration of the cavity is obviously suppressed after optimization

1. GM cryocoolers can cause frequency vibration of conduction cooled SRF cavity, and their impact on particle acceleration is being further evaluated.
2. Reasonable damping structure design can significantly reduce the impact of GM cryocoolers.



Frequency vibration ~27Hz measured by frequency meter



Frequency vibration decreased to ~15Hz