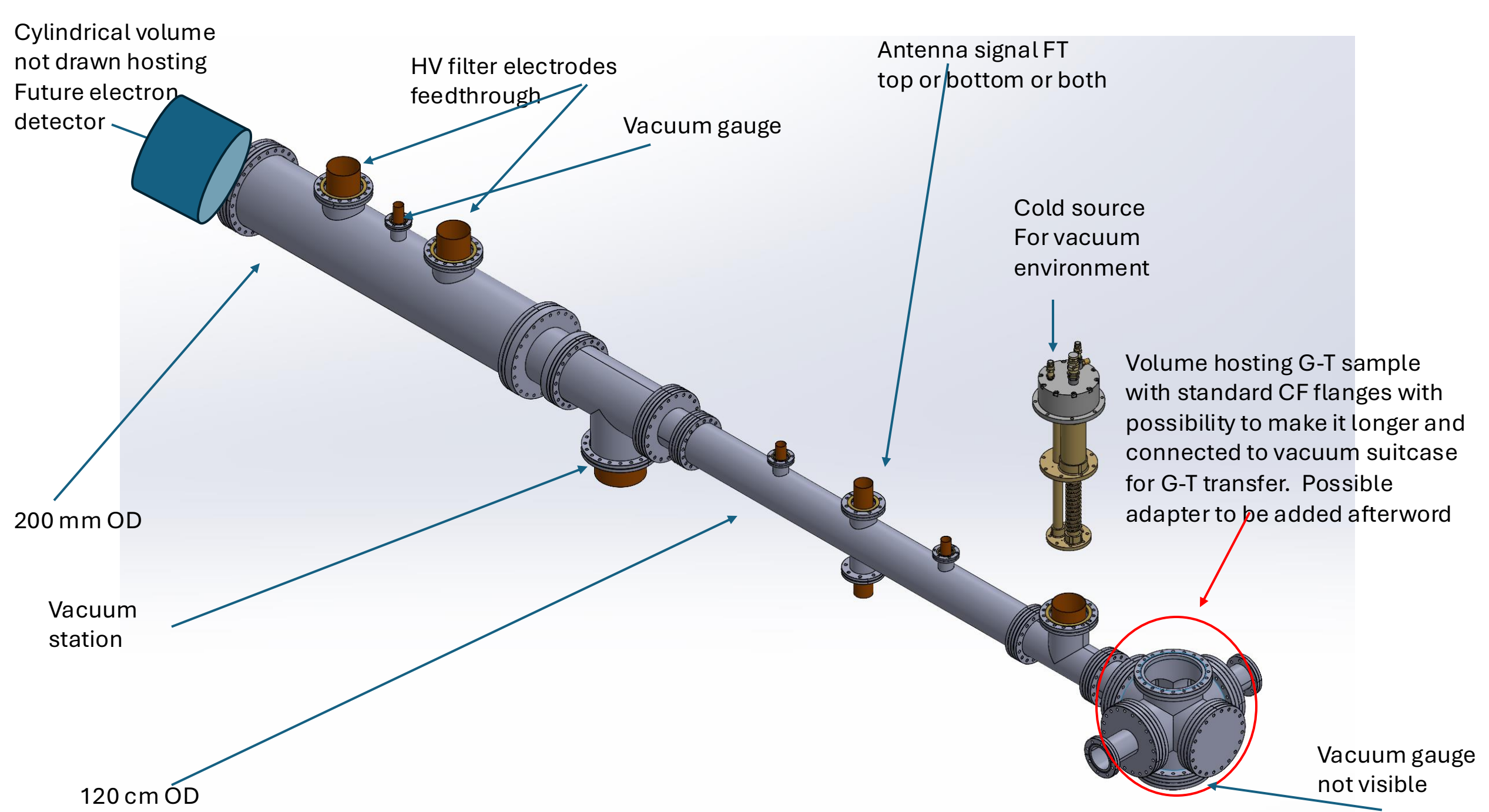
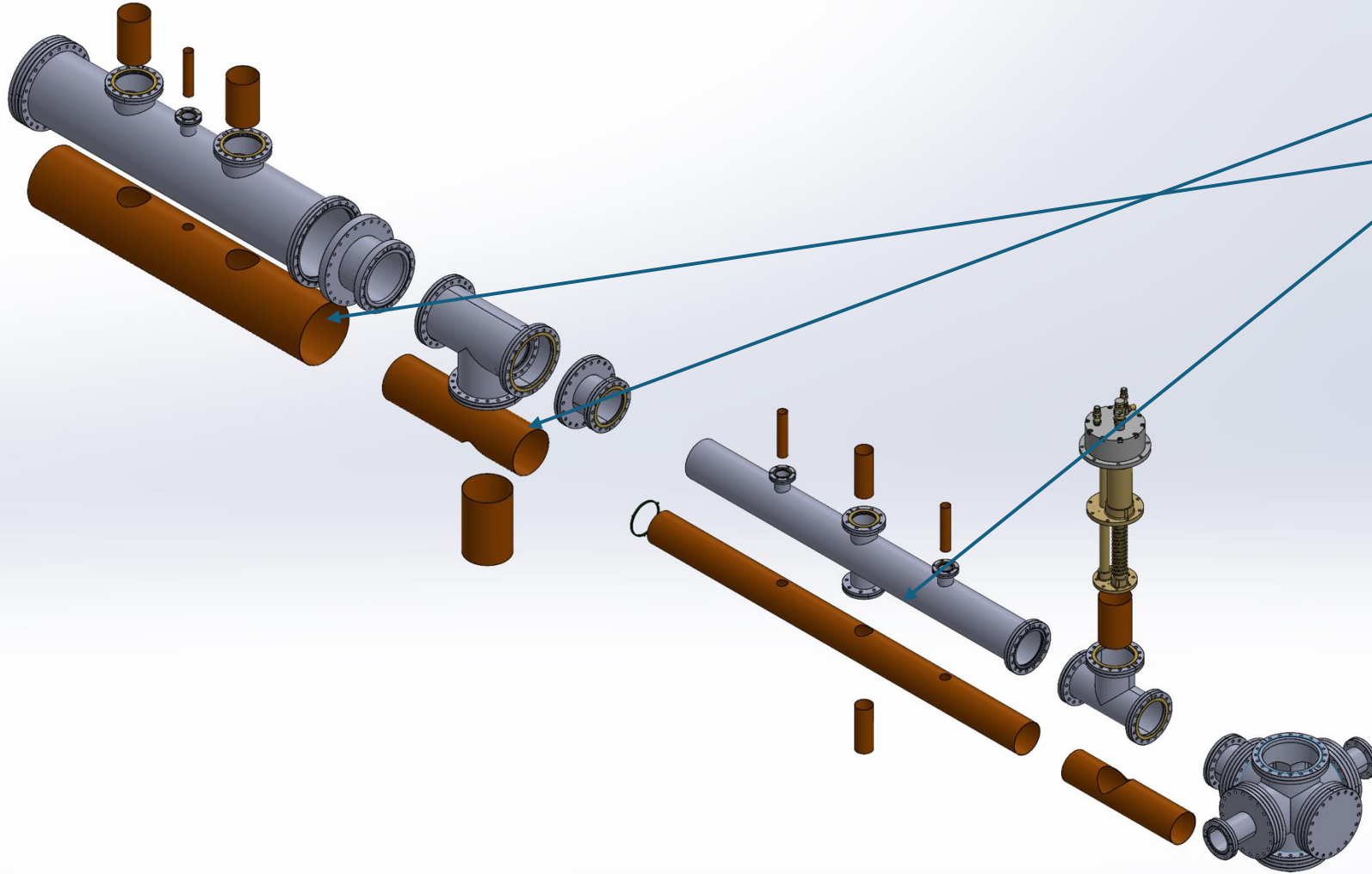


Construction of the Demonstrator vacuum chamber

PTOLEMY general meeting, 21-22/11/2024 Genova

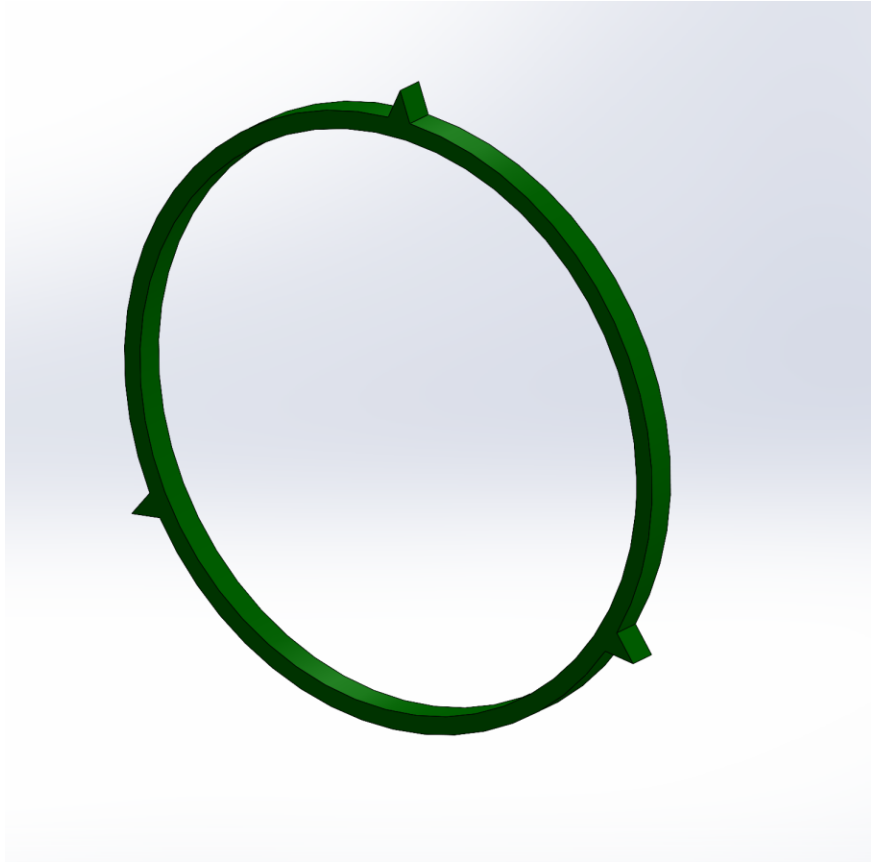


Copper shield against radiation



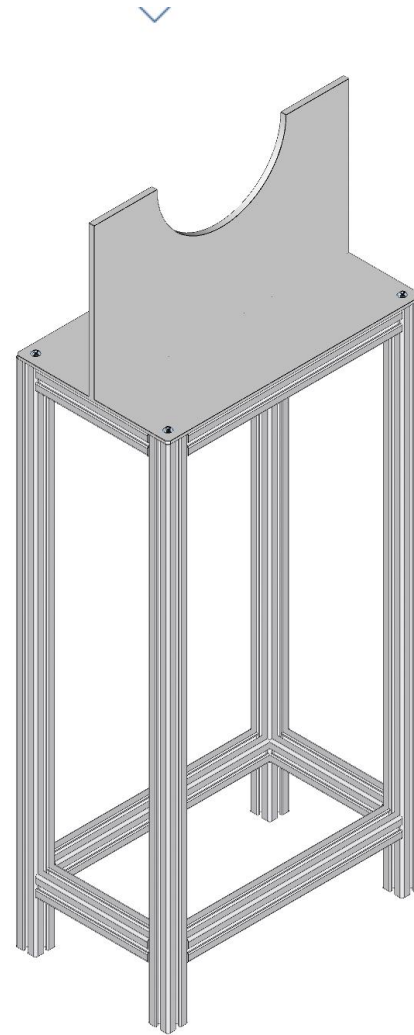
Copper shield to keep the filter environment in cold (protected by radiation). Probably the copper will be Gold plated and for sure a superinsulation blanket will be installed between copper and outer shell. The copper shield will be equipped with T sensors.

Centering device to sustain copper shield cylinders



Geometry already tested in the XENON cryogenic pipe.
Construction material will be Torlon.

Example of Vacuum Chamber support



Technical requirement for the construction:

1) All pipes will be mechanically polished and electropolished inside. From XENON experience this is the most performing Treatment for vacuum purpose.

2) All welds X-ray checked according to the PED radiation safety prescription

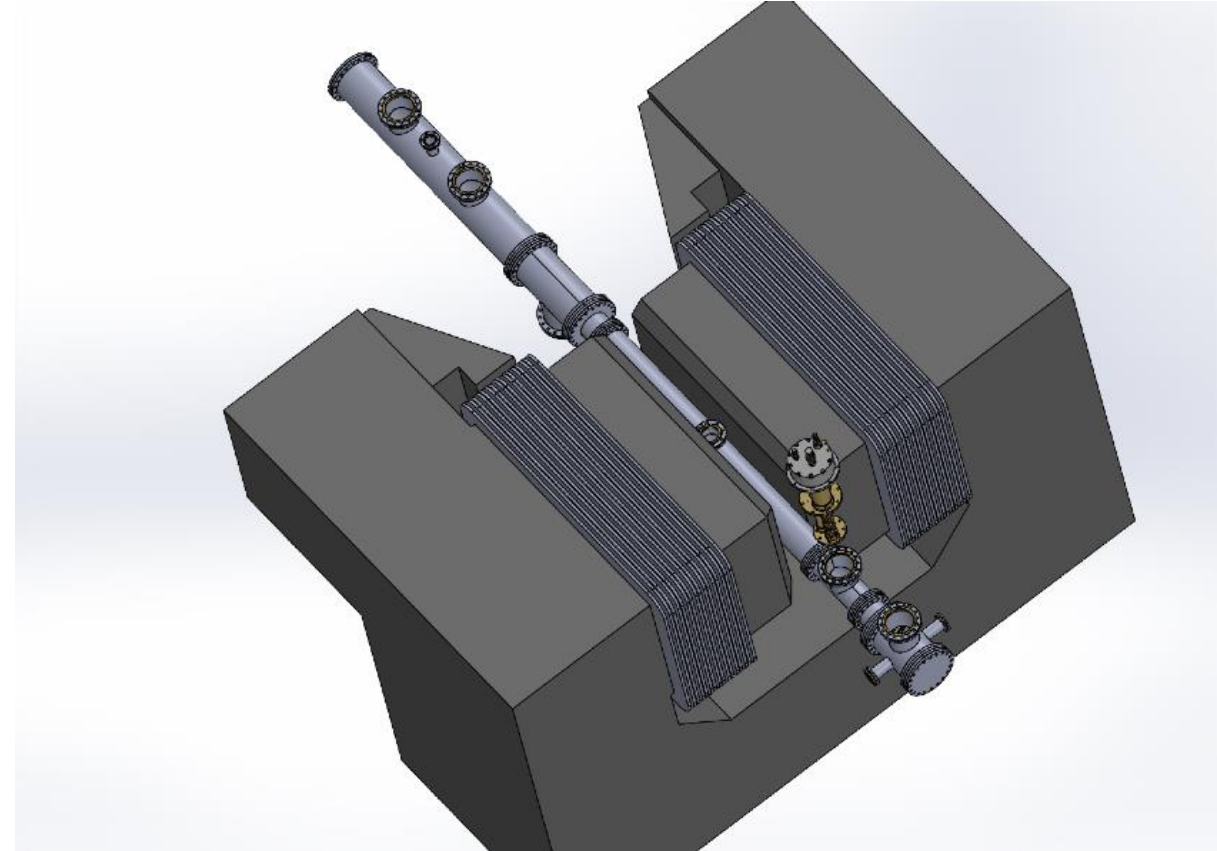
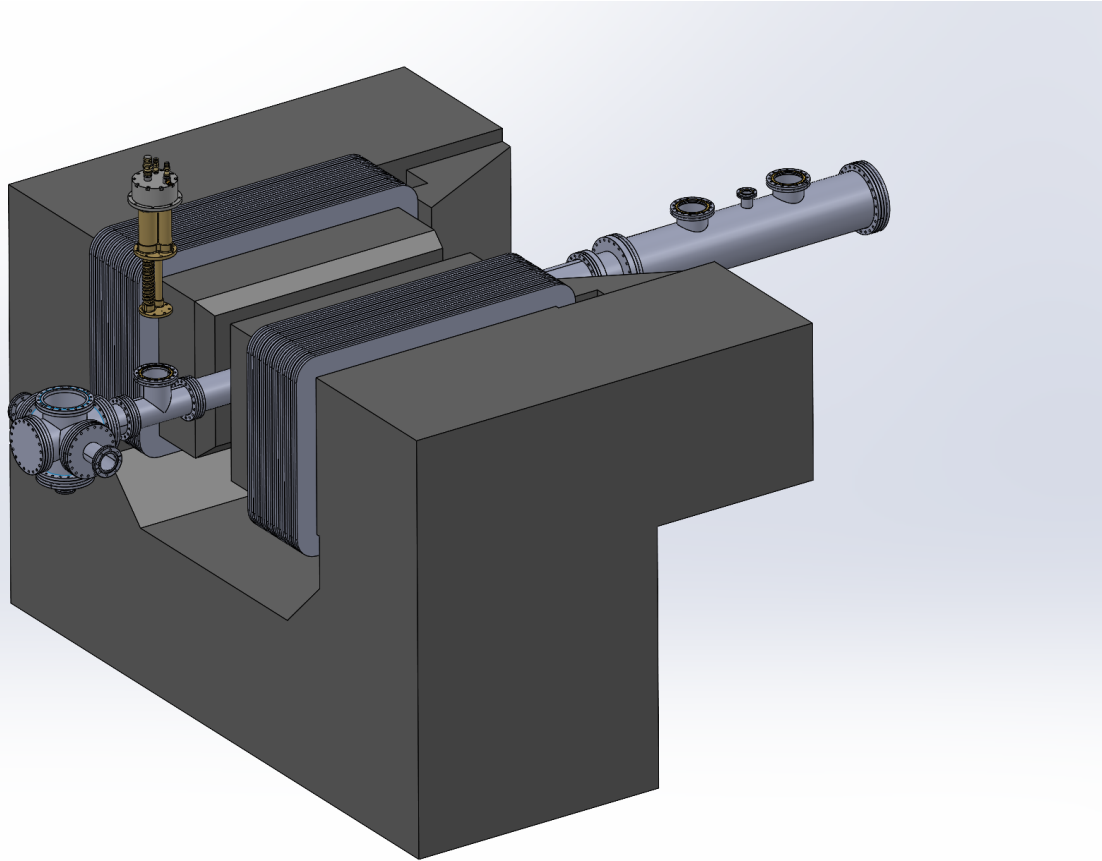
3) All pipes made out of SS 316L, best non outgassing material. Confirmed by studies on XENON and ET design.
The company that will build the VC (ALCA Technology) proposed a sorting of material with low magnetic permeability. They are capable to measure μ . The sorting will be done among SS 316 LN.

4) All vacuum volume will host a cold shield made out of copper surrounded by superinsulation i.e. multi layers of aluminized mylar.
The T target of whole volume at around is 10 K.

5) Copper will be gold plated to increase reflectivity and so the radiation shielding capability. Distance between outer volume shell and copper shield 6-8mm. Copper shield centered with Torlon spacers shaped like a ring with 3 tips (XENON experience).

6) Aluminum support to keep the chamber in place

Picture gallery



Order issued

