

# Plans for YETS 2024

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# Cryo shift situation 2024 vs 2025

	A	B	C	D	E	F	G	H	I	J	K
1			Gosia	Benni	Valts	Fredrik	Matthias	Riley	Kuba	Kamila	
2	42	14-20 October									Gosia/?
3	43	21-27 October									Fredrik
4	44	28 October-3 November									Valts
5	45	4-10 November									Valts
6	46	11-17 November									Benni
7	47	18-24 November									Gosia
8	48	25 November- 1December									Benni
9	49	2-8 December									Matthias
10	50	9-15 December									Fredrik
11											
12											
13											

- Stefan and Valts leaving in 2025
- Kuba will be stationed at CERN on a permanent basis
- Students (Lidka, Kamila, Ahmad, Bharat...) should be intermittently present to aid the cryo efforts
- We are very low on Crane Operators- only 3 people with a license remaining!
- If you can, please inscribe for **both** cryo and craning courses via CERN's learning hub

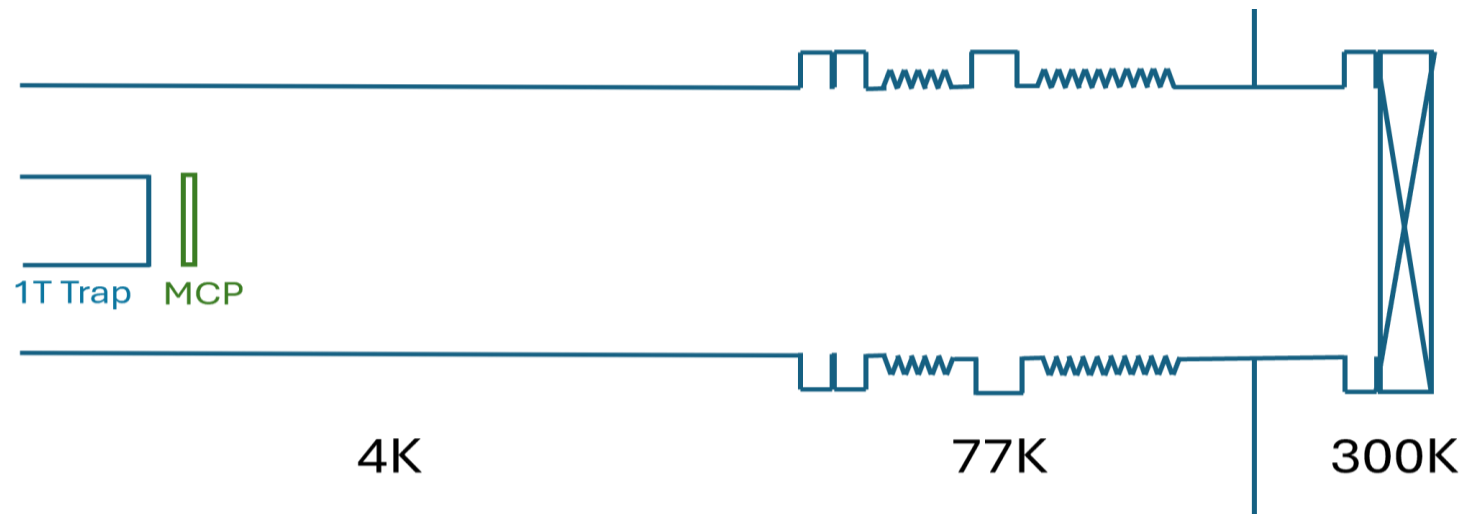
# Heat leak on the 1T bellows

- With installation of 1T bellows assembly we introduced a heat leak that increased our LHe consumption from 6 to 10 dewars/week
- The new demand could not be met by the Central Liquefier and forced us to operate in diminished capacity (5-6 days/week)
- With a lot of effort and help from the community we managed to run continuously over the last 4 weeks, but with crippling workload for the cryo shifts
- The situation has to be resolved (LHe consumption needs to go down) ASAP

# Heat leak on the 1T bellows

## Origin of the leak:

- We created an unshielded opening of 150 mm- radiative heating directly onto the 4K parts of the experiment
- The thermalization elements that we've foreseen for the 77K parts of the assembly failed
- Combination of both- we estimate 8 Watt going into the experiment, while our preliminary calculations account for 3-4 Watt
- CERN's cryo dept is performing calculations for us that will help estimate and pinpoint the failure



# Heat leak on the 1T bellows

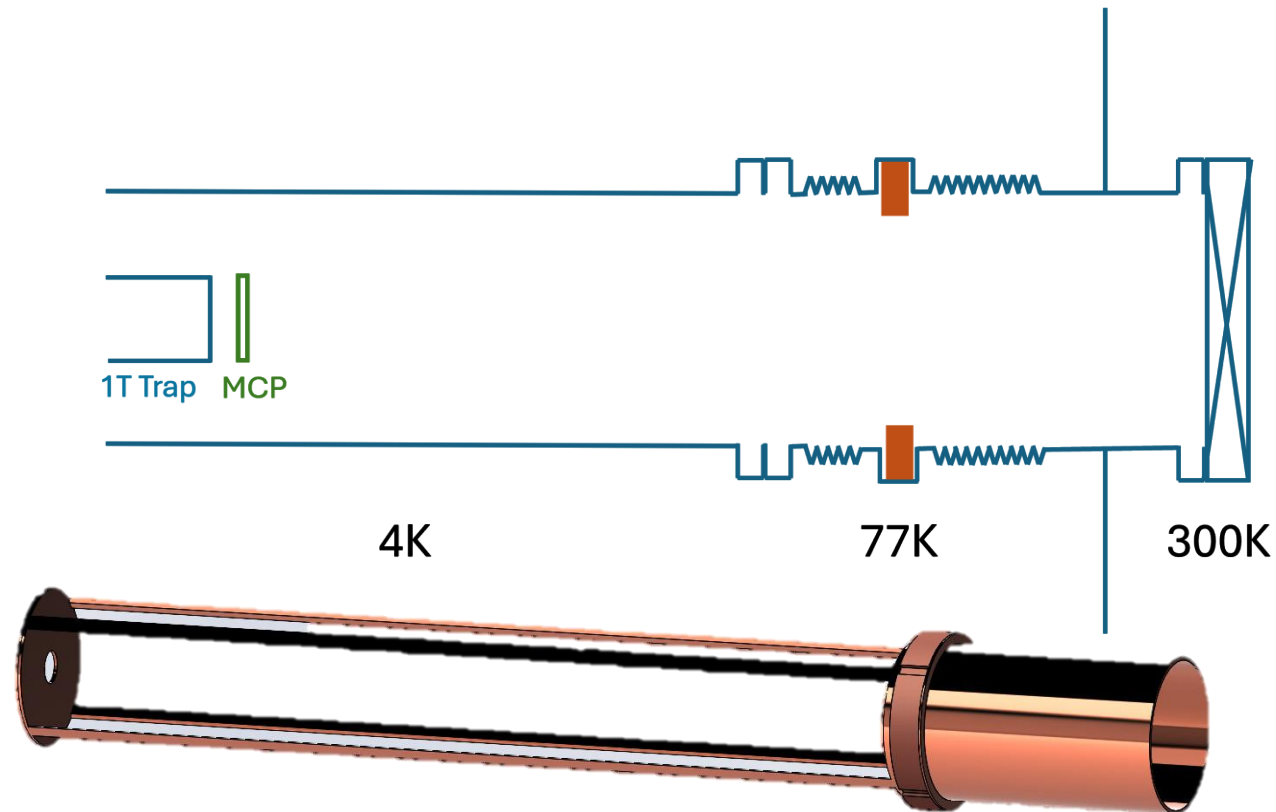
- Technical solution: improve on 1T bellows thermalization elements
- Exchange the 1.5mm cs, M6 attached copper braids with 40mm copper braids soldered to a copper plate
- Double check contact of the thermalization shield with the LN2 vessel

# Heat leak on the 1T bellows

- Technical solution: heat collector- a thermalized barrier absorbing the radiative heat
- Heat absorption has  $x^2$  correlation to the surface
- The barrier will be best in form of a disc with an iris
- We better make sure that the iris is positioned in a place/has diameter big enough to not obstruct the particle beam!

# Heat leak on the 1T bellows

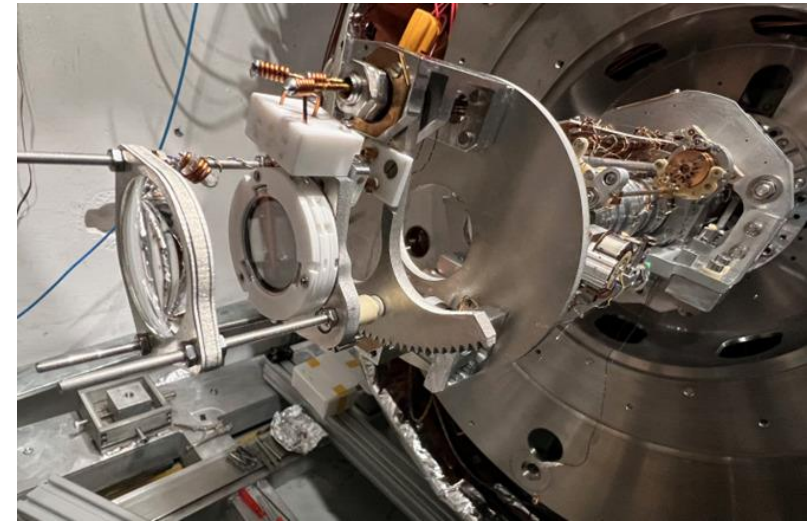
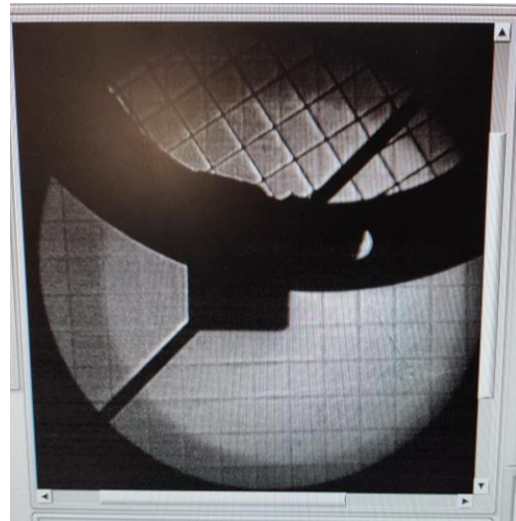
Technical solution: heat collector- a thermalized barrier absorbing the radiative heat





# Repairs of the 1T MCP assembly

- 1T MCP is supposed to move in and out of the beamline to facilitate Hbar extraction
- During installation, the mechanism got damaged (probably the ceramic ball bearings) and the MCP will not fully move out of the beamline
- Towards the end of the run the MCP front plate has been damaged
- The whole detector will have to be replaced
- Needs to be done as soon as possible, will take 2-3 weeks

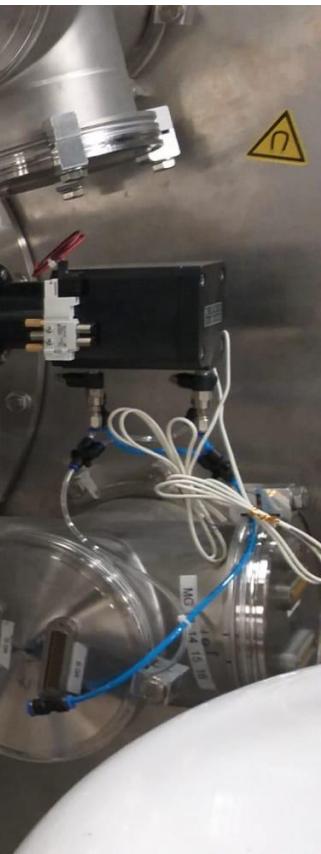
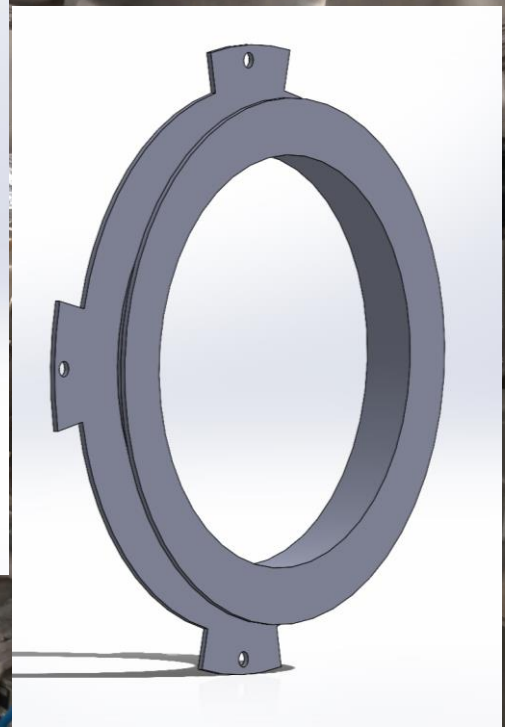
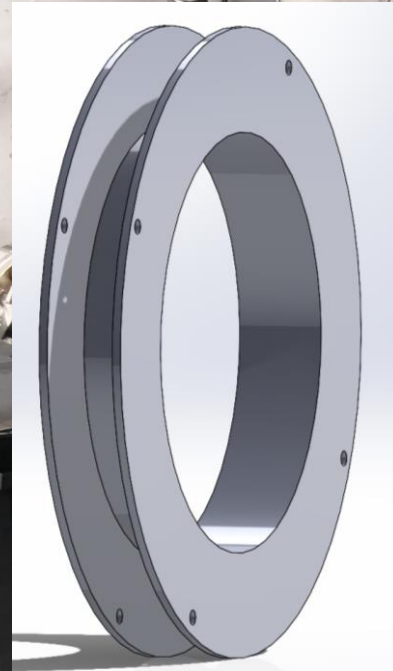
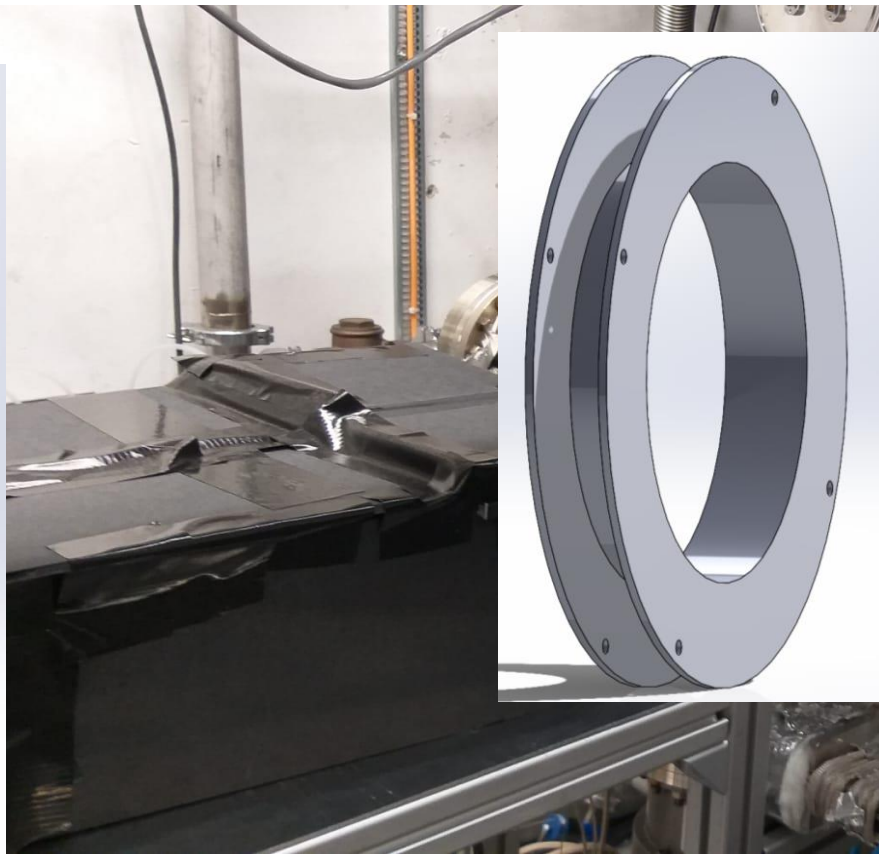
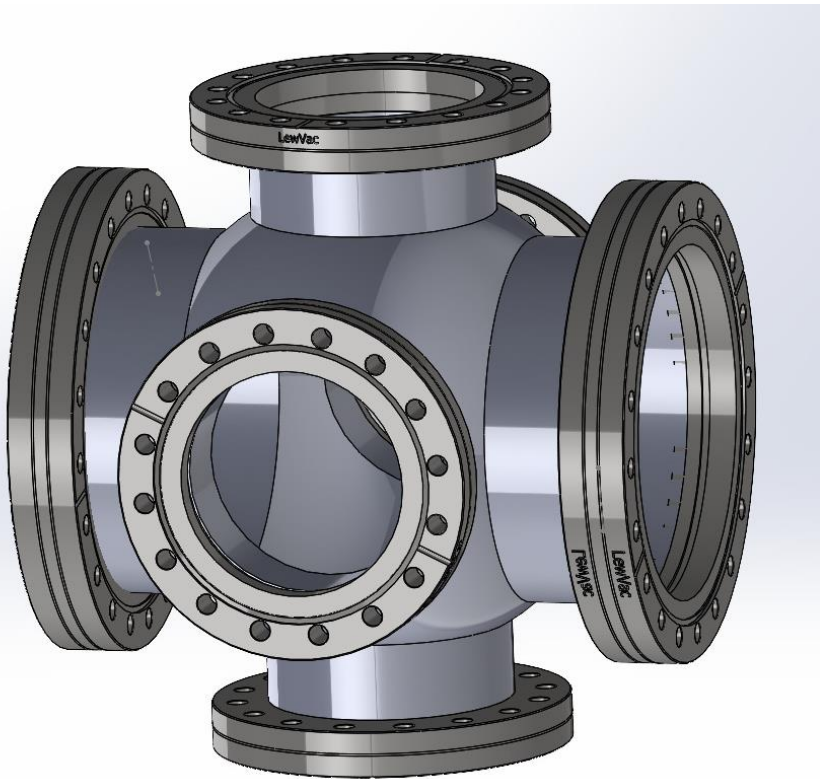


# Anion source at AEgIS

- We want to temporarily install the Borealis C<sub>2</sub><sup>-</sup> source at one of the Starship ports to test low- energy ion beam transport into the AEgIS experiment
- We are expecting I<sup>-</sup> source from Toruń
- Installation is not dependent on the state of the main apparatus, we should start as soon as possible
- An intervention of 2 weeks

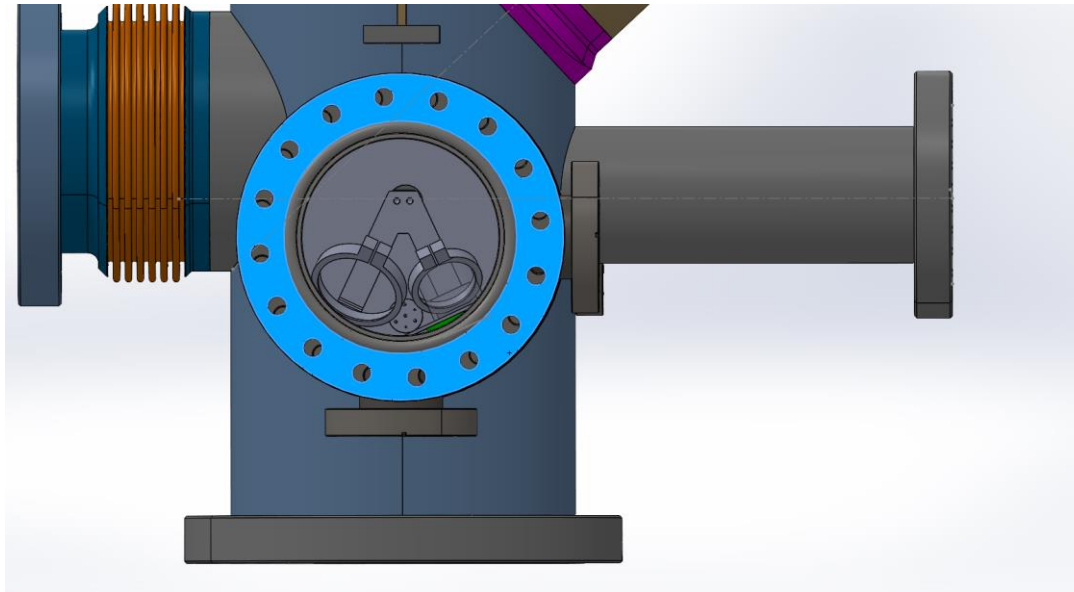
# Installation of the Anti-Sun

- A chamber on the 1T beamline that has a primary function to take out the 1T MCP signal
- We will need to manufacture and assemble the parts of the retractable mirror holder
- Can technically happen at any time, but since it involves setting up the camera better do it before the beamtime



# Rethinking of the Hedgehog diagnostics

- Replace the broken mirror and change the mirror holder
- Check the cabling on the MCP
- Since we loose beam via collision with the mirror holders, the whole concept needs to be reconsidered
- Conceptually easiest solution is to change geometry of the chamber





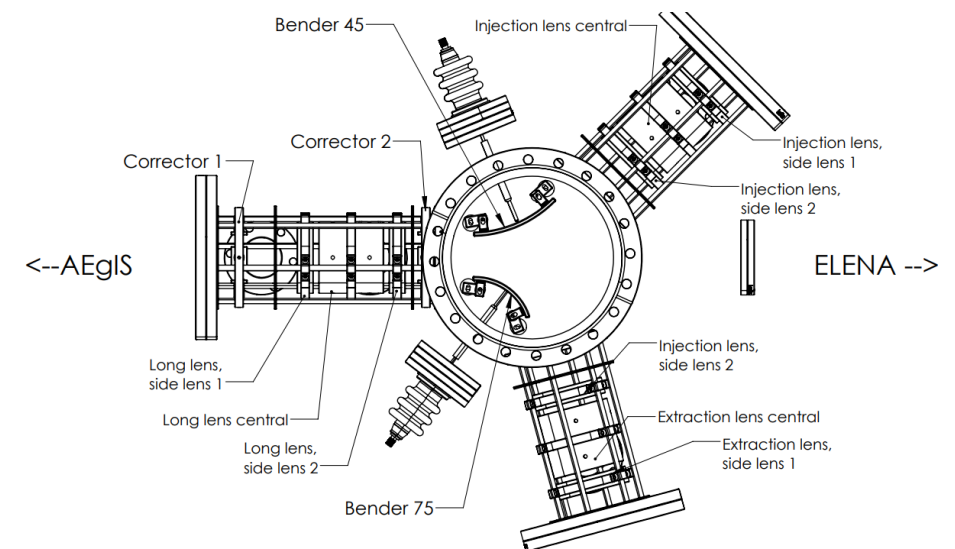
# New place for the Enviro electronics rack

- Moving the rack was necessary for facilitating Giovanni's extraction experiments
- Has been adopted as a temporary solution
- We will not get beam clearance if it won't change
- Safety Unit promised to help and co-finance more optimal distribution of the Enviro electronics



# New HV Ps for the injection/extraction line

- We are currently renting an EPool CAEN crate and 4 HV modules that allow us to power up Starship electrodes up to 6kV
- New standard CAEN crate and 15 kV modules (POS and NEG) are being purchased
- We should think about investing 12K in bi-polar remotely switchable modules for the corrector electrodes
- New crate should be installed on the electronics island with the magnet power supplies
- Starship needs to be re-cabled
- Intervention of 1-2 days



# Maintenance of the beamline equipment

- We had a near failure of TP3 (next to the ELENA GV) in the last week of beam. Its our only active TP during data taking, it needs to be serviced!
- TP2 (Sun) won't start any more, controller throws out an error. We have an identical pump with the same behavior- we could use it to pump the Anti-Sun.
- Borealis Backing Pump needs to be refurbished
- Vacuum gauge on the Hedgehog is not working any more (despite being brand new...)
- It would be good to repair/replace the stubborn GV at the Starship extraction port...