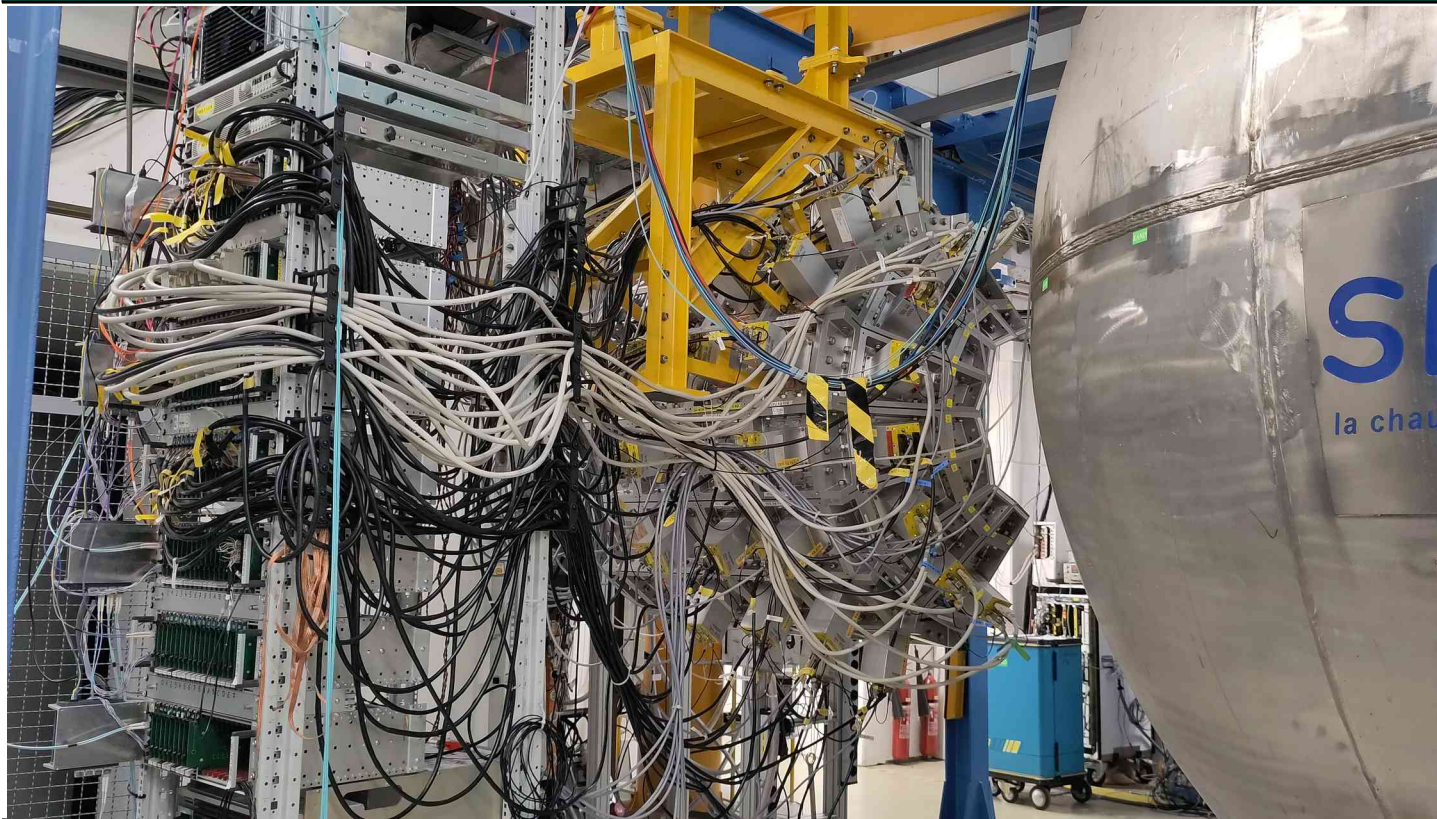


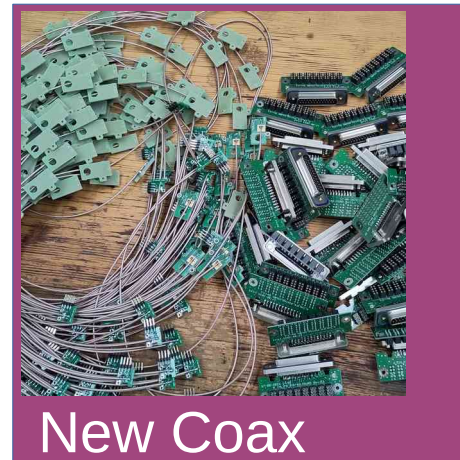
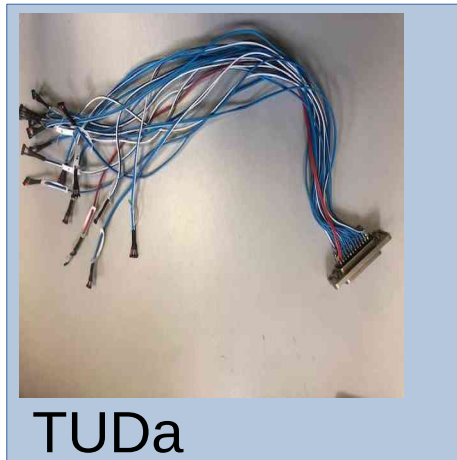
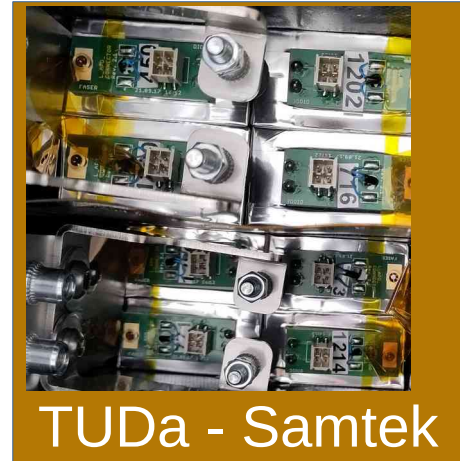
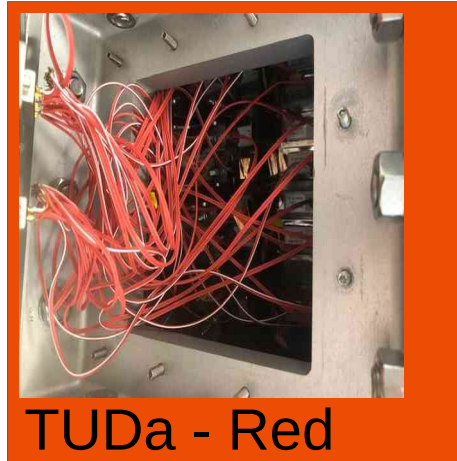
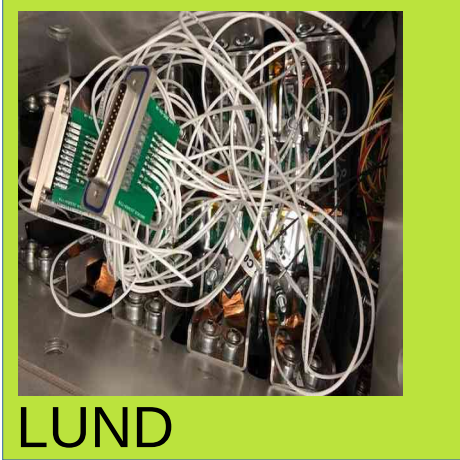
Status of CALIFA

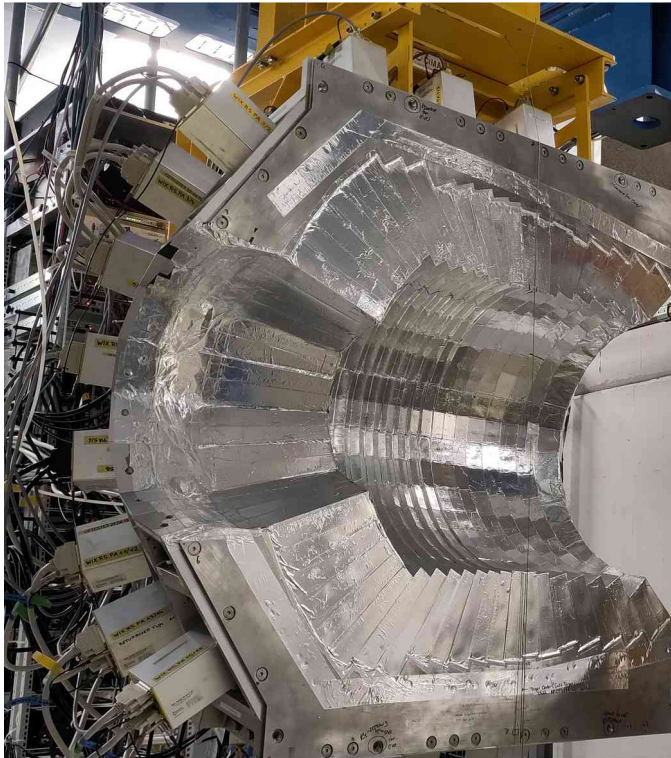


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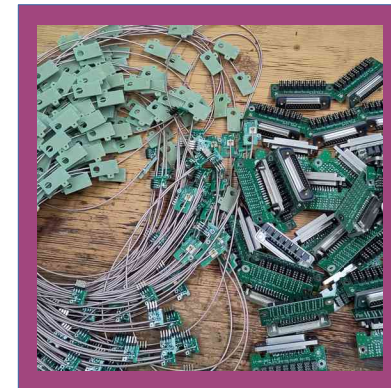
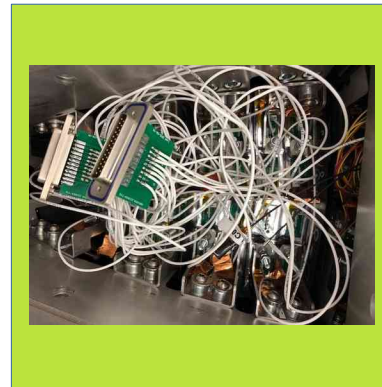


Cabling Status



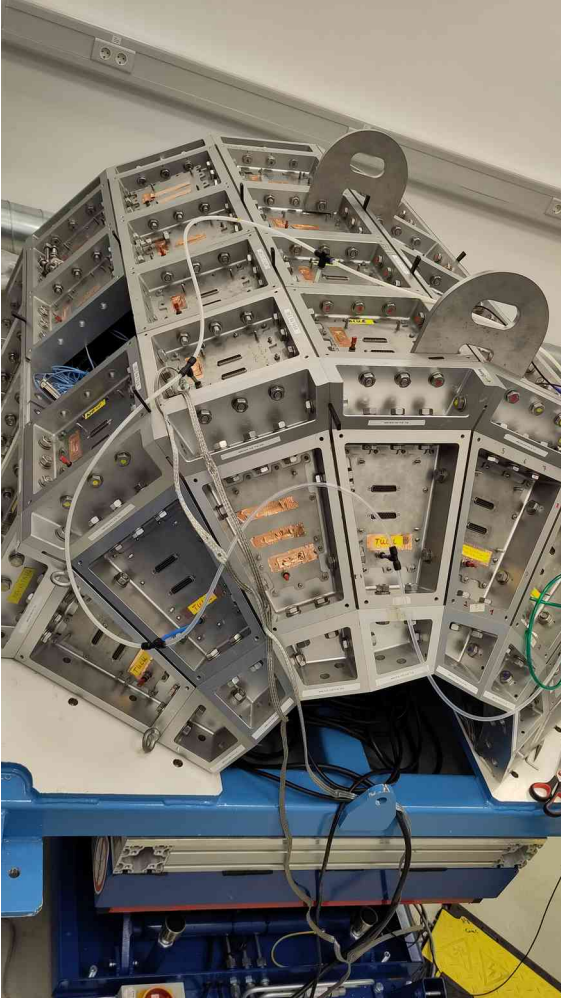


PA	R5/Iphos		R4		R3		R2/Backbarrel
16,15							
14,13							
12,11							
10,9							
8,7							
6,5							
4,3							
2,1							



- Debug 3 noisy channels
- Slow control
- Gain matching

Messel Half

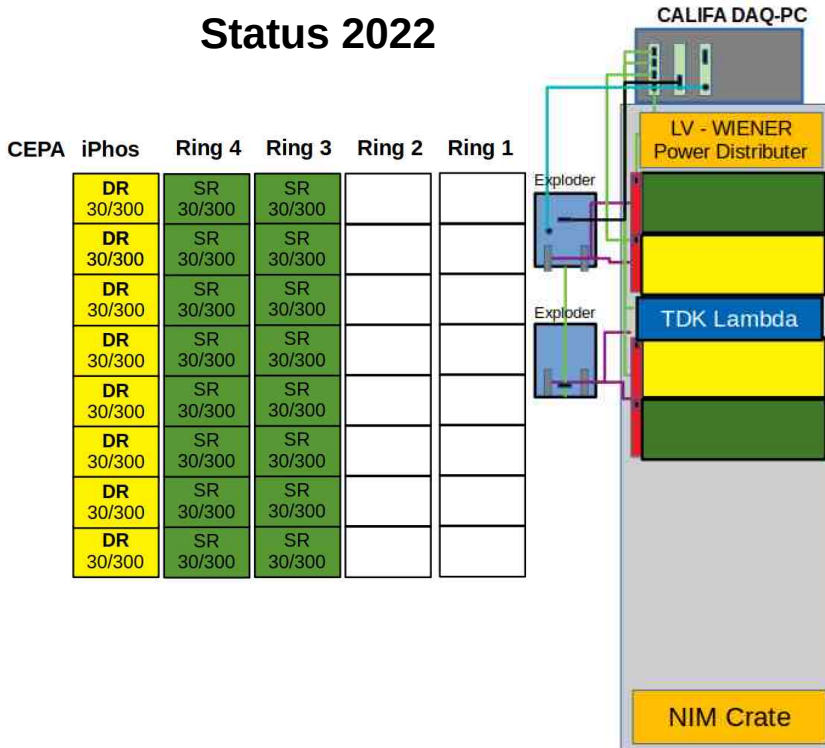


PA	R5/Iphos		R4		R3		R2/Backbarrel
2,1	Yellow	Yellow	Green	Green	Blue	Blue	Grey
4,3	Yellow	Yellow	Purple	Purple	Blue	Blue	Grey
6,5	Green	Yellow	Yellow	Blue	Green	Green	Grey
8,7	Yellow	Yellow	Blue	Blue	Blue	Blue	Grey
10,9	Green	Yellow	Purple	White	Blue	Blue	Grey
12,11	Yellow	Yellow	White	White	White	White	Grey
14,13	White	Yellow	Blue	Blue	Blue	Blue	Grey
16,15	Yellow	Yellow	Blue	Blue	Green	Green	Grey

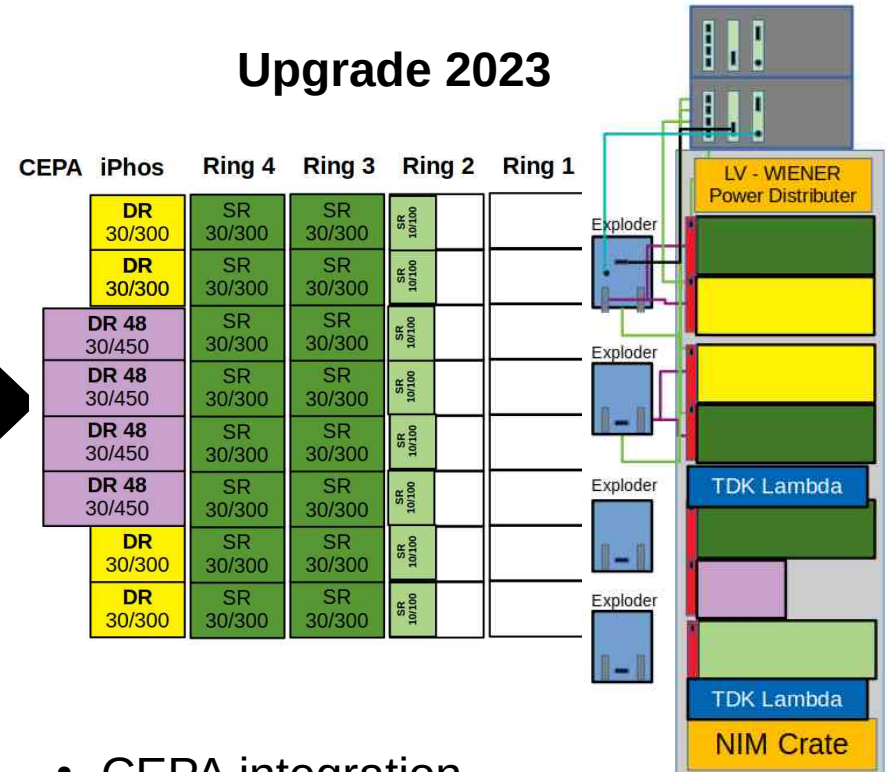
- Check APD to crystal connection
- Remount fingers
- Cabling
- Iphos: Still missing 3 crystals
- Back Barrel:
Mounting of crystals and cabling



Status 2022

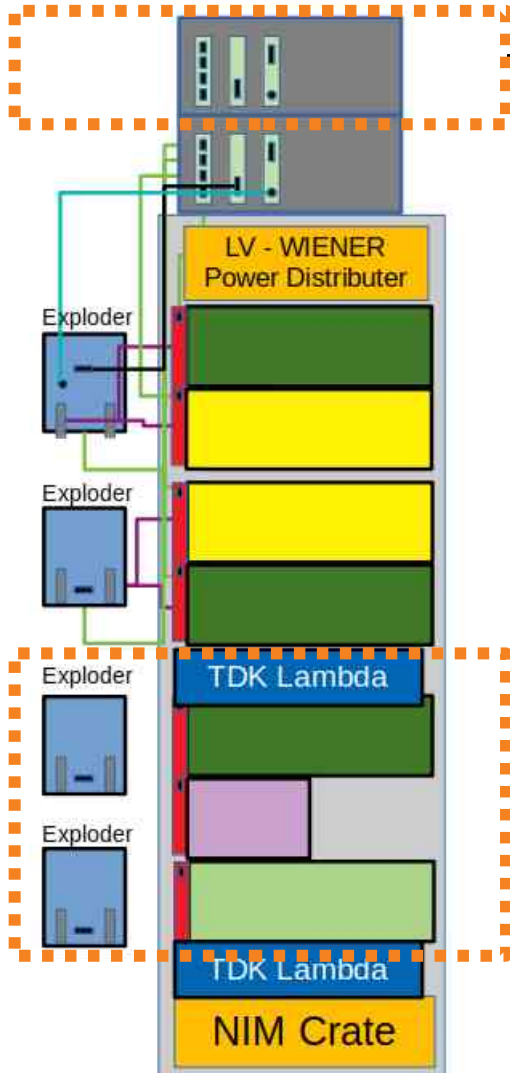


Upgrade 2023



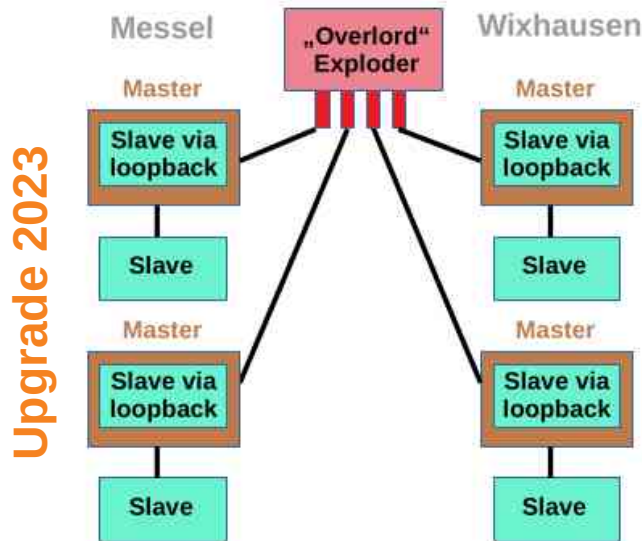
- CEPA integration
- first backward part





- All electronic components are mounted & cabling is done
- Final test of the full DAQ is needed

Exploder Architecture



- with this configuration same time synchronization for all crates
- 9 exploders (4 per side + „Overlord Exploder“)
- no spare SFP I/O on „Overlord“ exploder

Wixhausen side

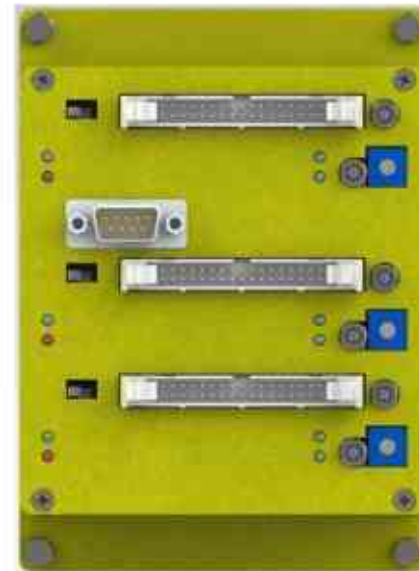
CEPA iPhos Ring 4 Ring 3 Ring 2 Ring 1

DR 30/300	SR 30/300	SR 30/300	SR 10/100		
DR 30/300	SR 30/300	SR 30/300	SR 10/100		
DR 48 30/450	SR 30/300	SR 30/300	SR 10/100		
DR 48 30/450	SR 30/300	SR 30/300	SR 30/300		
DR 48 30/450	SR 30/300	SR 30/300	SR 30/300		
DR 48 30/450	SR 30/300	SR 30/300	SR 30/300		
DR 30/300	SR 30/300	SR 30/300	SR 30/300		
DR 30/300	SR 30/300	SR 30/300	SR 30/300		

- current status: bricolage
- we need 16 x SR 10/100 preamplifiers

Status of 48 CH DR low noise 3/45pC PA

They get mounted on iPhos tiles



Connected to iPhos APDs (32 channels)

Connected to CEPA APDs (16 channels)

- will be delivered until end of the year
- 3/45pC extension
- more current in input FET improve S/N ratio



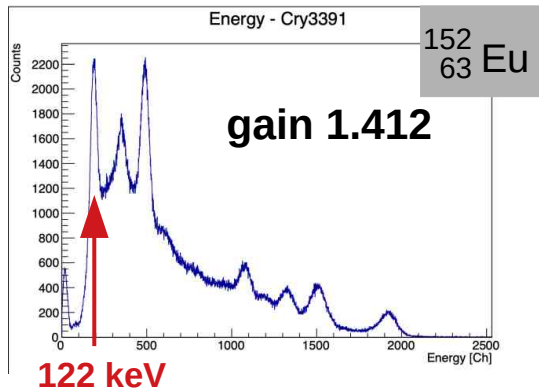
S/N improvements with DR Low Noise 3/45pC Preamplifiers

In S509 Experiment we had high thresholds (~ 250 keV):

- bad addback
- loss of efficiency for $E < E_{thr}$

Gain Optimization:

Stefan Eder's talk in R³B Week in Budapest

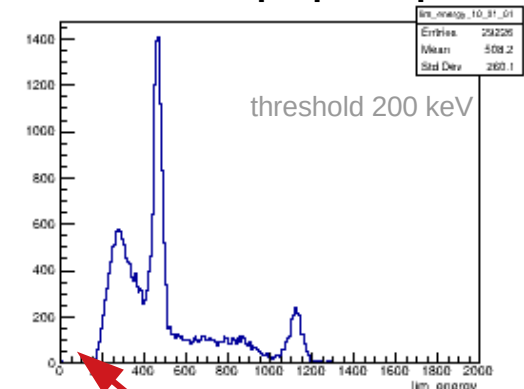
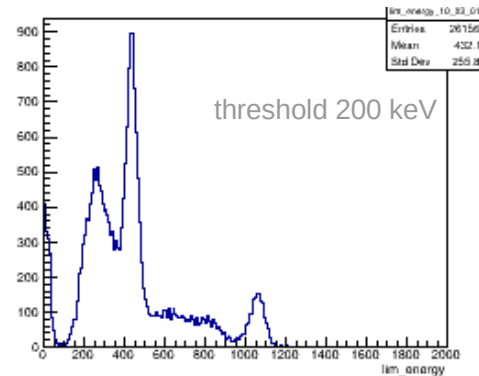


larger APD gain – constant electronic noise
gain \sim S/N

Noise Optimization by Mesytec:

more current in input FET improve S/N ratio

reference preamplifier low noise DR 3/45pC preamplifier



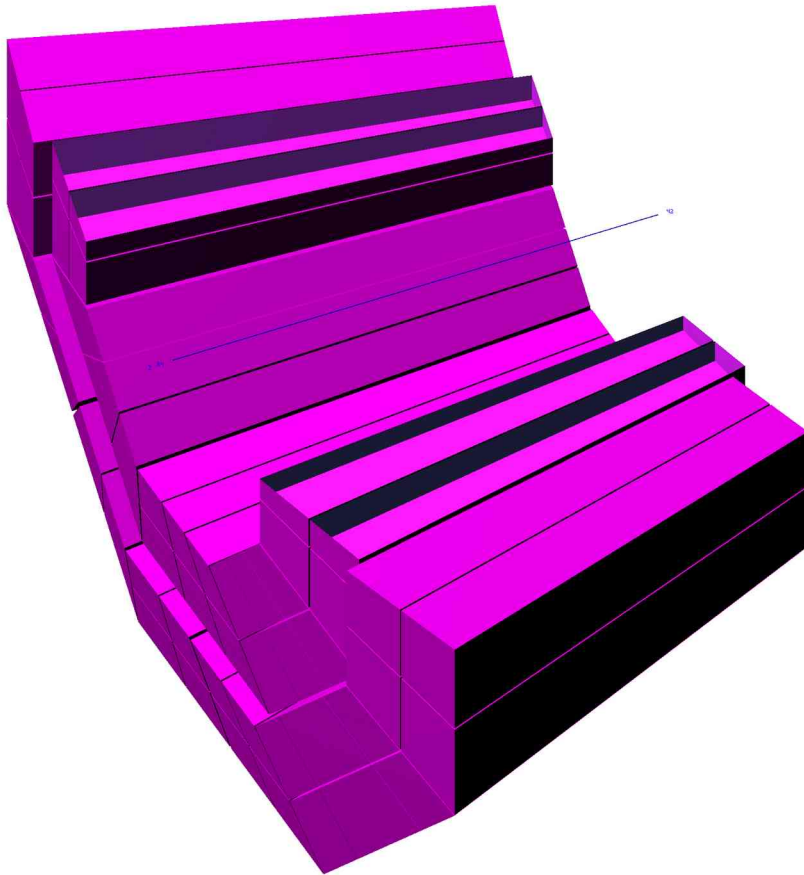
efficient noise reduction

Preamplifier ranges need to be adjusted:

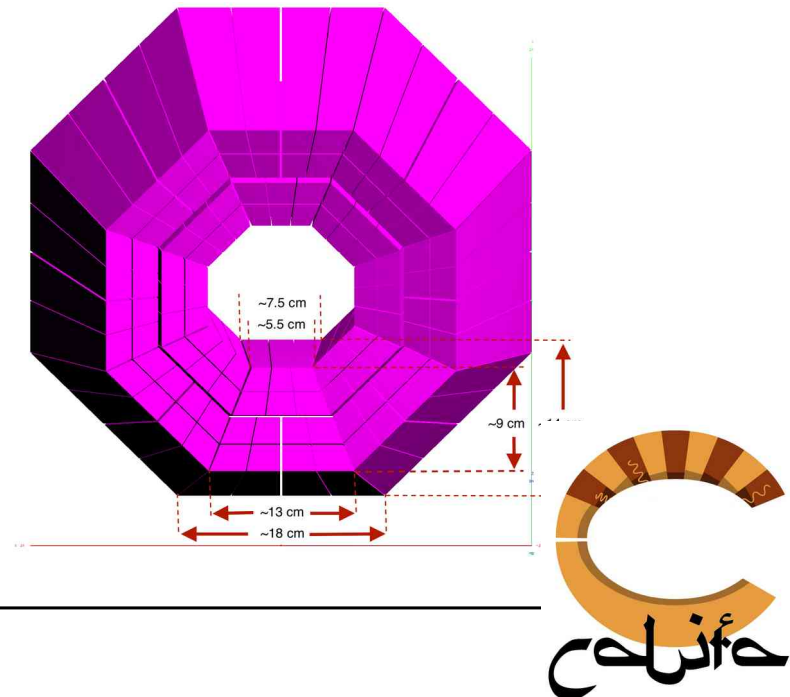
- 3/45pC dual range preamplifiers cover full range up to 300 MeV



CEPA-CsI Status: CEPA-CsI design reminder

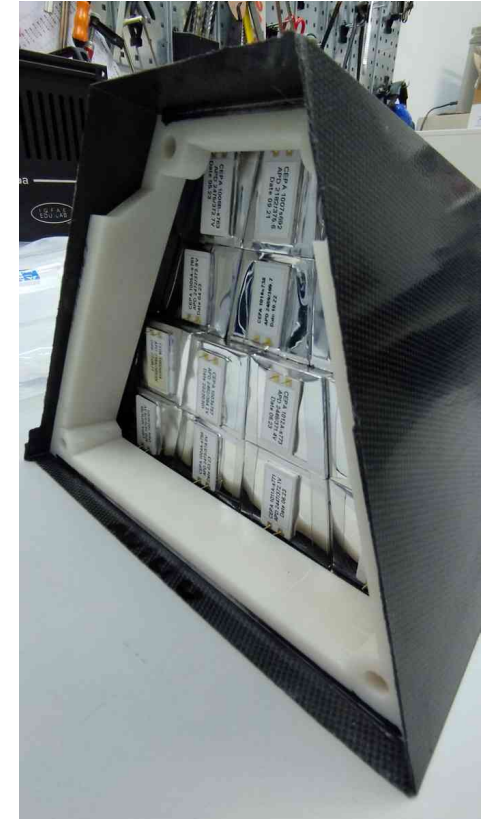


- CsI[Tl] + LAAPD concept, 8 sectors.
- 20 cm long CsI[Tl] crystals.
- 14 different crystal models per sector.
- Total of $14 \times 8 = 112$ crystals.
- Covers polar angles from around 7° to 20° .



CEPA-CsI Status: CEPA-CsI crystals

- All (14 x 89 = 112) crystals received at USC. Ongoing final tests:
 - 7 out of tolerances, under repairing. At least 2 more require treatment (December 23). 7 units (later reception) to be tested.
- Single alveolus per sector with 14 crystals.



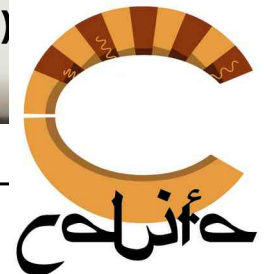
CEPA-Csl alveoli and support



Upper space seems to be enough for the new PCBs



The final piece will include some space in the ring to better accommodate the PCBs (in the photo we used old PCB models)



Summary

- Wixhausen half in the cave:
All channels alive and connected to DAQ
- Messel half in the preparation room
Ongoing work on cabling and mechanics
➔ Remount **27th of November**
- Cepa
All crystals received, tests ongoing
Mechanical structure in development
Preamps delivered end of the year
➔ Cepa delivery in **January 2024**

Thank you for your attention!