

Items we discussed in CM design session (memorandum)

- ◆ Tuner design
 - ◆ For the negotiation with KHK, we have to decide the unique drawing of cavity with helium tank
 - ◆ For ILC, we need some reviews and what is the boundary for the design should be clear
- ◆ 5K thermal shield (removal of lower part)
 - ◆ Even after removing this part, we need to attach MLI for all cooling pipes and cavities
 - ◆ How many layers of MLI for cavity/5K/70K? → should be checked
- ◆ Magnetic shield (installed inside helium tank)
 - ◆ This depends on design of helium tank with bellows and tuner type
 - ◆ We need to consider inside (blade) or outside (double lever) according to the type of tuner
 - ◆ We need to consider the overlap of the two magnetic shields
- ◆ Ti-SS joint for 2-phase pipe including pre-cooling line
 - ◆ Ti-SS joint is the better selection for ILC than Ti-Ti joint (helium tank + chimney + 2-phase pipe)
- ◆ SS-Al joint for 2-phase pipe contacted to Al thermal straps of splittable QUAD
 - ◆ Under consideration, we need to ask KHK
- ◆ Port of current-lead for QUAD
 - ◆ Distance between outer envelope of CM and tunnel wall should be checked, some consideration is still needed
- ◆ Position of HOM absorber
 - ◆ Should be installed at transition region between CMs
- ◆ Availability in 45ft container
 - ◆ We have to keep this size as outside dimension with suspending structure, not necessary for specialized container
- ◆ RF distribution (how to equip with CM)
 - ◆ Position of vacuum port should be decided
- ◆ Access port to tuner
 - ◆ We can think about long time operation like SNS, where some tuner components were failed and replaced for 15 years
 - ◆ E-XFEL had no problem in tuner since 2017 even though all CMs have no access port
- ◆ Pipe standard
 - ◆ Plug-compatibility at transition region between CMs should be taken care
 - ◆ Pipe diameter for every cooling pipe at transition region should be decided
- ◆ 2D/3D CAD software for cavity/CM
 - ◆ NX has been used in DESY, FNAL
 - ◆ Recently, KEK and CEA are changing to NX
 - ◆ We may consider NX as a common CAD software for ILC