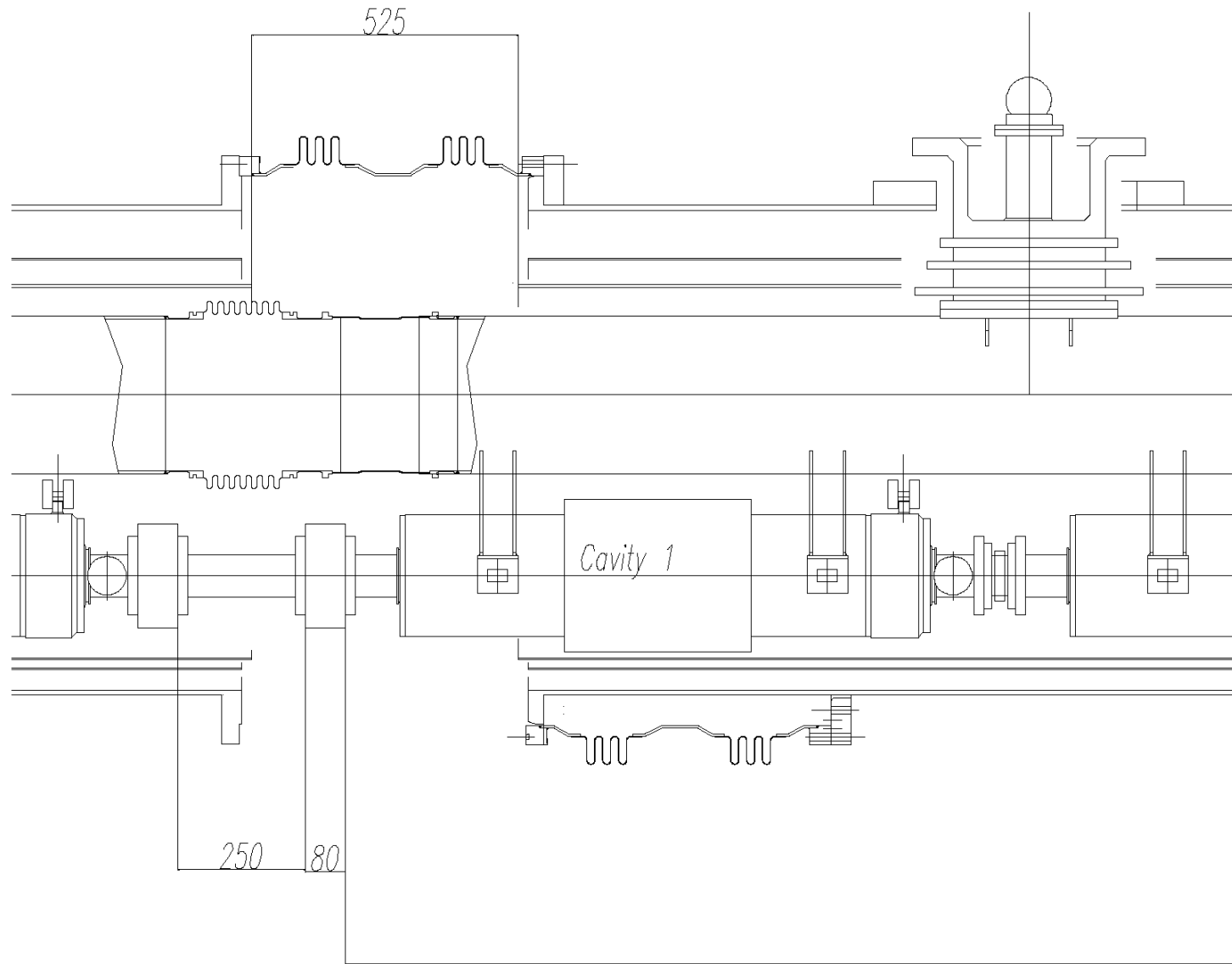


Back to connection issues



Generation IV cryomodule meeting at FNAL



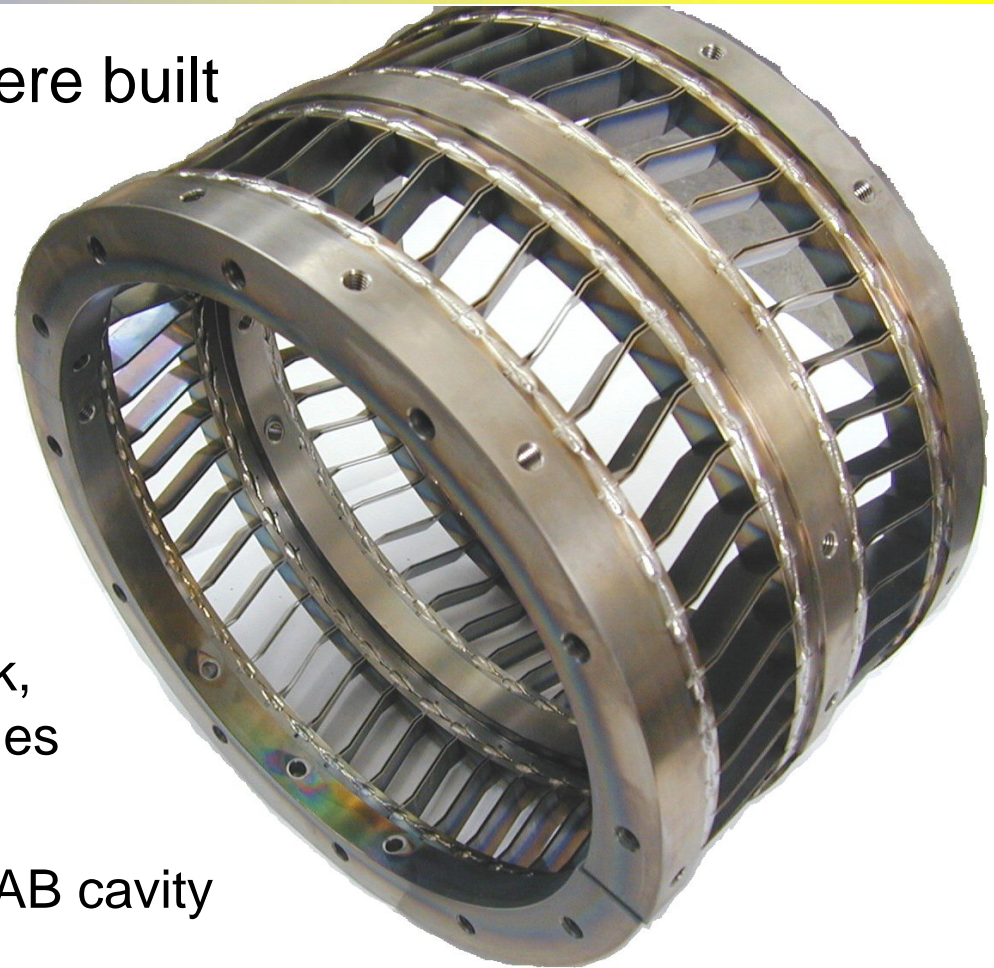
Coaxial Tuner

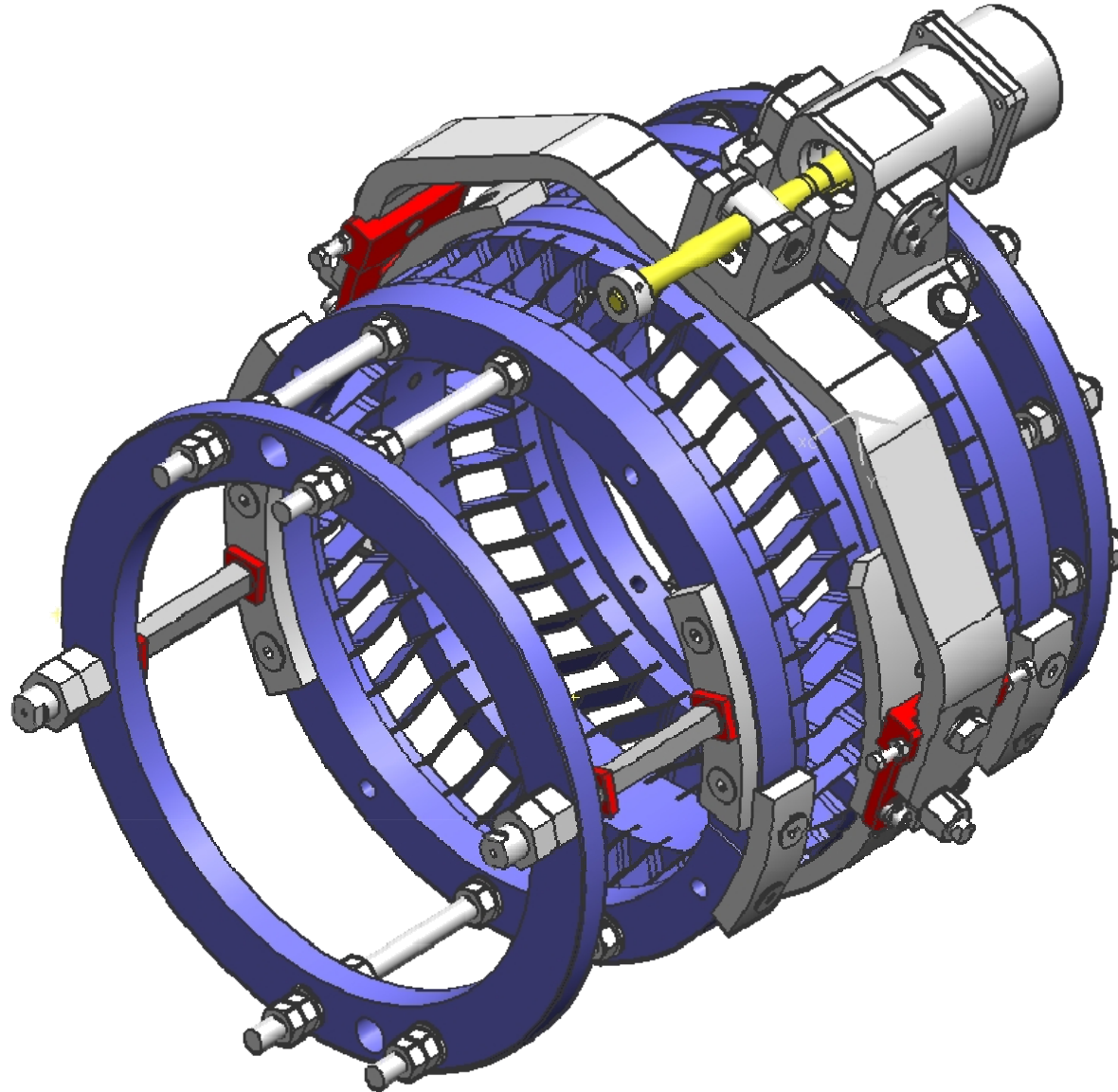


Existing blade tuner assemblies



- 6 blade/ring assemblies were built
- 4 used in SS module (more than 1 y operation)
- 2 built as spares
 - Last year equipped with leverage system and He tank, including fast piezo capabilities
 - Sitting in DESY
 - Could be used to equip a JLAB cavity for horizontal test

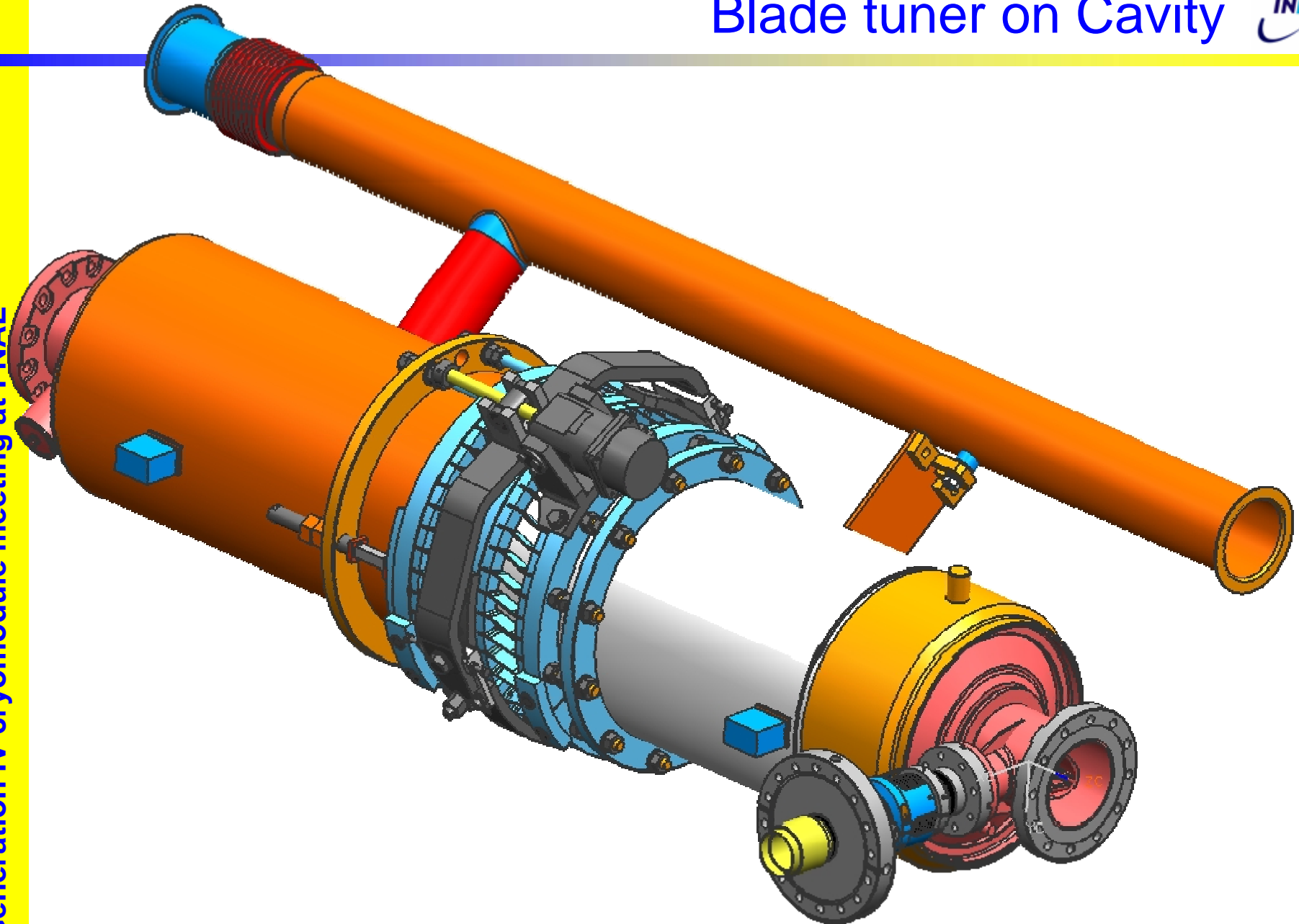




Blade tuner on Cavity



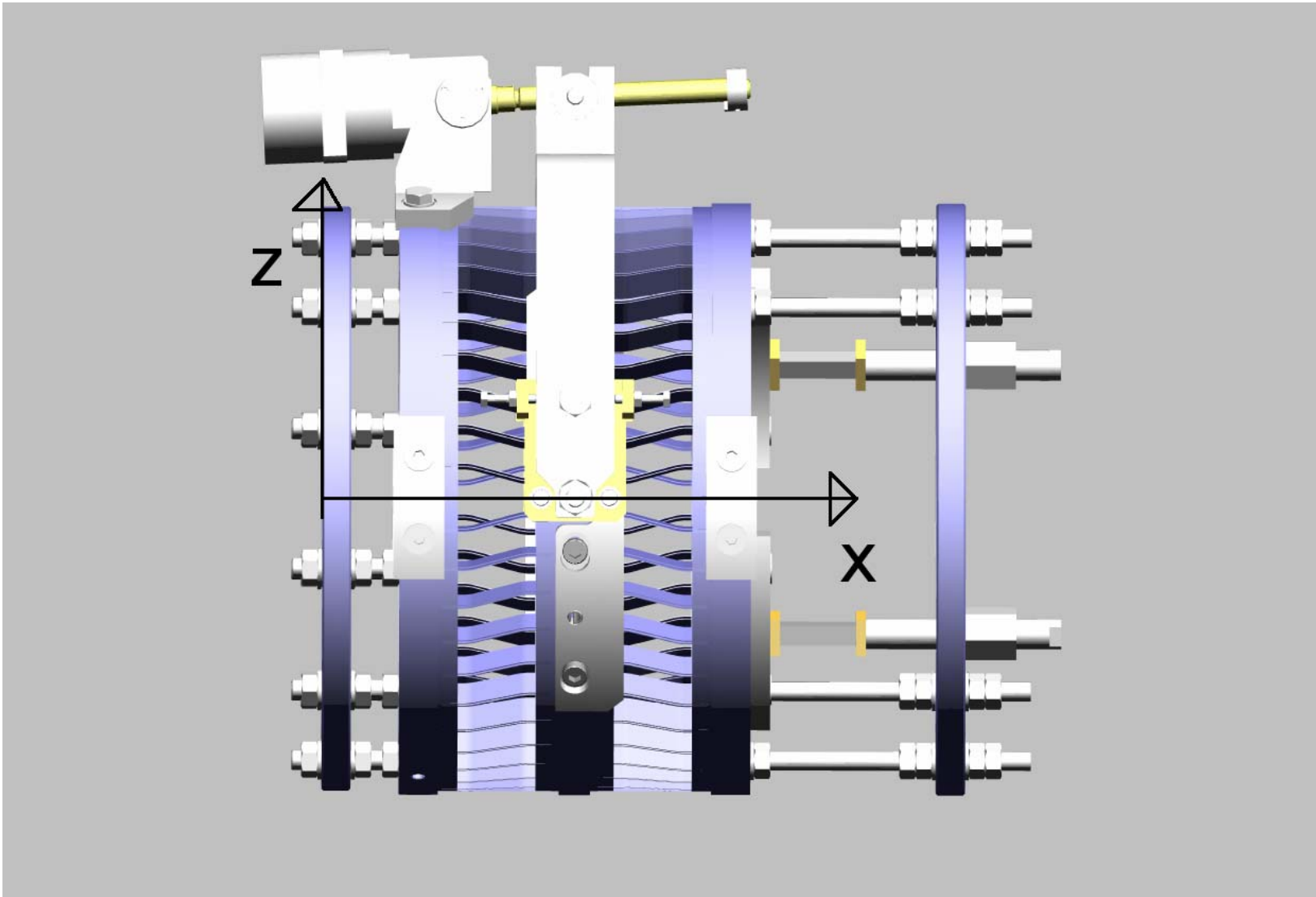
Generation IV cryomodule meeting at FNAL



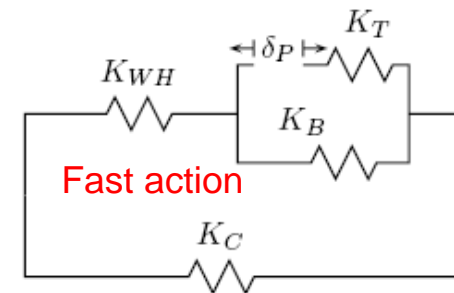
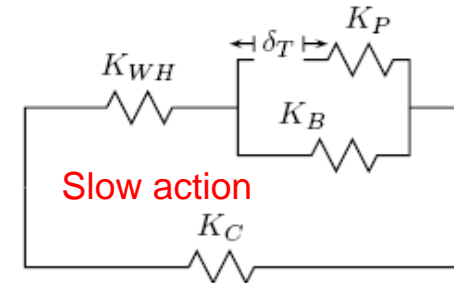
Tuner assembly



Generation IV cryomodule meeting at FNAL



- Blade/ring assembly is extremely stiff, but cavity does not “see” it because other elastic elements
 - E.g. cones at the cavity ends...



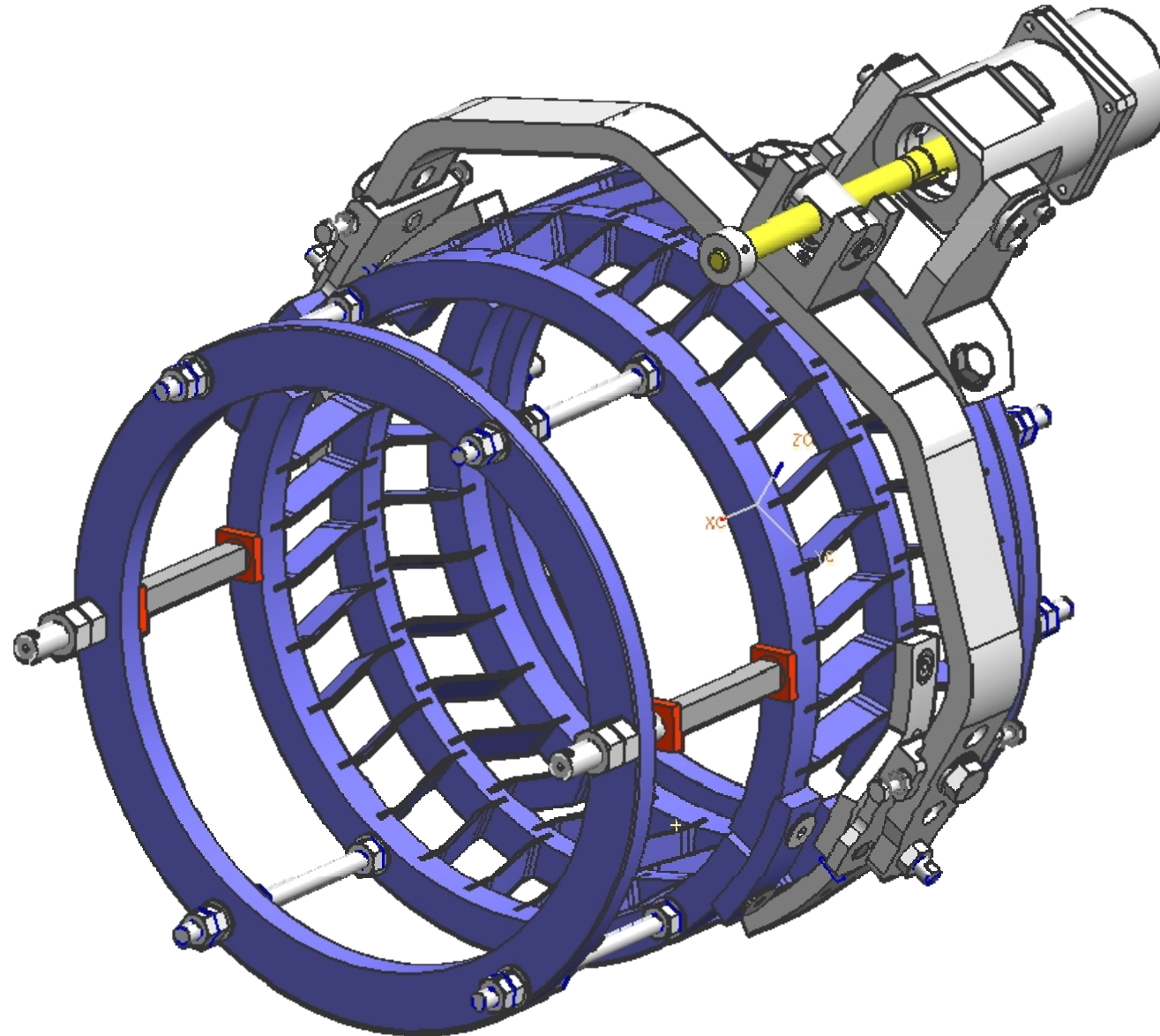
- Designing a lighter version
- Decreased from >20 kg of Ti to <12 kg
- Less blades, easier EB welding pattern
- 4x23 packs vs. 4x14

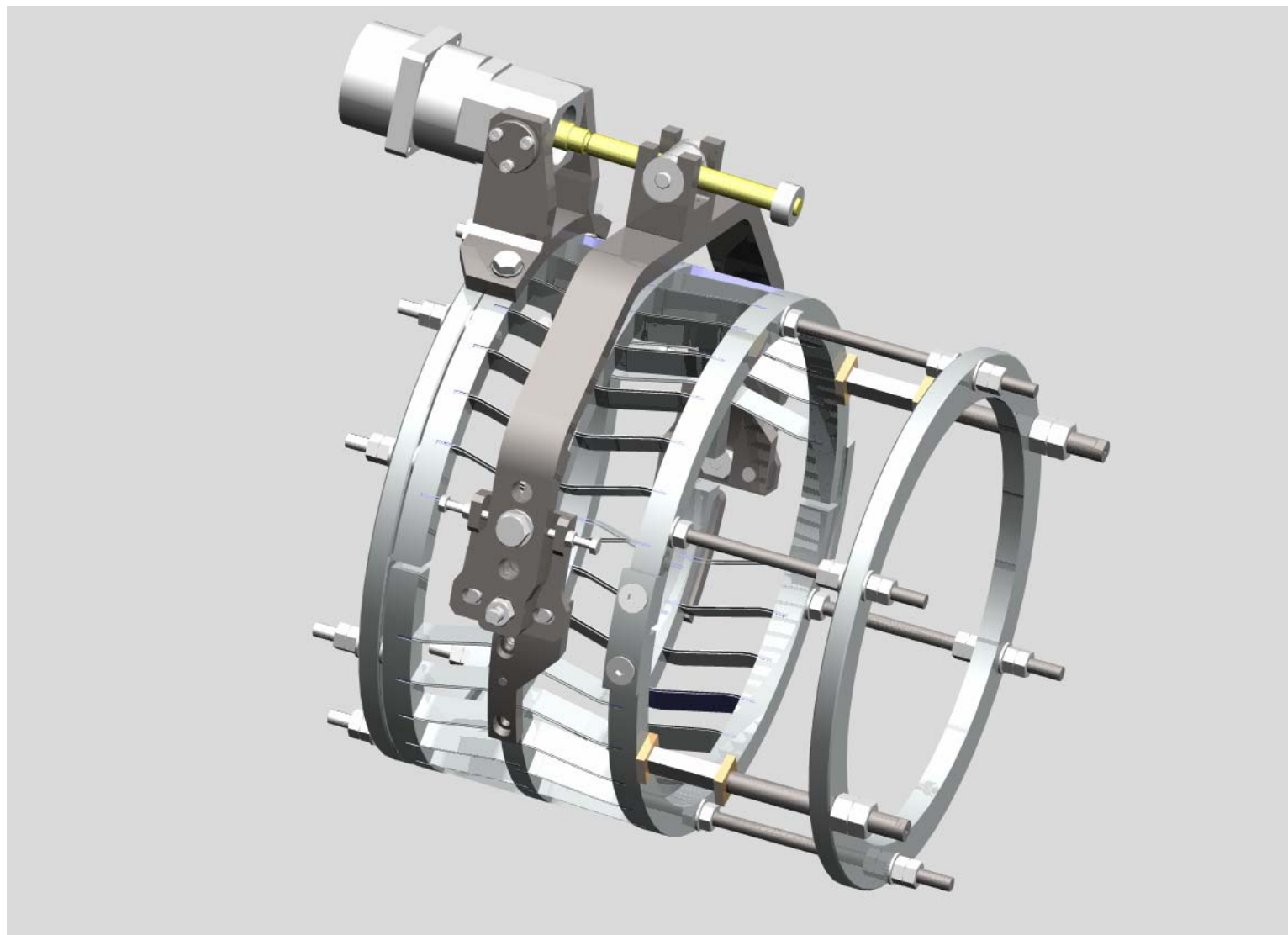
Part	Material	Symbol	K (N/μm)
He tank	Ti	K_H	302.4
Tuner	Ti	K_T	25
Cavity	Nb	K_C	3.023
End dishes and lips	NbTi	K_W	14.0
Piezo		K_P	2 x 105
Tank bellow	Ti	K_B	0.19

Light tuner assembly



Generation IV cryomodule meeting at FNAL

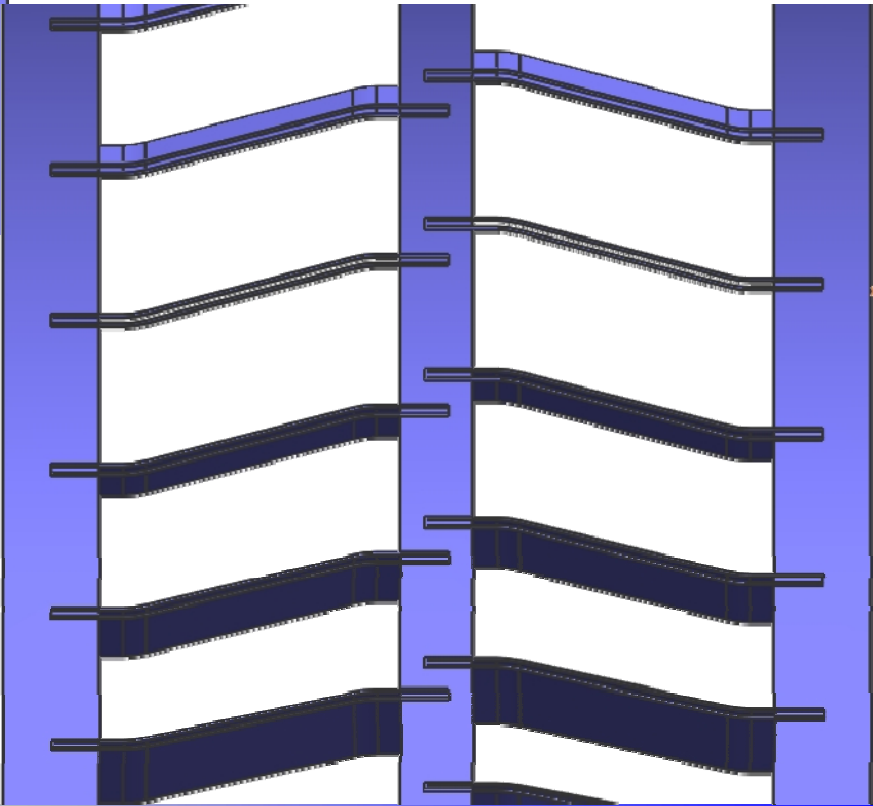
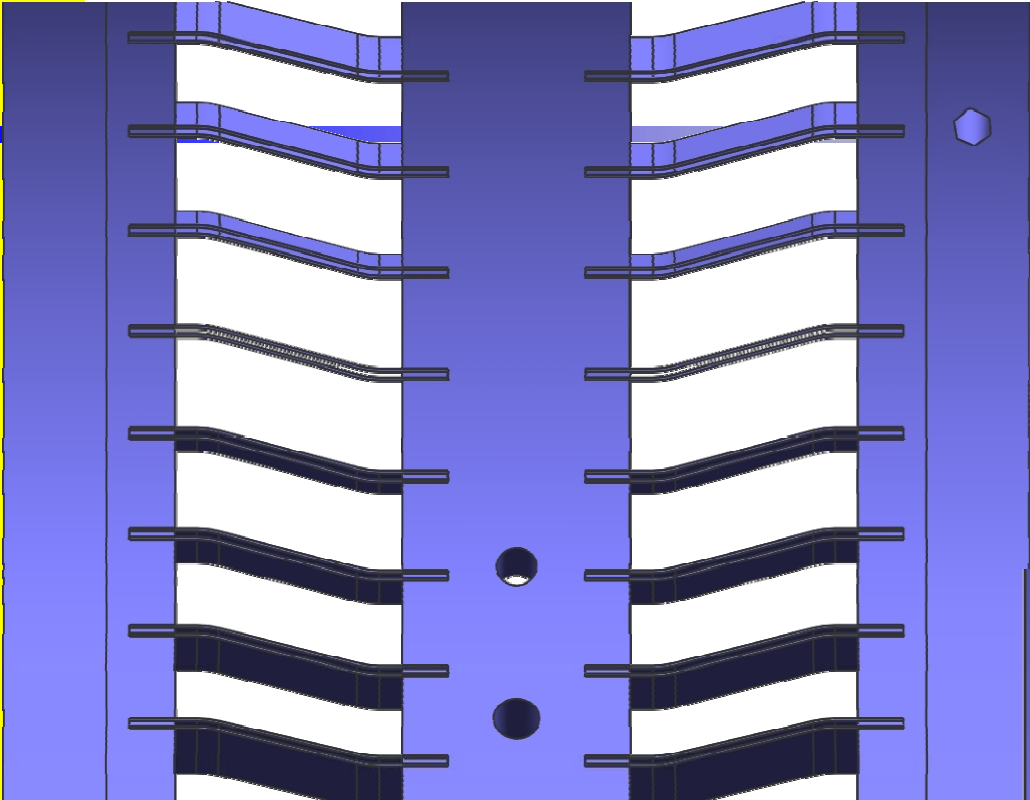


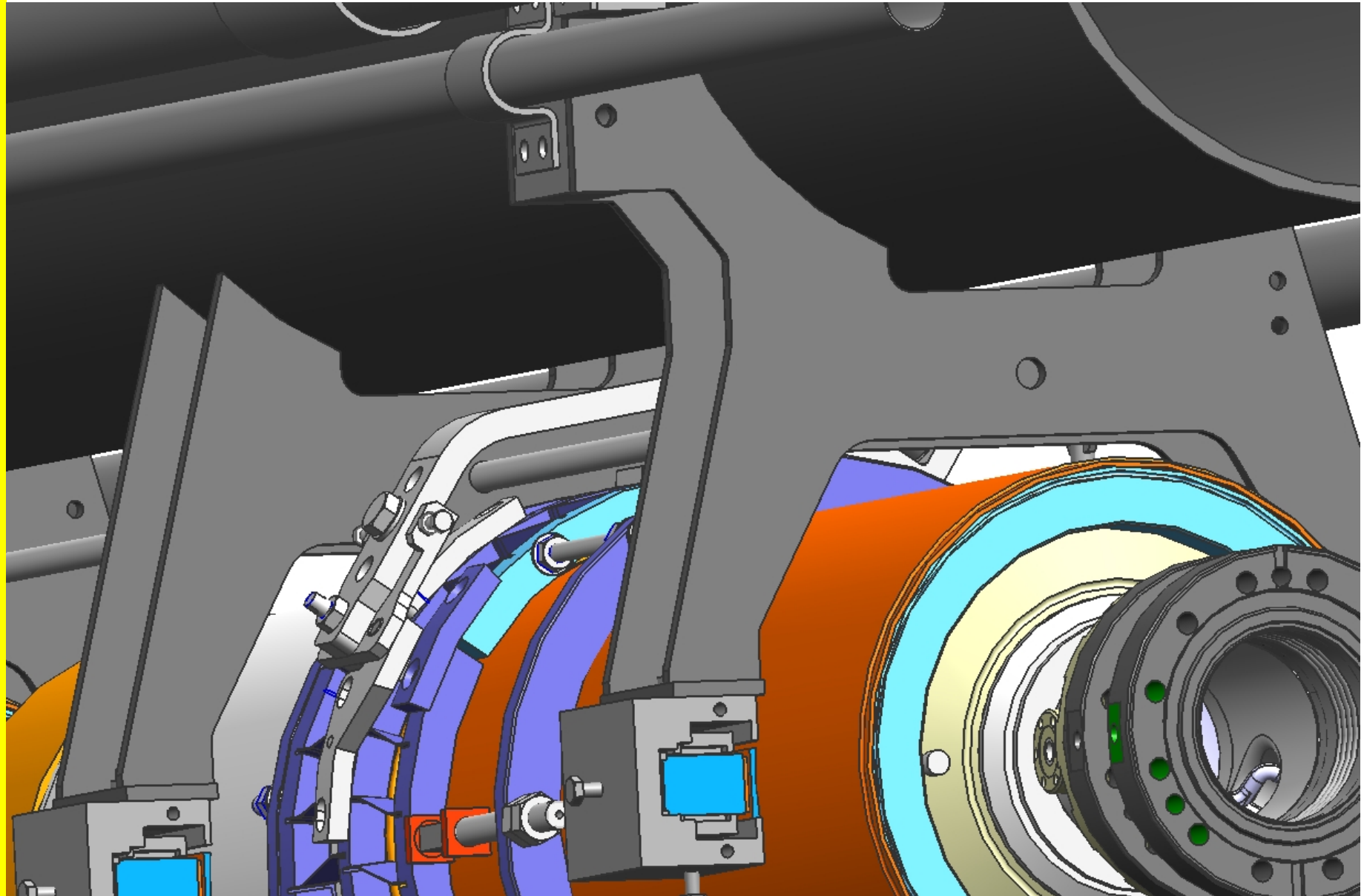


Comparison



Generation IV cryomodule





- 10x10x70 mm piezo
 - Warm stroke 100 μm
- Cavity nominal sensitivity 315 Hz/ μm
- Assume 10% stroke at 2 K
- Account for 73% transfer of piezo stroke to cavity
- Account for factor of 2 in dynamic LFD (M.Liepe, BCD)

- Results in 1150 Hz with 2 piezo
- Still 575 Hz with 1 piezo