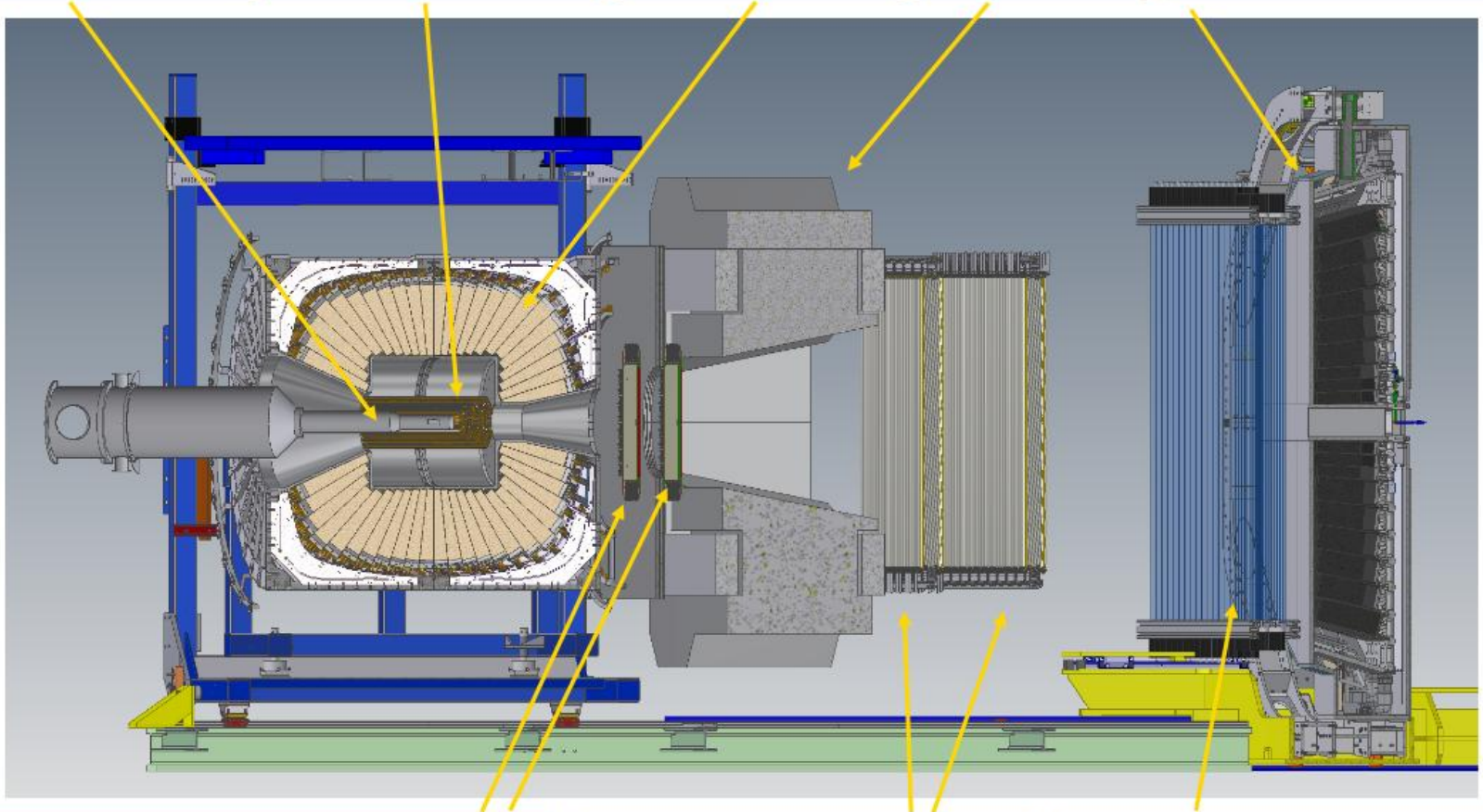
The PANDA-FWEC electromagnetic calorimeter

color meets flavor

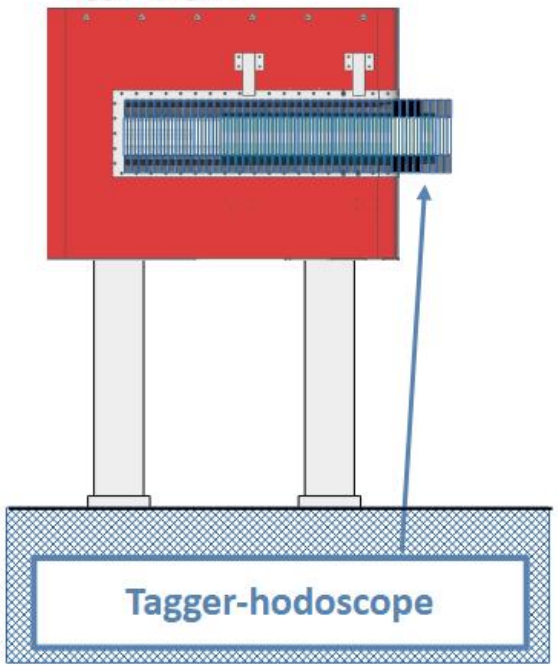
@ELSA INSIGHT

Investigation of the strong interaction in the light flavor sector

Polarized target | Si-pixel detector | Crystal Barrel | Magnet | PANDA-FWEC-EMC



Tagger Magnet



Tagger-hodoscope

Gas Electron Multiplier detectors

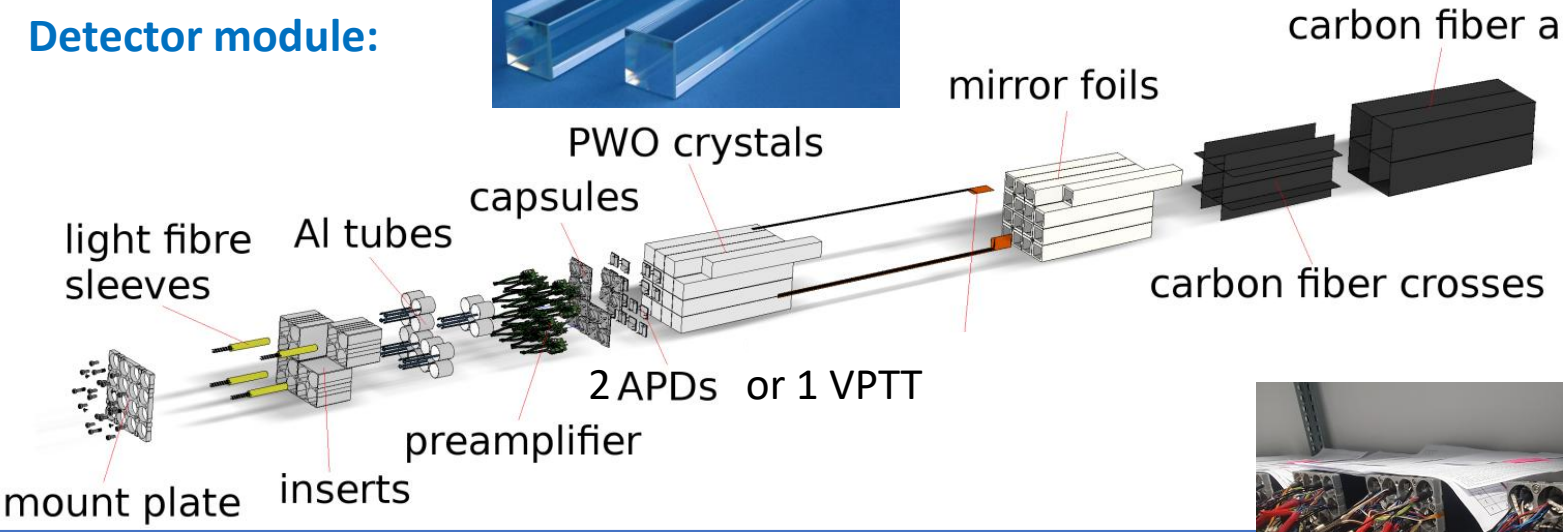
Straw tube detectors

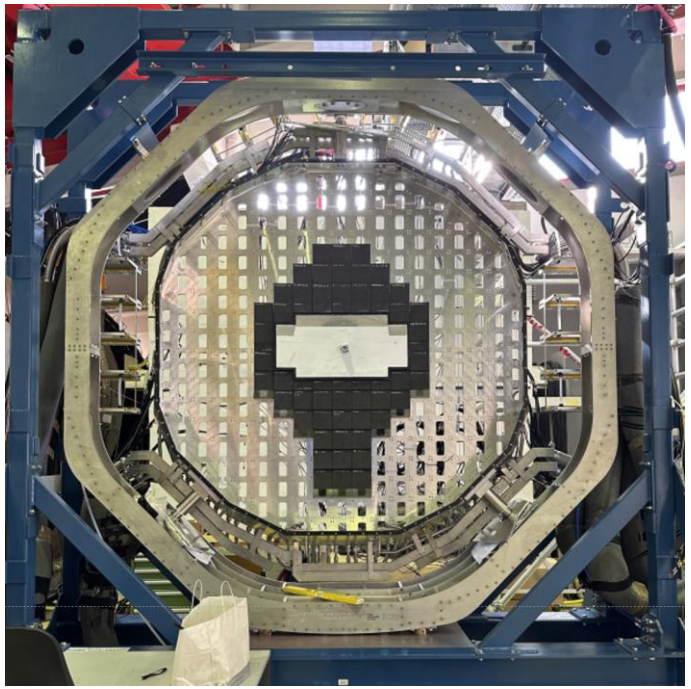
Time of Flight detector

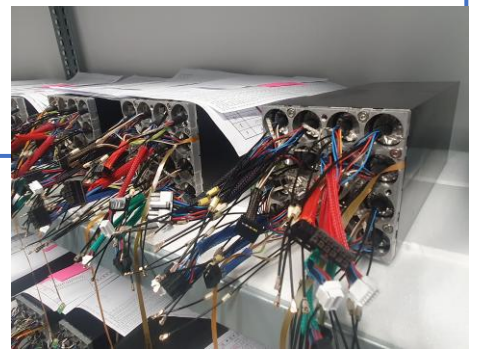
The PANDA-FWEC electromagnetic calorimeter

- **3856 $PbWO_4$ crystals, length: 20 cm**
- **Energy resolution: $\sim 3\%$ at 1GeV**

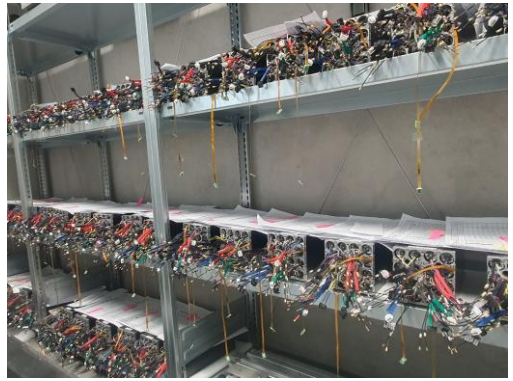
Detector module:







at the FTD

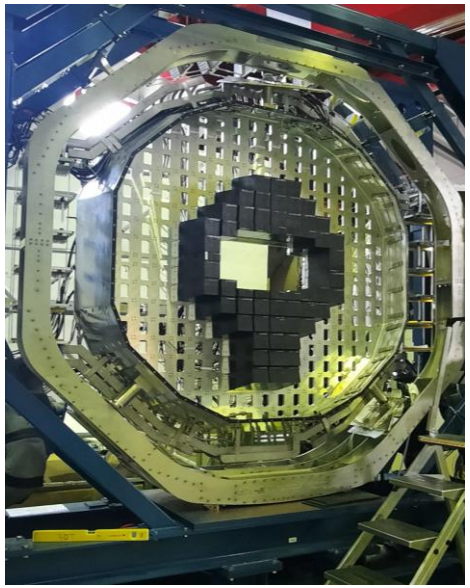


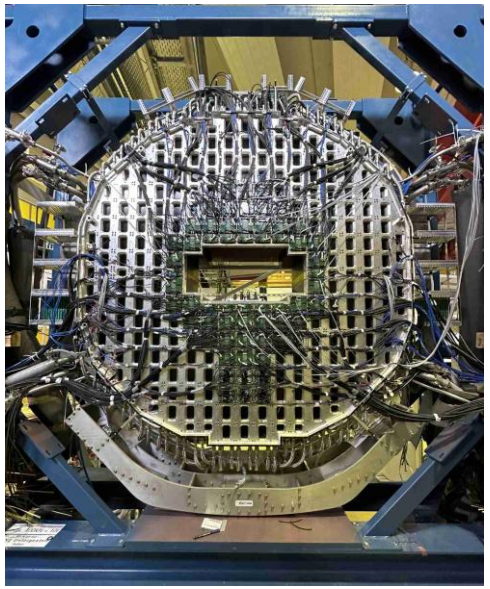
Presently:

- **20% of the FWEC assembled**

The PANDA-FWEC electromagnetic calorimeter

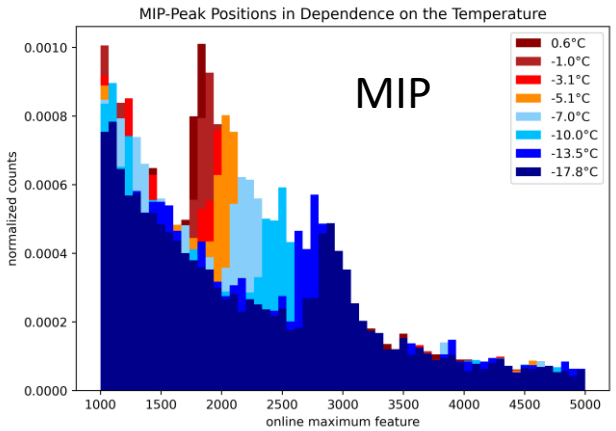
- **A first very successful test at COSY at -25°C**



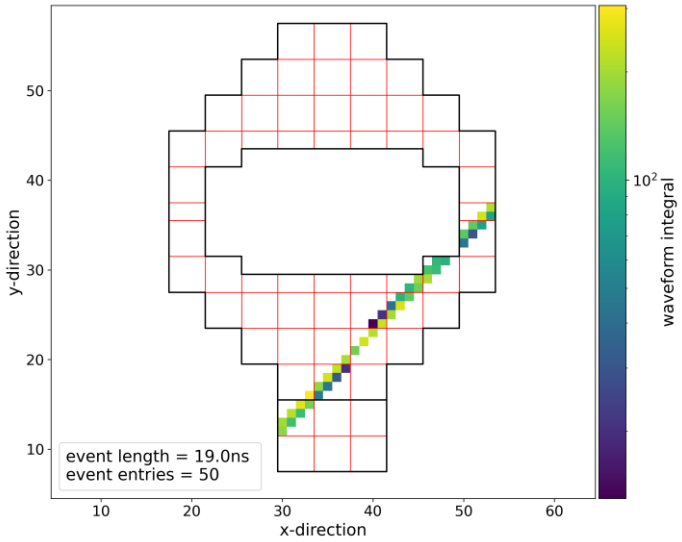


During cool-down

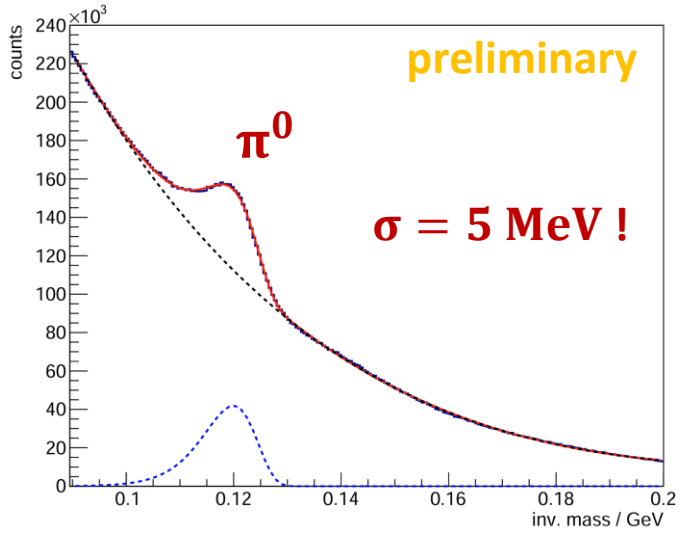
Light yield increases as expected



Cosmics in the FWEC

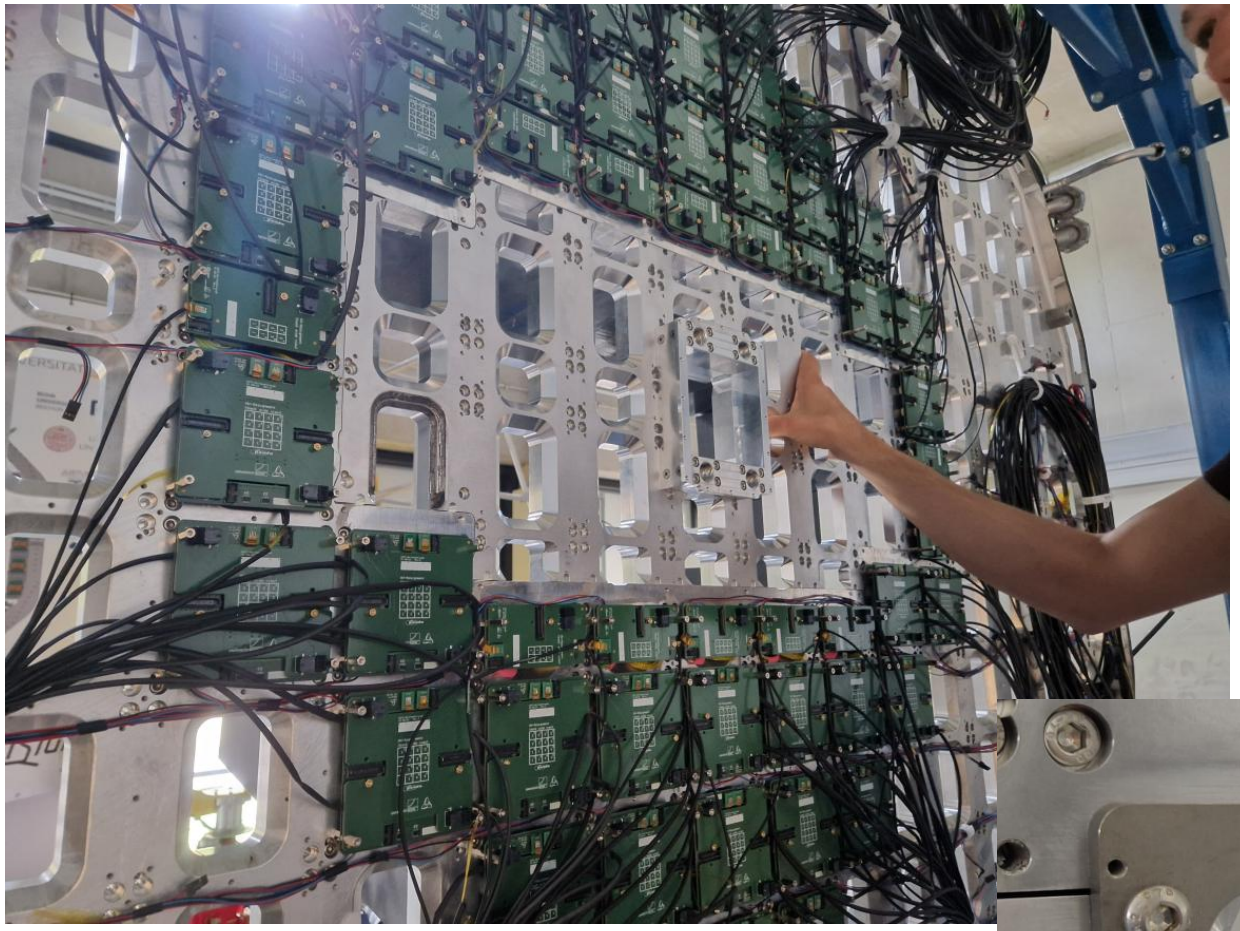


2.74 GeV/c p-beam on plastic



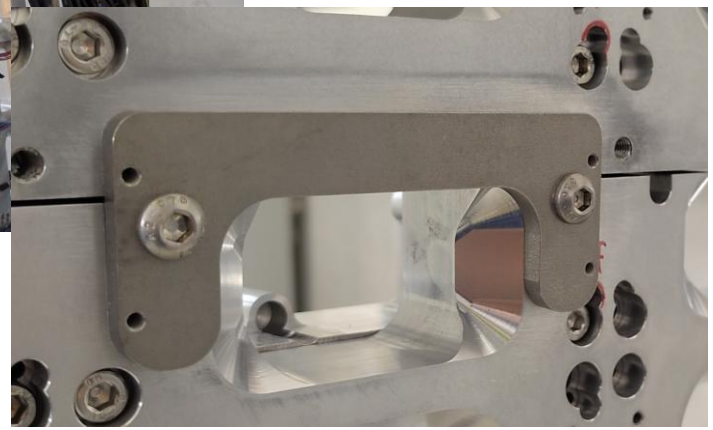
The FWEC electromagnetic calorimeter @ INSIGHT

For ELSA: A plug needed to close the forward hole down to 1°

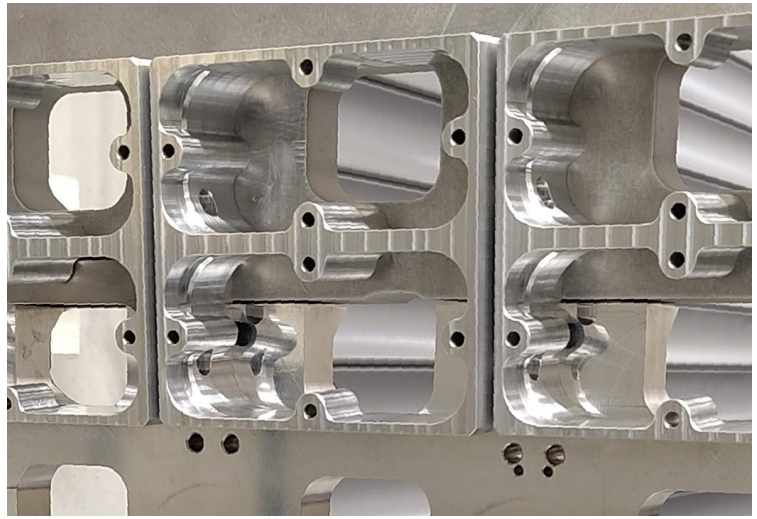


- Design/ prototype ready

Steel brackets



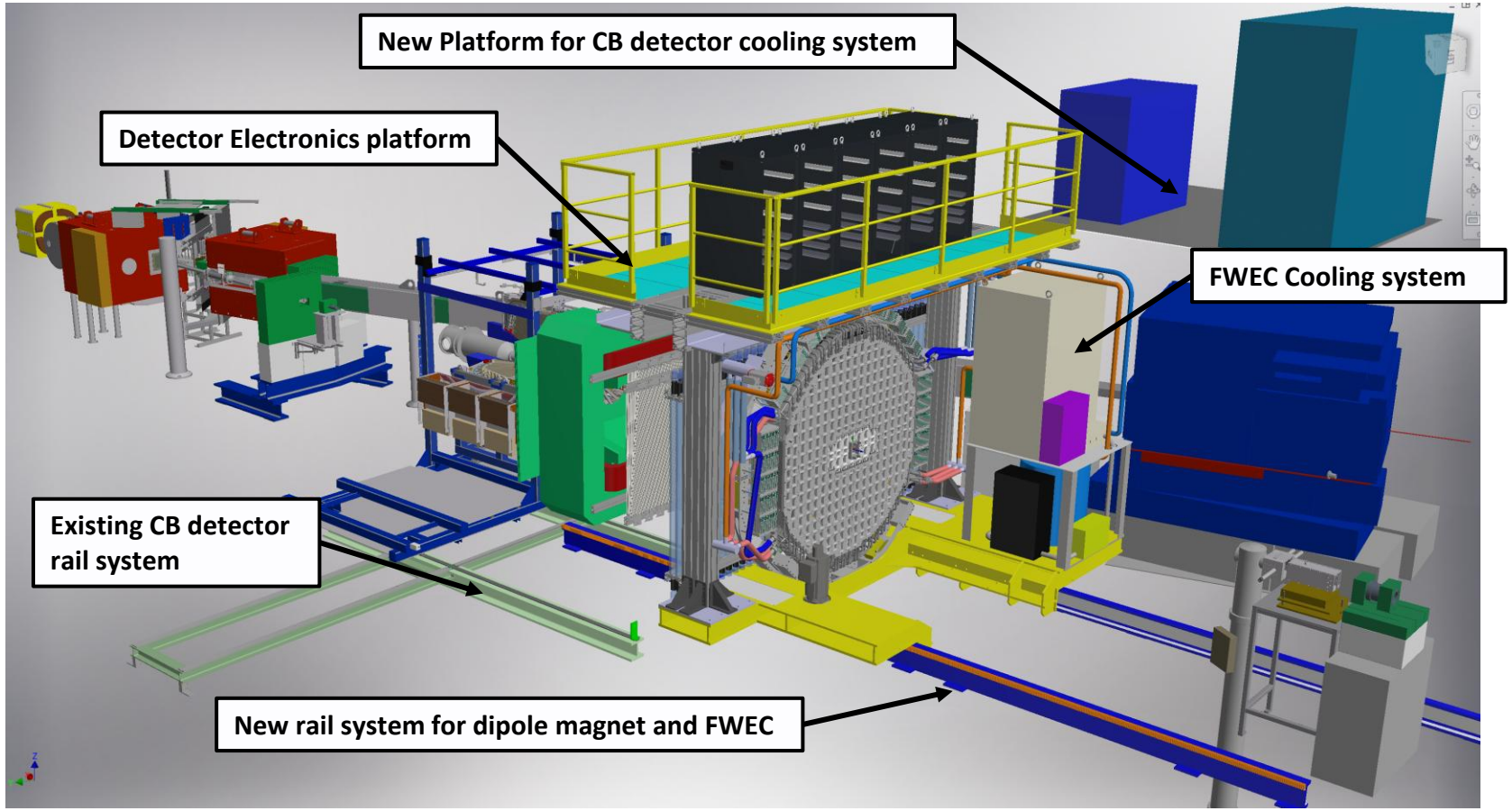
special interfaces

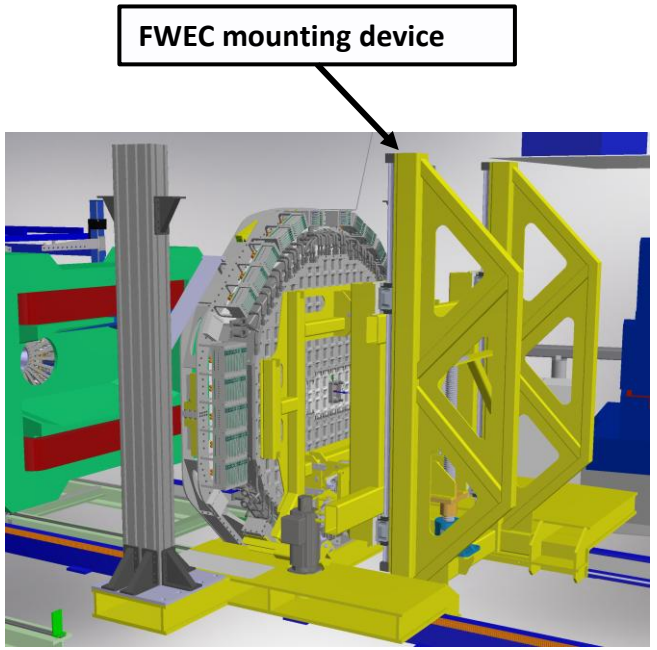


Preliminary planning experimental hall / FWEC setup at ELSA

color meets flavor

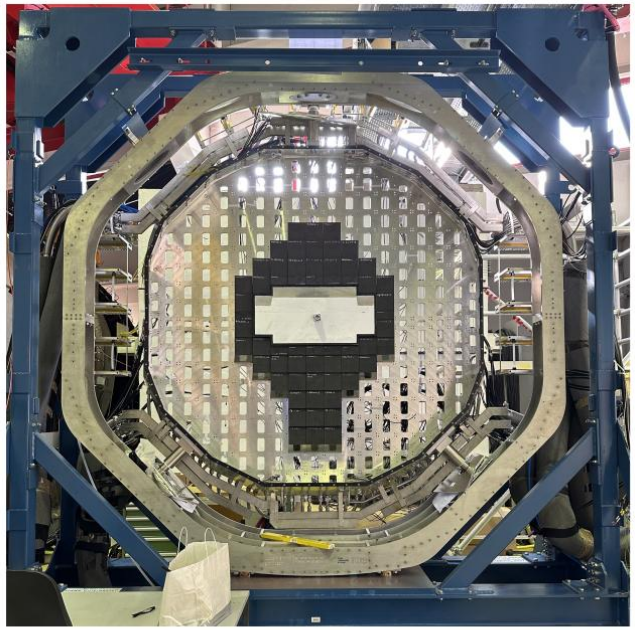
How it could look like (preliminary) ….

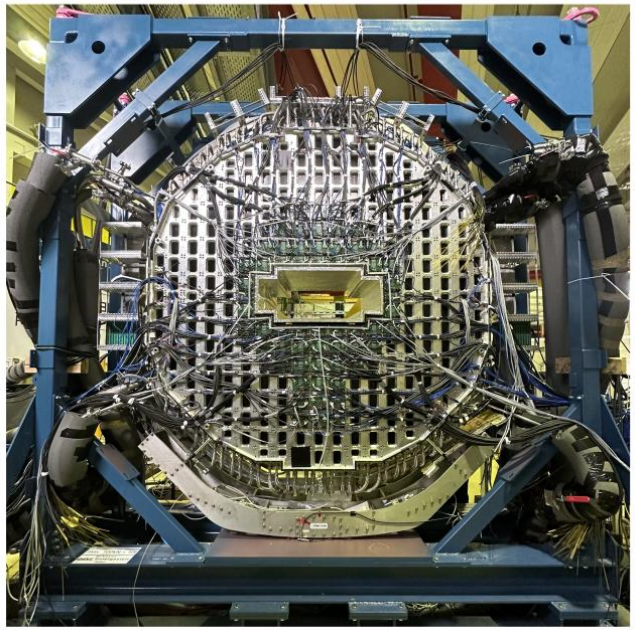


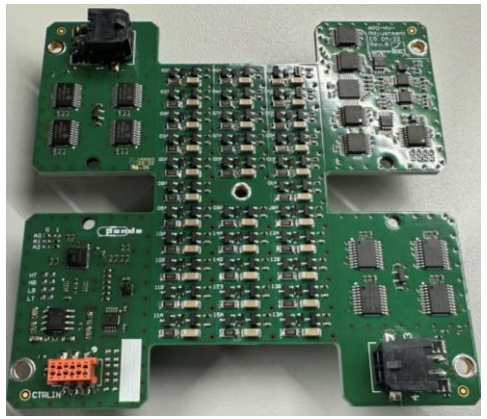


FWEC: 6.2t ⇔ needs to be movable – repolarisation of the target

To-Do‘s : PANDA-FWEC electromagnetic calorimeter





- Equipped with 20% of the crystals
- 
  - All patch panel-, HV-boards, and cables produced and tested
  - APD HV-adjustment boards still need to be calibrated

Main To-Do‘s:

- Finish setting-up + testing FWEC
- HV-board calibrations
- Installation in the hall – infrastructure / mechanics / cooling / insulation
- SADC – feature extraction
- Detector control system (whole experiment)

⇔ **man power issue**

Main problematic issue:

- Cooling of the FWEC at ELSA